



रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS  
सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



# RRB Group D 2019

Level-1 Posts | CEN RRC 01/2019

## ENGLISH ANSWER KEY

### Official Answer Key

All 98 Shifts · 17-08-2022 to 11-10-2022

|           |                                              |
|-----------|----------------------------------------------|
| Questions | 100                                          |
| Marking   | +1 correct / -1/3 wrong                      |
| Duration  | 90 minutes                                   |
| Sections  | Maths 25 · Reasoning 30 · Science 25 · GA 20 |

Every paper is set out as the official RRB response sheet, from its original question images, with the official answer key marked. No candidate details are included.

Questions in the official section order; options in RRB's own order. 36 dropped questions printed with RRB's note and no tick. Final-key revisions marked (12). English paper saved for 98 of the 99 shifts; not saved: 26-08-2022 12:45 PM - 2:15 PM (see the Hindi book). 17 shifts miss 149 questions in all (saved only in the other language), e.g. 30-08-2022 12:45 PM 33/100, 17-08-2022 12:45 PM 74/100.

#### HOW TO USE THIS BOOK

- 1 Open the INDEX on the next page.
- 2 Click any row to jump straight to that date and shift.
- 3 The correct option is ticked in green; the other options are crossed in red.
- 4 Use the bookmarks panel of your PDF reader to move between shifts.

## Blackbook

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Compiled 31 October 2026

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सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 17/08/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** If  $x + y + z = 11$  and  $xy + yz + zx = 42$ , then the value of  $x^2 + y^2 + z^2$  is:

**Ans** ☒ A. 37

☐ B. 39

☐ C. 41

☐ D. 43

**Q.2** P and Q alone can complete a piece of work in 9 days and 12 days, respectively. In how many days will the work be completed if they work on alternate days starting with Q?

**Ans** ☒ A.  $10\frac{1}{3}$

☐ B.  $10\frac{5}{6}$

☐ C.  $11\frac{1}{3}$

☐ D.  $11\frac{5}{6}$

**Q.3** Srinivas has just got married to a girl who is 4 years younger than him. After 5 years their average age will be 33 years. Find the present age of the girl.

**Ans** ☐ A. 30 years

☒ B. 26 years

☐ C. 31 years

☐ D. 35 years

**Q.4** The greatest possible length which can be used to measure exactly the lengths 5 m 25 cm, 7 m 35 cm and 4 m 90 cm is:

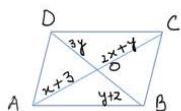
**Ans** ☒ A. 35 cm

☐ B. 45 cm

☐ C. 25 cm

☐ D. 55 cm

- Q.5** Find  $x$  if ABCD is a parallelogram as given in figure below, with two diagonals AC and BD intersecting at O and  $OA = x + 3$ ,  $OB = y + 2$ ,  $OC = 2x + y$ ,  $OD = 3y$



- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

- Q.6** The average speed of Gaurav during a two-way journey is 15 km/h. If he walked a distance of 20 km every hour while going, then his speed while returning will be:

- Ans**
- ☒ A. 10 km/h
  - ☒ B. 15 km/h
  - ☒ C. 12 km/h
  - ☒ D. 11 km/h

- Q.7** The roots of the equation  $ax^2 + x + b = 0$  are equal if:

- Ans**
- ☒ A.  $b^2 = 4a$
  - ☒ B.  $b^2 < 4a$
  - ☒ C.  $b^2 > 4a$
  - ☒ D.  $ab = \frac{1}{4}$

- Q.8** Which is a quadratic equation?

A.)  $b - \sqrt{3} + 2b - \sqrt{32} = 0$

B.)  $(x - 4x^2 + 5) + \sqrt{3}x + 8 = 0$

C.)  $(p - q)^2 - q^3 + 2pq - \sqrt{p} = -3$

D.)  $(x + 3)^{\frac{1}{2}} = 0$

- Ans**
- ☒ A. A
  - ☒ B. B
  - ☒ C. C
  - ☒ D. D

- Q.9** 20 women can complete a work in 15 days. 16 men can complete the same work in 15 days. Find the ratio between the work efficiency of a men to a women.

- Ans**
- ☒ A. 3: 2
  - ☒ B. 4: 3
  - ☒ C. 5: 4
  - ☒ D. 5: 3

**Q.10** John bought a laptop at 25% discount on the marked price. If he paid ₹28,473 for the laptop, what was its marked price?

- Ans**
- ☒ A. ₹37,694
  - ☒ B. ₹37,964
  - ☒ C. ₹37,496
  - ☒ D. ₹37,946

**Q.11** A water tank is in the form of a cube of side 2 m. It has an inlet in the shape of a circle with radius 3.5 cm. How long will it take to fill the tank (approximately), if the water is flowing at a speed of 2 m/s?

- Ans**
- ☒ A. 22 minutes
  - ☒ B. 19.2 minutes
  - ☒ C. 17.3 minutes
  - ☒ D. 1 hour

**Q.12** One year ago, the ratio of the ages of Saketh and Tilak was 5 : 6, respectively. Four years hence, this ratio would become 6 : 7. The present age of Saketh is:

- Ans**
- ☒ A. 26 years
  - ☒ B. 30 years
  - ☒ C. 25 years
  - ☒ D. 31 years

**Q.13** Express  $\sin \theta$  in terms of  $\cot \theta$ , where  $\theta$  is an acute angle.

- Ans**
- ☒ A.  $\frac{1}{\sqrt{1 + \cot^2 \theta}}$
  - ☒ B.  $\frac{1}{1 + \cot^2 \theta}$
  - ☒ C.  $1 + \cot^2 \theta$
  - ☒ D.  $\sqrt{1 + \cot^2 \theta}$

**Q.14** The value of  $0.6 + (\sqrt{0.81} - (\sqrt{0.0144} + 0.4 \div 0.5))$  is:

- Ans**
- ☒ A. 0.58
  - ☒ B. 0.62
  - ☒ C. 0.78
  - ☒ D. 0.82

**Q.15** X and Y are two alloys of Gold and Platinum prepared by mixing the metals in the ratio of 5: 2 and 5: 7, respectively. If we melt equal quantities of the alloys to form a third alloy Z, then the ratio of the quantity of Gold to the quantity of Platinum in Z will be:

- Ans**
- ☒ A. 73: 95
  - ☒ B. 95: 73
  - ☒ C. 84: 73
  - ☒ D. 95: 84

**Q.16** If 6, 18, 39, and x are in proportion, then find the value of x.

- Ans**
- ☒ A. 139
  - ☒ B. 117
  - ☒ C. 112
  - ☒ D. 115

**Q.17** If the perimeter of one face of a cube is 24 cm, then its volume is:

- Ans**
- ✓ A.  $216 \text{ cm}^3$
  - ✗ B.  $200 \text{ cm}^3$
  - ✗ C.  $180 \text{ cm}^3$
  - ✗ D.  $154 \text{ cm}^3$

**Q.18** The average of 11 numbers arranged in an order is 41. The average of the first five numbers is 18 and that of the last five numbers is 64. What is the sixth number?

- Ans**
- ✓ A. 41
  - ✗ B. 45
  - ✗ C. 55
  - ✗ D. 64

**Q.19** The ages of two persons differ by 30 years. If 5 years ago, the elder one was 3 times as old as the younger one, then the present age of the younger person is:

- Ans**
- ✓ A. 20 years
  - ✗ B. 30 years
  - ✗ C. 25 years
  - ✗ D. 35 years

**Q.20** Find the simple interest on ₹2,000 at 8.25% per annum for the period from 7 February 2022 to 20 April 2022.

- Ans**
- ✗ A. ₹35
  - ✓ B. ₹33
  - ✗ C. ₹31
  - ✗ D. ₹37

**Q.21** If the cost price of an article is ₹2,500 and its selling price is ₹2,375, then the loss percentage is:

- Ans**
- ✗ A. 3%
  - ✗ B. 4%
  - ✓ C. 5%
  - ✗ D. 6%

**Q.22** The value of

$$27 \div 3 - 27 \times 0 + 1 =$$

- Ans**
- ✗ A. -18
  - ✗ B. 12
  - ✓ C. 10
  - ✗ D. 13

**Q.23** In  $\triangle ABC$  if  $\angle A = 40^\circ$  and  $\angle B = 70^\circ$ , find the measure of exterior angle A.

- Ans**
- ✗ A.  $110^\circ$
  - ✓ B.  $140^\circ$
  - ✗ C.  $30^\circ$
  - ✗ D.  $70^\circ$

Q.24 Convert 36 cm to km.

- Ans
- ☒ A. 0.0036 km
  - ☒ B. 0.00036 km
  - ☒ C. 0.00063 km
  - ☒ D. 0.000036 km

Q.25 If the sum of two numbers is 430 and their HCF is 43, then which of the following is the correct pair?

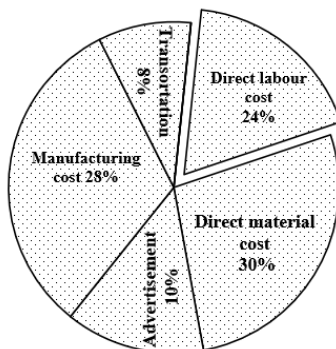
- Ans
- ☒ A. 86, 344
  - ☒ B. 129, 301
  - ☒ C. 172, 258
  - ☒ D. 215, 215

Section : General Intelligence and Reasoning

Q.26 E, F, G, H, I, J and K are sitting in a straight row, facing north. H is second to the right of G. F and K are immediate neighbours. Both F and E are immediate neighbours of I. H and E are immediate neighbours. K is at the extreme right end of the row. J is at the immediate left of H. Who is at the immediate left of J?

- Ans
- ☒ A. G
  - ☒ B. H
  - ☒ C. F
  - ☒ D. E

Q.27 The following pie chart shows the percentage distribution of the expenditure incurred in manufacturing a scientific calculator. Study the pie chart and answer the question.



If 500 products are manufactured and the direct labour cost on them amounts to ₹1,00,000, then what should be the selling price of the product so that the manufacturer can earn a profit of 44%?

- Ans
- ☒ A. ₹1,500
  - ☒ B. ₹1,000
  - ☒ C. ₹1,200
  - ☒ D. ₹600

Q.28 Which of the following options is the closest approximate value which will come in place of question mark (?) in the following equation?

$$25.19 \times 3 + 4.41 - 0.9 = ?$$

- Ans
- ☒ A. 62
  - ☒ B. 78
  - ☒ C. 95
  - ☒ D. 100



**Q.29** In a certain code language, 'MFBTF' is written as 'LEASE' and 'UNISE' is written as 'TMHRD'. How will 'TRICK' be written in that language?

- Ans**
- ☒ A. USDJL
  - ☒ B. SSHJB
  - ☒ C. USJDL
  - ☒ D. SQHBJ

**Q.30** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

10 : 55 :: 12 : 65 :: 18 : ?

- Ans**
- ☒ A. 85
  - ☒ B. 92
  - ☒ C. 95
  - ☒ D. 90

**Q.31** Which of the following terms will replace the question mark (?) in the given series to make it logically complete ?

S2L, P6N, M18P, J54R, G162T, ?

- Ans**
- ☒ A. D486V
  - ☒ B. D324V
  - ☒ C. E486V
  - ☒ D. D386V

**Q.32** Three statements are followed by three conclusions numbered I, II and III. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts, and decide which of the given conclusions logically follow/s from the given statements.

Statements:

All pans are pens.

All pens are brushes.

All brushes are tables.

Conclusions:

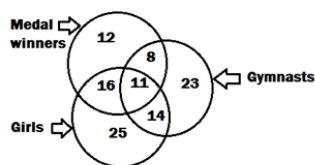
(I) Some tables are pans.

(II) All pens are pans.

(III) No pen is a pan.

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Either conclusion I or conclusion III follows
  - ☒ D. None of the conclusions follow

- Q.33** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



Which of the following statements is correct on the basis of the above diagram?

- Ans** ☒ A. The number of girls who are also gymnasts is 41.  
☒ B. The number of gymnasts who are also medal winners is 34.  
☒ C. The number of girls who are neither gymnasts nor medal winners is 23.  
☒ D. The number of medal winners who are also girls is 27.

- Q.34** P, Q, R, S, T and U are six giraffes in a jungle, each with a different height. S is taller than Q. P is taller than R. S is shorter than T. Q is taller than P but shorter than T. T is shorter than U. Which of the six giraffes is the shortest?

- Ans** ☒ A. Q  
☒ B. P  
☒ C. T  
☒ D. R

- Q.35** Raman started from a point and walked a distance of 200 m towards the north, he then turned left and walked 300 m, turned right and walked 400 m, and then turned right again and walked 300 m. How far is Raman from the starting point?

(All turns are 90 degree turns only)

- Ans** ☒ A. 600 m  
☒ B. 700 m  
☒ C. 1400 m  
☒ D. 200 m

- Q.36** If 3 is added to each odd digit and 1 is subtracted from each even digit in the number 42514563, what will be difference between the highest and lowest digits thus formed?

- Ans** ☒ A. 2  
☒ B. 5  
☒ C. 7  
☒ D. 8

- Q.37** Six persons, A, B, C, D, E and F, are sitting around a circular table. All are facing the centre of the table. Only two persons are sitting between D and A. F is to the immediate right of C. E is second to the right of F. E is second to the left of A. Who is sitting to the immediate right of F?

- Ans** ☒ A. D  
☒ B. E  
☒ C. C  
☒ D. A

**Q.38** P, L, K, U, J and Y went for a trip to Rajasthan and Uttar Pradesh in six consecutive months of the same calendar year. P preferred to visit Rajasthan in the month of November. U visited Uttar Pradesh exactly two months prior to P. Y preferred the month of July. J preferred to visit Rajasthan exactly between the months preferred by Y and U. L visited exactly one month prior to Y. In which month did K visit?

- Ans**
- ☒ A. August
  - ☒ B. September
  - ☒ C. October
  - ☒ D. November

**Q.39** Refer to the following letter series and answer the question.

YHSDSYIRAYEUGIROABUBRXMPQ

How many such vowels are there in the series each of which is immediately preceded by a consonant and also immediately followed by a consonant?

- Ans**
- ☒ A. 2
  - ☒ B. 3
  - ☒ C. 4
  - ☒ D. 5

**Q.40** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

( 15, 41 , 4)

( 19, 71, 5)

- Ans**
- ☒ A. (13, 55, 3)
  - ☒ B. (44, 91, 3)
  - ☒ C. (10, 8, 2)
  - ☒ D. (41, 125, 4)

**Q.41** Rajan started from a point and walked a distance of 200 m towards the north, he then turned left and walked 300 m, turned right and walked 400 m, and then turned left and walked 1 km. In which direction is Rajan facing now?

(All turns are 90 degree turns only)

- Ans**
- ☒ A. South
  - ☒ B. East
  - ☒ C. West
  - ☒ D. North

**Q.42** Which of the following numbers will replace the question mark (?) in the given series?

55, 104, 140, 165, ?

- Ans**
- ☒ A. 185
  - ☒ B. 181
  - ☒ C. 192
  - ☒ D. 174

**Q.43** Study the given letter, number, symbol series and answer the question that follows.

T % N 9 \* M \$ 3 U = L 8 Y @ G & 3 E > W & 4 R F ! K

Find out the total number of symbols that are immediately preceded by a number and immediately followed by a letter.

- Ans**
- ✓ A. 1
  - ✗ B. 2
  - ✗ C. 3
  - ✗ D. 4

**Q.44** Three statements are given, followed by two conclusions numbered I and II. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

No computer is a marker.

All erasers are markers.

All pens are erasers.

**Conclusions:**

I. No pen is a computer.

II. Some erasers are computers.

- Ans**
- ✓ A. Only conclusion I follows
  - ✗ B. Only conclusion II follows
  - ✗ C. Both conclusions I and II follow
  - ✗ D. Neither conclusion I nor II follows

**Q.45** Five friends A, S, D, F and G took admission in a coaching institute in consecutive months of the same calendar year. A took admission in May. Only D took admission between F and S, while G took admission exactly one month after A. F was the last one to take admission. In which month did D take admission?

- Ans**
- ✓ A. August
  - ✗ B. July
  - ✗ C. September
  - ✗ D. June

**Q.46** A statement is given followed by two assumptions numbered I and II. You have to assume everything in the statement to be true and decide which of the given assumptions is/are implicit in the statement.

**Statement:**

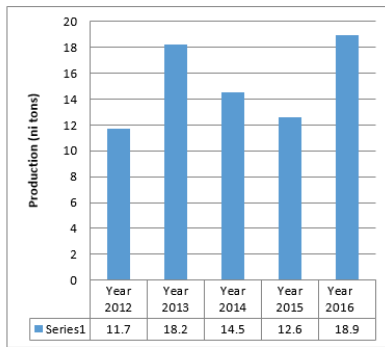
Please register for the event latest by 21 April to collect free passes. Passes will not be issued without valid address proof.

**Assumptions:**

- I. Voter ID card is a valid address proof.
- II. Passes can be purchased at the venue.

- Ans**
- ✗ A. Only assumption I is implicit
  - ✗ B. Only assumption II is implicit
  - ✓ C. Neither assumption I nor II is implicit
  - ✗ D. Both assumptions I and II are implicit

- Q.47** The following chart shows the production of an organization in various years from 2012 to 2016. Study the chart and answer the question.



What was the percentage increase in the production from 2015 to 2016?

- Ans**
- ☒ A. 40%
  - ☒ B. 50%
  - ☒ C. 25%
  - ☒ D. 21%

- Q.48** In a class of students, Paulo ranked 18th from the top and 45th from bottom. What is the total number of students in the class?

- Ans**
- ☒ A. 60
  - ☒ B. 61
  - ☒ C. 62
  - ☒ D. 63

- Q.49** Which of the following numbers will replace the question mark (?) in the given series?

9, 10, 18, 45, 109, ?

- Ans**
- ☒ A. 234
  - ☒ B. 218
  - ☒ C. 198
  - ☒ D. 327

- Q.50** What will be the approximate angle between the two hands of a clock (hour hand and minute hand) when the time is 8:45?

- Ans**
- ☒ A.  $17^\circ$
  - ☒ B.  $10^\circ$
  - ☒ C.  $7^\circ$
  - ☒ D.  $2^\circ$

- Q.51** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

PRO : LJM

ZEN : BWN

- Ans**
- ☒ A. DEN : WWN
  - ☒ B. KLP : QPL
  - ☒ C. NYZ : MCB
  - ☒ D. GUN : UGM

**Q.52** In this question, a statement is followed by two conclusions. Which of the two conclusions is/are true with respect to the statement?

Statement:  $P \leq Q < F = R > M \geq B$

Conclusions:

I.  $R > P$

II.  $F < B$

**Ans**

- ✓ A. Only conclusion I is true  
✗ B. Only conclusion II is true  
✗ C. Both conclusions I and II are true  
✗ D. Neither conclusion I nor II is true

**Q.53** What will come in place of the question mark (?) in the following equation, if '+' is interchanged with '×', and '-' is interchanged with '÷'?

$$100 \times 121 + 11 - 7 \div 24 - 8 \times 33 \times 99 \div 17 = ?$$

**Ans**

- ✗ A. 80  
✗ B. 90  
✓ C. 100  
✗ D. 101

**Q.54** How many such pairs of letters are there in the word DAUGHTER (in both forward and backward directions) which have as many letters between them in the word as there are in the English alphabetical order?

**Ans**

- ✗ A. 2  
✗ B. 3  
✓ C. 4  
✗ D. 5

**Q.55** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/Symbol | 7 | 5 | E | % | & | 4 | 8 |
|---------------|---|---|---|---|---|---|---|
| Codes         | S | D | M | U | T | L | A |

Conditions:

- (i) If the second element is an odd number and the last element is an even number, the codes for these two (the second and the last elements) are to be interchanged.  
(ii) If the third element is an even number and the fifth element is a symbol, the codes for these two (the third and the fifth elements) are to be interchanged.  
(iii) If the fifth element is a symbol and the sixth element is also a symbol, both these elements (the fifth and the sixth elements) are to be coded as R.

Question: E 7 5 % & 4 % 8

**Ans**

- ✗ A. MATUDLUS  
✗ B. MSDUTLUA  
✓ C. MADUTLUS  
✗ D. MADURRUS

Section : General Science

**Q.56** What is the process by which water seeps into the ground?

- Ans**
- ☐ A. Osmosis
  - ☐ B. Transpiration
  - ☒ C. Infiltration
  - ☐ D. Incineration

**Q.57** Which of the following types of images can be obtained on a screen?

- (a) Real and enlarged
- (b) Real and diminished
- (c) Virtual and enlarged
- (d) Virtual and diminished

- Ans**
- ☒ A. Both (a) and (b)
  - ☐ B. Both (b) and (c)
  - ☐ C. Both (c) and (d)
  - ☐ D. Both (a) and (d)

**Q.58** In Newland's law of octaves, the first element is \_\_\_\_\_ and the last known element is \_\_\_\_\_.

- Ans**
- ☐ A. hydrogen, zirconium
  - ☐ B. hydrogen, lanthanum
  - ☒ C. hydrogen, thorium
  - ☐ D. helium, zirconium

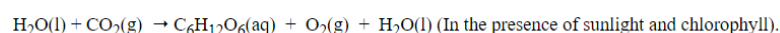
**Q.59** The difference in molecular mass between two consecutive homologous series members will be:

- Ans**
- ☐ A. 08
  - ☐ B. 12
  - ☒ C. 14
  - ☐ D. 16

**Q.60** The part of an electric motor that reverses the direction of flow of current in it, is:

- Ans**
- ☒ A. split ring
  - ☐ B. brush
  - ☐ C. coil
  - ☐ D. soft iron core

**Q.61** How many water and carbon dioxide molecules take part, respectively, in the process of photosynthesis as indicated by the following *unbalanced* equation?



- Ans**
- ☐ A. 3 and 6
  - ☐ B. 4 and 5
  - ☒ C. 6 and 6
  - ☐ D. 6 and 3

**Q.62** The table given below shows four methods of contraception and their modes of action. Which option shows the correct matching?

| Method        | Mode of action                     |
|---------------|------------------------------------|
| A. Copper-T   | i) Egg will not reach uterus       |
| B. Oral pills | ii) Sperms do not reach the cervix |
| C. Condom     | iii) Prevent implantation          |
| D. Tubectomy  | iv) Prevent fertilization          |

- Ans**
- ☒ A. A-i, B-ii, C-iii, D-iv
  - ☒ B. A-ii, B-i, C-iv, D-iii
  - ☒ C. A-iv, B-iii, C-ii, D-i
  - ☒ D. A-iii, B-ii, C-iv, D-i

**Q.63** What part of the respiratory system prevents the air-passage from collapsing?

- Ans**
- ☒ A. Trachea
  - ☒ B. Ribs
  - ☒ C. Spine
  - ☒ D. Rings of cartilage

**Q.64** Select the correct option for the full form of AIDS.

- Ans**
- ☒ A. Artificial Immune Deficiency Syndrome
  - ☒ B. Acquired Immune Deficiency Syndrome
  - ☒ C. Aggravated Immune Deficient Syndrome
  - ☒ D. Added Immune Deficient Syndrome

**Q.65** The filament of a bulb is made extremely thin and long in order to achieve:

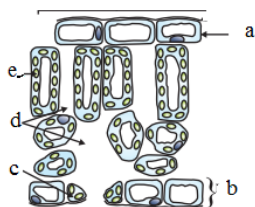
- Ans**
- ☒ A. high resistance
  - ☒ B. high resistivity
  - ☒ C. high voltage
  - ☒ D. high current

**Q.66** What important function is performed by SER in the liver cells of vertebrates?

- Ans**
- ☒ A. Synthesis of proteins
  - ☒ B. Synthesis of lipids
  - ☒ C. Synthesis of complex sugars
  - ☒ D. Detoxification of drugs and poisons

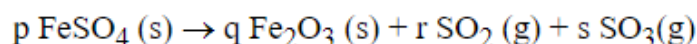


**Q.67** Study the diagram of the cross-section of a leaf given below. Which option shows the correct labelling?



- Ans**
- ☒ A. a - waxy cuticle, b - upper epidermis, c - stoma, d - air spaces, e - nucleus
  - ☒ B. a - upper epidermis, b - waxy cuticle, c - stoma, d - air spaces, e - chloroplast
  - ☒ C. a - upper epidermis, b - lower epidermis, c - stoma, d - air spaces, e - nucleus
  - ☒ D. a - upper epidermis, b - lower epidermis, c - guard cell, d - air spaces, e - chloroplast

**Q.68** In the following decomposition reaction, identify the p q r s:



- Ans**
- ☒ A. 1,1,2,1
  - ☒ B. 1,1,1,1
  - ☒ C. 3,1,1,1
  - ☒ D. 2,1,1,1

**Q.69** As atomic number \_\_\_\_\_ and nuclear charge \_\_\_\_\_, the force of attraction between nucleus and valence electrons \_\_\_\_\_, hence, atomic radii \_\_\_\_\_ from Li to F.

- Ans**
- ☒ A. increases, increases, increases, decreases
  - ☒ B. decreases, decreases, decreases, increases
  - ☒ C. increases, decreases, decreases, increases
  - ☒ D. increases, increases, decreases, decreases

**Q.70** Which of the following groups of organisms help in keeping the environment clean?

- Ans**
- ☒ A. Algae and Protozoa
  - ☒ B. Protozoa and Lichens
  - ☒ C. Bacteria and Fungi
  - ☒ D. Algae and Lichens

**Q.71** Which of the following statements are correct?

- (i) Tin-lead alloy is used for making fuse wires.
- (ii) Fuse is connected to live wire.
- (iii) The material chosen for making fuse should have high melting point.

- Ans**
- ☒ A. Both (i) and (ii)
  - ☒ B. Both (ii) and (iii)
  - ☒ C. Both (i) and (iii)
  - ☒ D. (i), (ii) and (iii)

**Q.72** A fine beam of light becomes visible when it enters a smoke filled room due to:

- Ans**
- ☐ A. reflection of light
  - ☐ B. refraction of light
  - ☐ C. dispersion of light
  - ☒ D. scattering of light

**Q.73** If a ray of light is incident passing through the centre of curvature of a concave mirror, then the angle between the incident ray and the reflected ray will be equal to:

- Ans**
- ☒ A.  $0^\circ$
  - ☐ B.  $90^\circ$
  - ☐ C.  $150^\circ$
  - ☐ D.  $180^\circ$

**Q.74** Which of the following compound is/are used in black and white photography?

- Ans**
- ☐ A. Silver chloride
  - ☐ B. Silver bromide
  - ☒ C. Silver chloride and silver bromide both
  - ☐ D. Silver oxide

**Q.75** Which of the following relations represents the correct mathematical form of Ohm's law?

- Ans**
- ☐ A.  $R = I/V$
  - ☐ B.  $I = R/V$
  - ☐ C.  $I = V^2R$
  - ☒ D.  $V = IR$

**Q.76** A chemical compound X is prepared by heating gypsum. It is white powder and used as a fire proofing material. Compound X is:

- Ans**
- ☐ A. baking soda
  - ☐ B. washing soda
  - ☐ C. sodium hydroxide
  - ☒ D. plaster of Paris

**Q.77** Which of the following statements is/are correct for a current carrying solenoid?

- (i) It can be used to magnetise a piece of soft iron.
- (ii) It acts like a bar magnet
- (iii) The field lines are concentric circles

- Ans**
- ☐ A. Only (i)
  - ☐ B. Only (ii)
  - ☒ C. Both (i) and (ii)
  - ☐ D. Both (i) and (iii)

**Q.78** Three products, \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_ are produced in chlor-alkali process.

- Ans**
- ✓ **A.** Hydrogen, Chlorine, NaOH
  - ✗ **B.** Chlorine, Hydrogen, Na<sub>2</sub>CO<sub>3</sub>
  - ✗ **C.** Oxygen, Hydrogen, NaOH
  - ✗ **D.** Chlorine, Oxygen, Na<sub>2</sub>CO<sub>3</sub>

**Q.79** Which of the following statements is/are true about the principal axis of a spherical mirror?

- (i) It is normal to the mirror
- (ii) Point of incidence always lies on the principal axis
- (iii) Principal focus always lies on the principal axis

- Ans**
- ✗ **A.** Only (i)
  - ✗ **B.** Only (ii)
  - ✗ **C.** Both (i) and (ii)
  - ✓ **D.** Both (i) and (iii)

**Q.80** In which of the following reactions of respiration is oxygen required?

- Ans**
- ✗ **A.** Conversion of glucose to pyruvate
  - ✗ **B.** Conversion of pyruvate to ethanol
  - ✓ **C.** Conversion of pyruvate to CO<sub>2</sub>, H<sub>2</sub>O and energy
  - ✗ **D.** Conversion of pyruvate to CO<sub>2</sub>

#### Section : General Awareness and Current Affairs

**Q.81** In which year did the Supreme Court give its judgement in the 'Satbir Singh versus the State of Haryana' case, which was related to dowry issues?

- Ans**
- ✗ **A.** 2022
  - ✓ **B.** 2021
  - ✗ **C.** 2020
  - ✗ **D.** 2019

**Q.82** On 7 March 2022, the Ministry of Women and Child Development (MoWCD), in partnership with the Ministry of Education and UNICEF, launched the \_\_\_\_\_ campaign to bring back out of school adolescent girls in India to the formal education.

- Ans**
- ✓ **A.** Kanya Shiksha Pravesh Utsav
  - ✗ **B.** Sukanya Samriddhi Yojana
  - ✗ **C.** Balika Padhao Yojana
  - ✗ **D.** Kishori Shakti Yojana

**Q.83** Who among the following has been authorised to act as the Chairperson, Lokpal, with effect from 28 May 2022?

- Ans**
- ✗ **A.** Justice BS Patil
  - ✗ **B.** Justice P Vishwanath Shetty
  - ✓ **C.** Justice Pradip Kumar Mohanty
  - ✗ **D.** Justice Chittaranjan Sharma

**Q.84** What is the name of the indigenously developed High-Speed Expandable Aerial Target System which was successfully flight-tested by Defence Research and Development Organisation (DRDO) in December 2021?

- Ans**
- ☒ A. Pralay
  - ☒ B. Nirbhay
  - ☒ C. Abhyas
  - ☒ D. Shaurya

**Q.85** Which of the following statements is INCORRECT about longitudes and latitudes?

- Ans**
- ☒ A.  $180^\circ$  E and  $180^\circ$  W refer to the same longitudinal line.
  - ☒ B. Longitudes never intersect each other.
  - ☒ C. Latitudes never intersect each other.
  - ☒ D. The latitude lines are parallel to each other.

**Q.86** In Jainism, the word 'Jain' is derived from the Sanskrit word 'Jina', which means \_\_\_\_\_, implying one who has transcended all human passions.

- Ans**
- ☒ A. conqueror
  - ☒ B. vigour
  - ☒ C. candour
  - ☒ D. immortal

**Q.87** In economics, the slope of the demand curve is typically \_\_\_\_\_.

- Ans**
- ☒ A. downward from left to right
  - ☒ B. upward from left to right
  - ☒ C. Straight parallel to X axis from left to right
  - ☒ D. Curved moving from left to right

**Q.88** Tropical Evergreen Forests are found in which of the following states of India?

- Ans**
- ☒ A. Kerala
  - ☒ B. Uttar Pradesh
  - ☒ C. Gujarat
  - ☒ D. Rajasthan

**Q.89** In January 2022, V Anantha Nageswaran was appointed as the new Chief Economic Advisor (CEA) of India, thus replacing \_\_\_\_\_.

- Ans**
- ☒ A. Kaushik Basu
  - ☒ B. Krishnammurthy Subramanian
  - ☒ C. Arvind Subramanian
  - ☒ D. Raghuram Rajan

**Q.90** The Rajiv Gandhi Khel Ratna award was renamed by the Government of India as Major Dhyan Chand Khel Ratna Award in the year \_\_\_\_\_.

- Ans**
- ☐ A. 2019
  - ☐ B. 2020
  - ☒ C. 2021
  - ☐ D. 2022

**Q.91** In February 2022, who launched the ICMR/DHR Policy on Biomedical Innovation?

- Ans**
- ☐ A. Amit Shah
  - ☒ B. Mansukh Mandaviya
  - ☐ C. Nitin Gadkari
  - ☐ D. Narendra Modi

**Q.92** Who became the first Indian woman to win a silver medal in the World Wrestling Championships in 2021?

- Ans**
- ☐ A. Sarita Mor
  - ☐ B. Babita Phogat
  - ☐ C. Mona
  - ☒ D. Anshu Malik

**Q.93** Which of the following was a non-violent protest against the British monopoly on salt production in 1930?

- Ans**
- ☐ A. Civil disobedience
  - ☒ B. Dandi March
  - ☐ C. Kheda Satyagraha
  - ☐ D. Khilafat Movement

**Q.94** The Periyar River flows in which of the following Indian states?

- Ans**
- ☒ A. Kerala
  - ☐ B. Punjab
  - ☐ C. Odisha
  - ☐ D. Tripura

Q.95

In how many languages was The Bal Sahitya Puraskar awarded in 2021?

Ans

☐ A. 23

☒ B. 22

☐ C. 24

☐ D. 21

Q.96

Who among the following was the chairman of Planning Commission when the First Five Year plan was started?

Ans

☐ A. Rajendra Prasad

☐ B. Harendra Coomar Mookerjee

☐ C. Sardar Vallabhbhai Patel

☒ D. Jawaharlal Nehru

Q.97

The Indian Constitution gives the President the authority to declare three types of emergencies. Which of following is NOT among them?

Ans

☐ A. Article 352 - National Emergency

☐ B. Article 356 - Emergency in State (President's rule)

☒ C. Article 358 - Public health emergency

☐ D. Article 360 - Financial Emergency

Q.98

The Panchayati Raj system was first implemented in which state of India?

Ans

☐ A. West Bengal

☐ B. Madhya Pradesh

☒ C. Rajasthan

☐ D. Uttar Pradesh

Q.99

In which state is the 'Chalo Loku' festival celebrated?

Ans

☐ A. Andhra Pradesh

☒ B. Arunachal Pradesh

☐ C. Uttar Pradesh

☐ D. Madhya Pradesh

Q.100

\_\_\_\_\_ is the nodal agency for releasing data related to national income, consumption expenditure, savings and capital formation, since 1956.

Ans

☐ A. Monetary Policy Office

☒ B. Central Statistics Office

☐ C. Central Financial Office

☐ D. Public Asset Management Office



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 17/08/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** Last year, Ranjan's monthly salary was ₹34,500 and this year his monthly salary is ₹38,640. What is the percentage increase in Ranjan's monthly salary in this year over his monthly salary last year?

- Ans**
- ✓ A. 12%
  - ✗ B. 13%
  - ✗ C. 15%
  - ✗ D. 20%

**Q.2** A, B and C started a business. They partnered for 6 months, 12 months and 14 months respectively. If their profit is in the ratio 5 : 4 : 7 respectively, then the ratio of their respective investments is \_\_\_\_\_.

- Ans**
- ✓ A. 5 : 2 : 3
  - ✗ B. 2 : 3 : 5
  - ✗ C. 1 : 5 : 3
  - ✗ D. 2 : 3 : 7

**Q.4** Express  $0.4\overline{24}$  in the form  $\frac{p}{q}$ , where p and q are integers and  $q \neq 0$ .

- Ans**
- ✗ A.  $\frac{41}{990}$
  - ✗ B.  $\frac{41}{165}$
  - ✗ C.  $\frac{13}{33}$
  - ✓ D.  $\frac{14}{33}$

**Q.8** Which of the following is divisible by both 4 and 8?

- Ans**
- ✗ A. 8342
  - ✗ B. 3842
  - ✗ C. 4382
  - ✓ D. 3824



Q.9  $6124.8 \times 625.5 \times 0.0043$  is equal in value to:

- Ans
- ☐ A.  $6.1248 \times 62.55 \times 0.43$
  - ☐ B.  $612.48 \times 625.5 \times 0.43$
  - ☒ C.  $61.248 \times 6255 \times 0.043$
  - ☐ D.  $6.1248 \times 62.55 \times 0.043$

Q.10 Reena reaches a birthday party 20 min late if she walks 3 km/h from her house. If she increases her speed to 4 km/h she would reach 30 min early, then the distance between her house and the venue of the birthday party is

- Ans
- ☐ A. 4 km
  - ☐ B. 7 km
  - ☐ C. 9 km
  - ☒ D. 10 km

Q.11 If the volume of a sphere is  $36\pi \text{ cm}^3$ , then the diameter of the sphere is:

- Ans
- ☐ A. 3 cm
  - ☒ B. 6 cm
  - ☐ C. 9 cm
  - ☐ D. 27 cm

Q.12 When three parallel lines are cut by two transversals and the intercepts made by the first transversal are in the ratio 3 : 4, then the intercepts made by the second transversal are in the ratio \_\_\_\_\_.

- Ans
- ☐ A. 4 : 3
  - ☐ B. 2 : 4
  - ☒ C. 3 : 4
  - ☐ D. 1 : 1

Q.13 Simplify  $(3^2)^3 + (2^3)^2$ .

- Ans
- ☐ A. 729
  - ☐ B. 379
  - ☐ C. 739
  - ☒ D. 793

Q.14 5 men and 6 women can do a piece of work in 6 days while 3 men and 5 women can do the same work in 9 days. In how many days can 3 men and 2 women do the same work?

- Ans
- ☐ A.  $10\frac{9}{11}$  days
  - ☒ B.  $11\frac{5}{11}$  days
  - ☐ C.  $12\frac{1}{11}$  days
  - ☐ D.  $13\frac{3}{11}$  days

Q.16 The LCM of 48, 72 and another number, x, is 576. Which of the values given below can be the value of x?

- Ans
- ☐ A. 96
  - ☒ B. 192
  - ☐ C. 144
  - ☐ D. 288



**Q.17** A is twice as old as B. B is  $\frac{1}{3}$  as old as C. The sum of ages of A, B and C is 42 years, find the sum of the ages of A and B.

- Ans**
- ☒ A. 15 years
  - ☒ B. 21 years
  - ☒ C. 23 years
  - ☒ D. 12 years

**Q.18** At simple interest, a certain sum of money amounts to ₹1,250 in 2 years and to ₹2,000 in 5 years. Find the rate of interest per annum (rounded off to two places of decimal).

- Ans**
- ☒ A. 11.11%
  - ☒ B. 16.67%
  - ☒ C. 27.27%
  - ☒ D. 33.33%

**Q.19** Which of the following is the most beneficial for a customer?

Scheme 1.) Buy 5 get 3 free

Scheme 2.) Buy 5 get 6

Scheme 3.) Two successive discounts of 10% and 5%

- Ans**
- ☒ A. Scheme 1
  - ☒ B. Scheme 1 and 2 both
  - ☒ C. Scheme 2
  - ☒ D. Scheme 2 and 3 both

**Q.20** 14 years ago, the age of a father was three times the age of his son. Now, the father is twice as old as his son. What is the sum of the present ages of the father and the son?

- Ans**
- ☒ A. 56 years
  - ☒ B. 84 years
  - ☒ C. 98 years
  - ☒ D. 42 years

**Q.21** What is the nature of the roots of  $3x^2 + 6x - 5 = 0$ ?

- Ans**
- ☒ A. The roots are real and equal.
  - ☒ B. The roots are real and distinct.
  - ☒ C. The roots are real and more than 2.
  - ☒ D. There are no real roots.

**Q.22** The expansion of  $(3a - 4b - 2c)^2$  is:

- Ans**
- ☒ A.  $9a^2 + 16b^2 + 4c^2 - 24ab + 16bc - 6ac$
  - ☒ B.  $9a^2 + 16b^2 + 4c^2 - 24ab + 8bc + 12ac$
  - ☒ C.  $9a^2 + 16b^2 + 4c^2 - 24ab + 16bc - 12ac$
  - ☒ D.  $9a^2 + 16b^2 + 4c^2 + 12ab - 8bc + 6ac$

**Q.23** Find the median of the data 11, 16, 33, 15, 51, 18, 71, 75, 22, 17.

- Ans**
- ☒ A. 18
  - ☒ B. 22
  - ☒ C. 20
  - ☒ D. 24

**Q.24** Find the amount of water contained in a cylindrical tank of radius 7 m and height 20 m. It is known that the tank is completely filled.

- Ans**
- ☒ A.  $3080 \text{ m}^3$
  - ☒ B.  $3125 \text{ m}^3$
  - ☒ C.  $4250 \text{ m}^3$
  - ☒ D.  $5110 \text{ m}^3$

**Q.25** The product of the roots of  $3x^2 - 13x + 6 = 0$  is:

- Ans**
- ☒ A. 4
  - ☒ B. 5
  - ☒ C. 2
  - ☒ D. 3

#### Section : General Intelligence and Reasoning

**Q.27** Three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

All phones are tablets.

No tablet is a calculator.

All drives are calculators.

**Conclusions:**

I. Some drives are phones.

II. Some calculators are phones.

III. No tablet is a drive.

- Ans**
- ☒ A. Only conclusions I and III follow
  - ☒ B. Only conclusion II follows
  - ☒ C. Only conclusions I and II follow
  - ☒ D. Only conclusion III follows

**Q.28** If '+' means '×', '-' means '÷', '×' means '+', '÷' means '-', what will come in place of the question mark (?) in the following equation?

$$16 + 4 - 8 \div 3 \times 2 = ?$$

- Ans**
- ☒ A. 31
  - ☒ B. 22
  - ☒ C. 23
  - ☒ D. 14

**Q.31** Based on the given statement, two conclusions are drawn. Find out which conclusion is true based on the statement.

Statement:  $Z > R \geq Y > P = Q \leq N < S$

Conclusions:

1.  $P > S$

2.  $Z < Q$

- Ans**
- ☒ A. Only conclusion 1 is true
  - ☒ B. Only conclusion 2 is true
  - ☒ C. Both conclusions 1 and 2 are true
  - ☒ D. Neither conclusion 1 nor 2 is true

**Q.33** If 15 March 2022 was a Tuesday, what day of the week was 15 March 2020?

- Ans**
- ☒ A. Saturday
  - ☒ B. Monday
  - ☒ C. Friday
  - ☒ D. Sunday

**Q.34** S, T, U, V, W and X live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it is numbered 2, and so on till the topmost floor is numbered 6.

V lives on the lowermost floor. X and U each live on an even numbered floor. T lives exactly between U and W. W lives on floor number 2. Who lives on floor number 5?

- Ans**
- ☒ A. T
  - ☒ B. X
  - ☒ C. U
  - ☒ D. S

**Q.35** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(12, 15, 18)

(45, 35, 25)

- Ans**
- ☒ A. (14, 28, 14)
  - ☒ B. (13, 10, 17)
  - ☒ C. (15, 20, 25)
  - ☒ D. (19, 18, 1)

**Q.37** P, Q, R, S, T, U and V live on seven different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it is number 2, and so on till the topmost floor is numbered 7. Q lives on floor number 2. R lives on the floor immediately above U's floor. S is on the floor immediately below V's floor. Only three persons live between the floors of T and P. R lives on the topmost floor. Only one person lives between the floors of R and P. On which floor does P live?

- Ans**
- ☒ A. Floor 2
  - ☒ B. Floor 3
  - ☒ C. Floor 4
  - ☒ D. Floor 5

**Q.38** Seven friends, P, Q, R, S, T, U and V, are sitting around a circular table. All are facing the centre of the table. Only R is sitting between Q and S. Only T is sitting between P and V. V is sitting third to the right of Q. V is third to the left of U. Who is sitting to the immediate right of R?

- Ans**
- ☒ A. P
  - ☒ B. S
  - ☒ C. T
  - ☒ D. V

**Q.44** In this question, a statement is followed by two conclusions. Which of the two conclusions is/are true with respect to the statement?

Statement:  $H > Y \geq S = X = A > W$

Conclusions:

I.  $H < S$

II.  $A \leq Y$

- Ans**
- ☒ A. Only conclusion I is true
  - ☒ B. Only conclusion II is true
  - ☒ C. Both conclusions I and II are true
  - ☒ D. Neither conclusion I nor II is true

**Q.45** Which of the following numbers will replace the question mark (?) in the given series?

11, 21, 47, 97, 179, ?

- Ans**
- ☒ A. 231
  - ☒ B. 281
  - ☒ C. 295
  - ☒ D. 301

**Q.46** In a certain code language, 'FUEL' is written as '50' and 'JEER' is written as '44'. How will 'FARE' be written in that language?

- Ans**
- ☒ A. 40
  - ☒ B. 34
  - ☒ C. 38
  - ☒ D. 36

**Q.47** Which of the following numbers will replace the question mark (?) in the given series?

124, 129, 136, 145, 156, ?

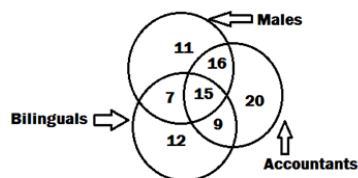
- Ans**
- ☒ A. 165
  - ☒ B. 169
  - ☒ C. 168
  - ☒ D. 172

**Q.48** Select the correct combination of mathematical signs that can sequentially replace \* to balance the following equation.

$20 * 4 * 6 * 2 * 14 * 18$

- Ans**
- ☒ A.  $\div, \times, =, +, +$
  - ☒ B.  $+, =, \div, \times, +$
  - ☒ C.  $\div, \times, -, =, \times$
  - ☒ D.  $\div, \times, +, =, +$

- Q.49** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



How many such accountants are there who are also bilinguals?

- Ans** ☒ A. 9  
☒ B. 15  
☒ C. 24  
☒ D. 22

- Q.50** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(35, 12, 29)

(23, 16, 31)

- Ans** ☒ A. (18, 12, 21)  
☒ B. (33, 30, 27)  
☒ C. (19, 8, 23)  
☒ D. (21, 25, 29)

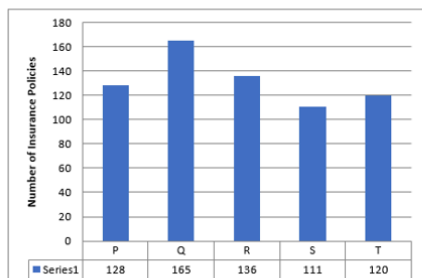
- Q.51** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

COWBOY : WOCYOB

TANGLE : NATELG

- Ans** ☒ A. PICKLE : CIPLKE  
☒ B. CROWDS : ORDWSC  
☒ C. MANGLE : NMALEG  
☒ D. FLOWER : OLFREW

- Q.52** The following chart shows the numbers of insurance policies sold by five salespersons named P, Q, R, S and T. Study the chart and answer the question.



What is the percentage share of insurance policies sold by Q in the total insurance policies sold by all five salespersons?

- Ans** ☒ A. 20%  
☒ B. 25%  
☒ C. 30%  
☒ D. 28%

- Q.53** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/symbol | 9 | 5 | 3 | # | 6 | & | 7 | @ | % | 8 | 2 |
|---------------|---|---|---|---|---|---|---|---|---|---|---|
| Code          | L | K | J | H | G | F | D | S | A | P | B |

Conditions:

- (i) If the first two elements are numbers and the last is a symbol, then interchange the codes for the second number and the last symbol.
- (ii) If the second element is a symbol and the last is a symbol, then all the symbols are to be coded as C.
- (iii) If the question has any number which is immediately preceded by a prime number, then interchange the codes of the first and last number appearing in the question.

Question: 7 9 & 8 % # 3

- Ans**
- ✓ A. JLFP AHD
  - ✗ B. SLFPAHJ
  - ✗ C. DL&P%#J
  - ✗ D. DLGPSJJ

- Q.54** Suneet walked 10 m towards the north, then he turned left and walked 11 m, then from there he turned right and walked 13 m, and then he turned right again and walked 25 m. In which direction is Suneet facing now?

(All turns are 90 degree turns only)

- Ans**
- ✓ A. East
  - ✗ B. West
  - ✗ C. North
  - ✗ D. South

#### Section : General Science

- Q.56** Cyclohexane contains \_\_\_\_\_ C-C bonds and \_\_\_\_\_ C-H bonds, so total \_\_\_\_\_ covalent bonds.

- Ans**
- ✗ A. 6, 10, 16
  - ✗ B. 4, 8, 12
  - ✓ C. 6, 12, 18
  - ✗ D. 4, 12, 16

- Q.57** An object placed at a distance of 25 cm from a converging lens forms a real and inverted image at 30 cm from the lens. The magnification produced by the lens is equal to:

- Ans**
- ✗ A. 6/5
  - ✓ B. -6/5
  - ✗ C. 5/6
  - ✗ D. -5/6

- Q.59** The distance between the pole and centre of curvature of a spherical mirror, in terms of its focal length  $f$ , is equal to:

- Ans**
- ✗ A.  $f$
  - ✓ B.  $2f$
  - ✗ C.  $f/2$
  - ✗ D.  $f/4$

**Q.60** The armature of an electric motor consists of which of the following part/parts?

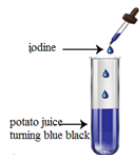
- (i) Soft iron core
- (ii) Coil
- (iii) Magnets

**Ans** ☒ A. Only (i)  
☒ B. Only (ii)  
☒ C. Both (i) and (ii)  
☒ D. Both (i) and (iii)

**Q.61** A given resistance  $R$  is cut into 2 equal parts. The resistance of each part is:

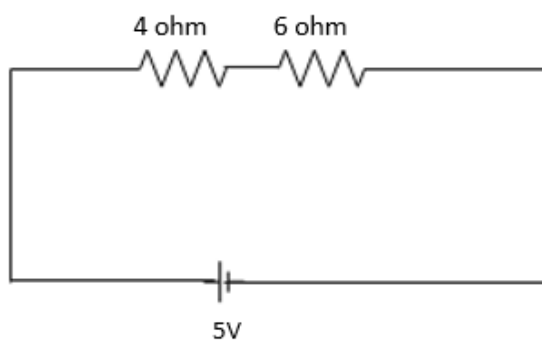
**Ans** ☒ A.  $R/2$   
☒ B.  $R/4$   
☒ C.  $R$   
☒ D.  $2R$

**Q.62** Study the given diagram carefully. Which option correctly explains the reason for the appearance of the blue black colour?



**Ans** ☒ A. Potato juice contains glucose, which turns blue black with iodine  
☒ B. Potato juice contains proteins, which turn blue black with iodine  
☒ C. Potato juice contains starch, which turns blue black with iodine  
☒ D. Potato juice contains fats, which turn blue black with iodine

**Q.64** The potential drop across the  $4\ \Omega$  resistor in the given circuit is:



**Ans** ☒ A. 2 V  
☒ B. 3 V  
☒ C. 5 V  
☒ D. 0.5 V

**Q.65** When chlorination of dry slaked lime takes place, \_\_\_\_\_ will form as the main product.

- Ans**
- ☐ A. quicklime
  - ☐ B. acetic acid
  - ☐ C. hydrochloric acid
  - ☒ D. calcium oxychloride

**Q.67** In accordance to Fleming's left hand rule used to find the force on a current carrying conductor placed inside a magnetic field, the thumb and the index finger represent the directions of \_\_\_\_\_ and \_\_\_\_\_, respectively.

- Ans**
- ☒ A. force, magnetic field
  - ☐ B. magnetic field, force
  - ☐ C. field, current
  - ☐ D. current, field

**Q.68** Which factor(s) led scientists towards the classification of elements?

- (i) Different methods of synthesis of elements
- (ii) Different source of elements
- (iii) Different properties of elements

- Ans**
- ☐ A. Only i
  - ☐ B. Only ii
  - ☐ C. Only iii
  - ☒ D. i, ii, iii

**Q.69** Any reaction that produces an insoluble precipitate can be called a:

- Ans**
- ☒ A. precipitation reaction
  - ☐ B. displacement reaction
  - ☐ C. decomposition reaction
  - ☐ D. redox reaction

**Q.70** Which of the following parts helps in exchange of gases in plants?

- Ans**
- ☐ A. Cell membrane
  - ☐ B. Nucleus
  - ☒ C. Stomata
  - ☐ D. Guard cells

**Q.71** What is the total number of shells involved in electronic configuration of carbon?

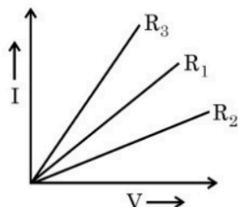
- Ans**
- ☐ A. One
  - ☒ B. Two
  - ☐ C. Three
  - ☐ D. Four



**Q.72** Formation of urine in the kidneys involves the given three processes in which of the following sequences?

- Ans**
- ☐ A. Filtration, elimination, selective reabsorption
  - ☐ B. Selective reabsorption, filtration, elimination
  - ☒ C. Filtration, selective reabsorption, Elimination
  - ☐ D. Selective reabsorption, elimination, filtration

**Q.73** The I-V graph of three resistances  $R_1$ ,  $R_2$  and  $R_3$  is shown in the figure below. The correct relation between  $R_1$ ,  $R_2$  and  $R_3$  is:



- Ans**
- ☐ A.  $R_1 > R_2 > R_3$
  - ☐ B.  $R_1 < R_2 < R_3$
  - ☒ C.  $R_3 < R_1 < R_2$
  - ☐ D.  $R_3 > R_1 > R_2$

**Q.74** Consider the below statements and identify the correct answer.

Statement-I: Anhydrous sodium carbonate is used in soda-acid fire extinguishers.

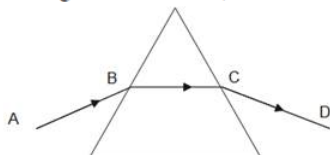
Statement-II: Anhydrous sodium carbonate is dissolved in water and recrystallized to get washing soda crystals containing 10 molecules of water of crystallisation

- Ans**
- ☐ A. Both the statements are true.
  - ☐ B. Both the statements are false.
  - ☐ C. Statement-I is true, and Statement-II is false.
  - ☒ D. Statement-II is true, and Statement-I is false.

**Q.75** During adolescence, several changes occur in the human body. Which of the following changes is associated with sexual maturation only in girls?

- Ans**
- ☐ A. Growth of hair on different parts of the body
  - ☐ B. Conscious of their looks
  - ☐ C. Oily skin with pimples
  - ☒ D. Growth of mammary glands

**Q.76** In the figure shown below, the incident ray and the emergent ray in the respective order are given by:



- Ans**
- ☐ A. AB and BC
  - ☐ B. BC and CD
  - ☒ C. AB and CD
  - ☐ D. CD and AB

**Q.77** The presence of which bacteria is an indicator of water pollution?

- Ans**
- ☒ A. E. coli Coliform
  - ☐ B. Mycobacterium tuberculosis
  - ☐ C. Vibrio cholerae
  - ☐ D. Salmonella typhi

**Q.78** Which of the following is NOT an example of asexual reproduction?

- Ans**
- ☐ A. Budding
  - ☐ B. Binary Fission
  - ☐ C. Fragmentation
  - ☒ D. Grafting

**Q.79** Which of the following elements has the maximum number of atoms in their molecular form?

- Ans**
- ☒ A. S
  - ☐ B. Ar
  - ☐ C. Ne
  - ☐ D. P

**Q.80** The distance between the focus and the centre of curvature of a spherical mirror in terms of the radius of curvature R, is equal to:

- Ans**
- ☐ A. R
  - ☒ B. R/2
  - ☐ C. 2R
  - ☐ D. R/4

#### Section : General Awareness and Current Affairs

**Q.81** In December 2021, which state Government inaugurated the 'Pink Force' of Police to enhance safety, security of women and children?

- Ans**
- ☐ A. Sikkim
  - ☒ B. Goa
  - ☐ C. Meghalaya
  - ☐ D. Kerala

**Q.83** Which of the following 'state – major language' pairs has been INCORRECTLY matched?

- Ans**
- ☐ A. Meghalaya – Khasi
  - ☒ B. Kerala – Kannada
  - ☐ C. Andhra Pradesh – Telugu
  - ☐ D. Manipur – Meitei

**Q.84** The Sangai deer is an endemic species found in which of the following Indian states?

- Ans**
- ☐ A. Kerala
  - ☒ B. Manipur
  - ☐ C. Rajasthan
  - ☐ D. Telangana

**Q.87** Mawsynram is the wettest place on earth and it is situated in \_\_\_\_\_.

- Ans**
- ☐ A. Rajmahal Hills
  - ☐ B. Lushai Hills
  - ☒ C. Khasi Hills
  - ☐ D. Mahadeo Hills

**Q.91** In January 2022, GAIL started India's maiden project of blending hydrogen into natural gas system at which place?

- Ans**
- ☐ A. Bhopal
  - ☒ B. Indore
  - ☐ C. Gwalior
  - ☐ D. Ujjain

**Q.92** In May 2022, which of the following state Chief Minister Basavaraj Bommai has launched a new health and wellness scheme app AAYU?

- Ans**
- ☐ A. Kerala
  - ☐ B. Tamil Nadu
  - ☐ C. Andhra Pradesh
  - ☒ D. Karnataka

**Q.93** The famous Haji Ali Dargah is located in which of the following cities?

- Ans**
- ☐ A. Ajmer
  - ☐ B. Delhi
  - ☐ C. Hyderabad
  - ☒ D. Mumbai

**Q.95** Which part of the Indian Constitution has only one Article 51-A, which deals with the Code of 11 Fundamental Duties for the Citizens?

- Ans**
- ☒ A. Part IV-A
  - ☐ B. Part V
  - ☐ C. Part IXA
  - ☐ D. Part VII

Q.96

What fraction of the positions in all panchayat institutions is reserved for women?

Ans

☐ A. 1/2

☒ B. 1/3

☐ C. 1/4

☐ D. 1/5

Q.97

Sandhya Gurning received the Dronacharya Award, 2021, for coaching in the field of \_\_\_\_\_.

Ans

☐ A. Kabaddi

☒ B. Boxing

☐ C. Shooting

☐ D. Swimming

Q.98

In context of Consumer Rights, what is the full form of COPRA?

Ans

☒ A. Consumer Protection Act

☐ B. Consumer Protection Agency

☐ C. Consumer Protection Association

☐ D. Consumer Protection Alliance

Q.99

Bharat Heavy Electricals Limited was registered as Heavy Electricals (India) Limited (HE(I)L) in the Public Sector under the Ministry of Industry and Commerce on 29th August, \_\_\_\_\_.

Ans

☐ A. 1952

☒ B. 1956

☐ C. 1962

☐ D. 1969

Q.100

Which of the following rivers originates from Amarkantak Hills?

Ans

☐ A. Sutlej

☐ B. Godavari

☐ C. Teesta

☒ D. Narmada



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

## सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 17/08/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

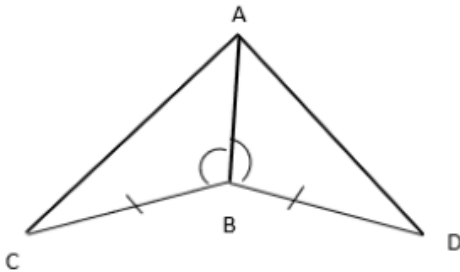
1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** The HCF of two numbers is 7 and their LCM is 434. If one of the numbers is 14, find the other.

- Ans**
- ☒ A. 48
  - ☒ B. 52
  - ☒ C. 217
  - ☒ D. 146

**Q.2** In the given figure  $\angle ABC = \angle ABD$ ,  $BC = BD$  then  $\triangle CAB \cong \triangle$  -----



- Ans**
- ☒ A. ABD
  - ☒ B. DBA
  - ☒ C. ADB
  - ☒ D. DAB

**Q.3** The age of a father six years ago was six times the then age of his daughter. Three years hence, the father will be thrice as old as his daughter. What is the present age of the daughter?

- Ans**
- ☒ A. 12 years
  - ☒ B. 15 years
  - ☒ C. 17 years
  - ☒ D. 20 years

Q.4 If  $2^x \times 4^{12} \times 8^3 = 16^{11}$ , then the value of x is:

- Ans
- ☐ A. 12
  - ☒ B. 11
  - ☐ C. 13
  - ☐ D. 14

Q.5 A can finish painting a sari in 11 days, B in 20 days and C in 55 days, if they work independently. In how many days can the work be completed if A is assisted by B on every odd numbered day and by C on every even numbered day till the work completes?

- Ans
- ☐ A. 12 days
  - ☒ B. 8 days
  - ☐ C. 9 days
  - ☐ D. 18 days

Q.6 A man invested ₹75,000 at the rate of  $7\frac{1}{2}\%$  per annum simple interest for 6 years. Find the amount he will receive after 6 years.

- Ans
- ☐ A. ₹69,600
  - ☒ B. ₹1,08,750
  - ☐ C. ₹75,000
  - ☐ D. ₹1,12,500

Q.7 The sum of the roots of the quadratic equation  $4x^2 + 7x - 21 = 0$  is:

- Ans
- ☐ A. -21
  - ☐ B.  $-\frac{21}{4}$
  - ☒ C.  $-\frac{7}{4}$
  - ☐ D.  $\frac{7}{4}$

Q.8 What is the area of an equilateral triangle whose each side is 14 cm long?

- Ans
- ☐ A.  $14\sqrt{3} \text{ cm}^2$
  - ☐ B.  $35\sqrt{3} \text{ cm}^2$
  - ☒ C.  $49\sqrt{3} \text{ cm}^2$
  - ☐ D.  $21\sqrt{3} \text{ cm}^2$

Q.9 A man travelled at a speed of 20 m/min for 100 min, and at a speed of 70 m/min for 50 min. His average speed is

- Ans
- ☒ A.  $\frac{110}{3} \text{ m/min}$
  - ☐ B.  $\frac{70}{3} \text{ m/min}$
  - ☐ C. 35 m/min
  - ☐ D. 25 m/min

Q.10 If  $\theta$  is an acute angle, find the denominator A, when

$$(\operatorname{cosec} \theta - \cot \theta)^2 = \frac{1 - \cos \theta}{A}$$

- Ans
- ✓ A.  $1 + \cos \theta$
  - ✗ B.  $1 + \sin \theta$
  - ✗ C.  $\cot \theta$
  - ✗ D.  $\operatorname{cosec} \theta - 1$

Q.11 Aruna has a younger sister whose age is 8 years less than that of Aruna. If Aruna's sister's age is 18 years, then Aruna's age is:

- Ans
- ✗ A. 28 years
  - ✗ B. 24 years
  - ✓ C. 26 years
  - ✗ D. 10 years

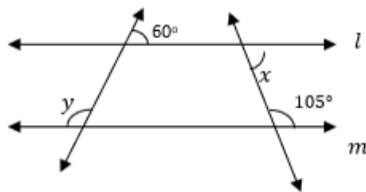
Q.12 A cuboid of dimensions  $18.5 \text{ cm} \times 12.5 \text{ cm} \times 10 \text{ cm}$  needs to be painted all over. Find the area to be painted.

- Ans
- ✗ A.  $1157.5 \text{ cm}^2$
  - ✗ B.  $984.56 \text{ cm}^2$
  - ✓ C.  $1082.5 \text{ cm}^2$
  - ✗ D.  $1198 \text{ cm}^2$

Q.13 Venkat brought a second-hand scooter and spent 10% of the cost on its repairs. He sold the scooter for a profit of ₹2,200. How much did he spend on repairs if he made a profit of 20%?

- Ans
- ✗ A. ₹400
  - ✗ B. ₹750
  - ✗ C. ₹1,200
  - ✓ D. ₹1,000

Q.14 In the adjoining figure line  $l$  is parallel to  $m$ . What is the value of  $2x + y$ ?



- Ans
- ✓ A.  $270^\circ$
  - ✗ B.  $225^\circ$
  - ✗ C.  $150^\circ$
  - ✗ D.  $320^\circ$

Q.15 Find the number of 2-digit numbers divisible by both 2 and 4.

- Ans
- ✗ A. 32
  - ✓ B. 22
  - ✗ C. 12
  - ✗ D. 42

**Q.16** The present ages of Shanthi and Keerthi are in the ratio of 7 : 3. After 5 years, Shanthi's age will be 40. How old will Keerthi be after 5 years?

- Ans**
- ☐ A. 15 years
  - ☐ B. 10 years
  - ☒ C. 20 years
  - ☐ D. 30 years

**Q.17** If the sum of the roots of the quadratic equation  $5x^2 + bx + 4 = 0$  is 9, then find the value of b.

- Ans**
- ☐ A. 20
  - ☐ B. -25
  - ☒ C. -45
  - ☐ D. 0

**Q.18** A man travels 80 km in three hours. He further travels for two more hours. Find the distance travelled in the latter two hours, if his average speed for the entire journey is 30 km/h.

- Ans**
- ☐ A. 150 km
  - ☐ B. 120 km
  - ☐ C. 90 km
  - ☒ D. 70 km

**Q.19** A shopkeeper sold a book at a loss of 14%. If the selling price had been increased by ₹100, there would have been a gain of 6%. What was the cost price of the book?

- Ans**
- ☐ A. ₹650
  - ☐ B. ₹970
  - ☒ C. ₹500
  - ☐ D. ₹450

**Q.20** If  $5 + x$ ,  $2x + 7$ ,  $6x + 9$ , and  $y$  are in proportion when  $x = 2$ , find the value of  $y$ .

- Ans**
- ☐ A. 28
  - ☐ B. 42
  - ☒ C. 33
  - ☐ D. 45

**Q.21** The value of  $0.1\bar{6} + 0.1\bar{5} - 0.1\bar{3}$  is:

- Ans**
- ☐ A.  $\frac{23}{63}$
  - ☐ B.  $\frac{34}{45}$
  - ☐ C.  $\frac{19}{99}$
  - ☒ D.  $\frac{17}{90}$

**Q.22** If  $a : b = 2 : 3$  and  $b : c = 3 : 4$ , then  $a : b : c = ?$

- Ans**
- ☐ A. 3 : 2 : 4
  - ☐ B. 2 : 4 : 3
  - ☒ C. 2 : 3 : 4
  - ☐ D. 3 : 4 : 2



**Q.23** Ram is 55 years old and Som is 25 years old. How many years ago was Ram three times as old as Som?

- Ans**
- ☐ A. 5 years
  - ☐ B. 7 years
  - ☒ C. 10 years
  - ☐ D. 15 years

**Q.24** X and Y can complete a piece of work in 8 days and 12 days, respectively. If they work on alternate days, with X working on the first day, how long will it take the duo to complete the same work?

- Ans**
- ☐ A.  $9\frac{2}{3}$  days
  - ☒ B.  $9\frac{1}{2}$  days
  - ☐ C.  $9\frac{3}{5}$  days
  - ☐ D.  $9\frac{2}{5}$  days

**Q.25** If  $\frac{x}{y} = \frac{3}{2}$ , then find  $\frac{x^2 + y^2}{x^2 - y^2}$ .

- Ans**
- ☐ A.  $\frac{7}{5}$
  - ☐ B.  $\frac{9}{5}$
  - ☐ C.  $\frac{11}{5}$
  - ☒ D.  $\frac{13}{5}$

#### Section : General Intelligence and Reasoning

**Q.26** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

TORPEDO : DEOOPRT

FLICKER : CEFIKLR

- Ans**
- ☐ A. CLOSURE : OLCERUS
  - ☒ B. PERTAIN : AEINPRT
  - ☐ C. CURTAIN : RUCNIAT
  - ☐ D. CYNICAL : ACCLINY

**Q.27** Four friends Ramniwas, Ramesh, Ramsingh and Raman received their PhD degrees in consecutive months of the same calendar year. Ramniwas received his degree exactly one month prior to Ramsingh. Raman received his degree exactly one month after Ramesh. Ramniwas received his degree in September and Raman did not obtain his degree before Ramniwas. In which month did Ramesh receive his degree?

- Ans**
- ☐ A. October
  - ☒ B. November
  - ☐ C. December
  - ☐ D. August

**Q.28** A statement is given followed by two assumptions numbered I and II. You have to assume everything in the statement to be true and decide which of the given assumptions is/are implicit in the statement.

**Statement:**

The demand for smartphones and laptops has increased substantially since the introduction of online classes in schools.

**Assumptions:**

- I. People are buying smartphones and laptops to enable their children to attend online classes
- II. Desktop computers cannot be used to attend online classes.

**Ans**  **A. Only assumption I is implicit**  
 **B. Only assumption II is implicit**  
 **C. Neither assumption I nor II is implicit**  
 **D. Both assumptions I and II are implicit**

**Q.29** From point X, a girl walks 70 m towards the north. Then, she takes a left turn and walks 150 m. Then, she takes a left turn and walks 70 m. Then, she takes another left turn and walks 90 m. She then takes a right turn and walks 100 m. Finally, she takes a left turn and walks 60 m to reach point Z. How far and in which direction is point Z from point X? (All turns are 90 degree turns only)

**Ans**  **A. 60 m, North**  
 **B. 60 m, South**  
 **C. 100 m, North**  
 **D. 100 m, South**

**Q.30** Study the given letter, symbol series and answer the question that follows.

L @ S \* E ^ B U # W I < E M @ O S # B \* H ! A & L < O

If we replace each of the vowels with any consonant and similarly if we replace each of the consonants in the original series with any vowel, then how many consonants will be immediately followed by a symbol in the resultant series thus formed?

**Ans**  **A. 4**  
 **B. 5**  
 **C. 6**  
 **D. 7**

**Q.31** Each of W, X, Y, Z, A, B and C has a wedding to attend on a different day of a week starting from Monday to Sunday of the same week. C has to attend wedding immediately after A. Y has to attend a wedding on one of the days before B and W. Only Z has to attend a wedding before A. X has to attend a wedding on Friday. B does not have to attend a wedding on Sunday. On which day of the week does Y have to attend a wedding?

**Ans**  **A. Thursday**  
 **B. Saturday**  
 **C. Wednesday**  
 **D. Sunday**

**Q.32** Which of the following alphanumeric clusters will replace the question mark (?) in the series to make it logically complete?

1 AZC 2, 3 DYF 4, 7 GXI 8, ?

**Ans**  **A. 15 IVK 16**  
 **B. 13 IWK 14**  
 **C. 13 IJK 14**  
 **D. 15 JWL 16**

**Q.33** Eight friends, A, B, C, D, E, F, G and H are sitting around a square table facing the centre of the table. Four of them are sitting at the corners while the other four are sitting at the exact centre of sides of the table. Both A and C are sitting at the opposite corners. F and D are sitting at the opposite corners. Only G is between A and F. Only B is between A and D. H is to the immediate left of C. G is to the immediate right of F. E is second to right of H. D is second to left of C. D is third to left of E. Who is sitting second to left of B?

- Ans**
- ☒ A. E
  - ☒ B. F
  - ☒ C. G
  - ☒ D. H

**Q.34** P, Q, R, S and T are sitting in a straight line, facing north. S is an immediate neighbour of both P and R. R is an immediate neighbour of both S and Q. Q is an immediate neighbour of both R and T. Who are the immediate neighbours of Q?

- Ans**
- ☒ A. S and R
  - ☒ B. R and T
  - ☒ C. S and T
  - ☒ D. P and R

**Q.35** If 2 is subtracted from each odd digit and 1 is added to each even digit in the number 83252769, how many digits will occur more than once in the new number thus formed?

- Ans**
- ☒ A. None
  - ☒ B. One
  - ☒ C. Two
  - ☒ D. Three

**Q.36** Gayatri starts walking from her home and goes 100 m towards the south direction. She then turns right and walks 120 m. She then turns right and walks 100 m. She finally turns right again and walks 180 m. How far is she now from the starting point? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 100 m
  - ☒ B. 50 m
  - ☒ C. 60 m
  - ☒ D. 90 m

**Q.37** Which of the following numbers will replace the question mark (?) in the given series?

3, 7, 13, 21, 31, ?

- Ans**
- ☒ A. 41
  - ☒ B. 42
  - ☒ C. 43
  - ☒ D. 44

**Q.38** What will come in place of the question mark (?) in the following equation, if '-' is interchanged with '×' and '+' is interchanged with '÷'?

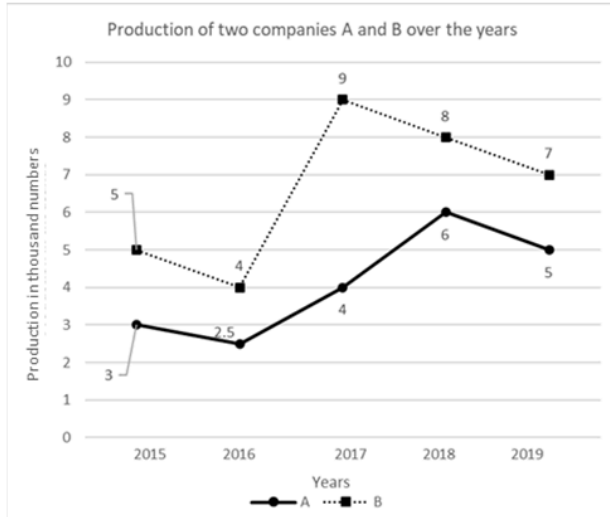
$$6 \div 16 \times 4 \div 9 - 8 + 2 \times 7 = ?$$

- Ans**
- ☒ A. 43
  - ☒ B. 38
  - ☒ C. 47
  - ☒ D. -11

**Q.39** In a certain code language, PRECIOUS is written as KIVXRLFH and CLEAR is written as XOZVI. How will DIRTYING be written in the same language?

- Ans** ☒ A. WRIGBRMT  
☒ B. WRIFBRMS  
☒ C. VRIGBROT  
☒ D. WHSGBRMT

**Q.40** Study the following graph carefully and answer the question.



For company A, what is the approximate percentage decrease in production from 2015 to 2016?

- Ans** ☒ A. 25%  
☒ B. 20%  
☒ C. 15%  
☒ D. 22%

**Q.41** Study the given letter, symbol series and answer the question that follows.

L @ S \* J ^ B U # W R < E @ N S # B \* H ! A & L < W Q

How many symbols are immediately followed by a consonant and immediately preceded by a vowel?

- Ans** ☒ A. 1  
☒ B. 2  
☒ C. 3  
☒ D. 4

**Q.42** In this question, a statement is followed by two conclusions. Which of the two conclusions is/are true with respect to the statement?

Statement:  $T > G < E > F = B \leq Z$

Conclusions:

I.  $F = Z$

II.  $E > B$

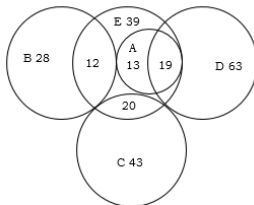
- Ans** ☒ A. Only conclusion I is true  
☒ B. Only conclusion II is true  
☒ C. Both conclusions I and II are true  
☒ D. Neither conclusion I nor II is true

**Q.43** In a certain code language, TRY is written as 63 and NOT is written as 49. How will DUG be written in the same language?

- Ans**
- ☒ A. 30
  - ☒ B. 32
  - ☒ C. 36
  - ☒ D. 40

**Q.44** Study the diagram and answer the question that follows. A = Academicians, E = Teachers, D = Women, B = Men and C = Doctors. The numbers inside the shapes indicate number of the respective persons. What is the sum total number of the following:

- i) women academicians who are teachers
- ii) teachers who are doctors and
- iii) men who are NEITHER teachers NOR academicians?



- Ans**
- ☒ A. 67
  - ☒ B. 41
  - ☒ C. 64
  - ☒ D. 63

**Q.45** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

8 : 14 :: 12 : 22 :: 21 : ?

- Ans**
- ☒ A. 40
  - ☒ B. 26
  - ☒ C. 42
  - ☒ D. 18

**Q.46** Which of the following numbers will replace the question mark (?) in the given series?

14, 14, 17, 85, 92, ?

- Ans**
- ☒ A. 418
  - ☒ B. 628
  - ☒ C. 828
  - ☒ D. 924

**Q.47** If '+' means '-', '-' means '+', '\*' means 'x' and 'x' means '+', what will come in place of the question mark (?) in the following equation?

$25 \times 35 - 5 + 7 \div 2 = ?$

- Ans**
- ☒ A. 14
  - ☒ B. 16
  - ☒ C. 18
  - ☒ D. 19

**Q.48** V, W, X, Y, Z and A are six singers who have their concerts in different days of the same month, viz. 12th, 14th, 16th, 21st, 25th and 31st of July.

W has his concert on one of the days before X, but not on 21st. V has his concert on 14th. Only A has his concert after X. Y has his concert before V. Who has the concert on 21st of July?

- Ans**
- ☒ A. Y
  - ☒ B. A
  - ☒ C. X
  - ☒ D. Z

**Q.49** A statement is given, followed by four conclusions given in the options. Find out which conclusion is true based on the given statement.

Statement:  $G \geq P > T \geq S > K = N < D$

- Ans**
- ☒ A.  $G > T$
  - ☒ B.  $P > D$
  - ☒ C.  $N > T$
  - ☒ D.  $G \geq D$

**Q.50** Three statements are followed by three conclusions numbered I, II and III. You have to consider these statements to be true, even if they seem at variance from commonly known facts. Decide which of the given conclusions logically follow/s from the given statements.

**Statements:**

1. All springs are brooks.
2. Some brooks are creeks.
3. No creek is tap.

**Conclusions:**

- I. Some taps are creeks.
- II. No spring is tap.
- III. Some brooks are springs.

- Ans**
- ☒ A. Only conclusions I and II follow.
  - ☒ B. Only conclusions II and III follow.
  - ☒ C. Only conclusion I follows.
  - ☒ D. Only conclusions III follows.

**Q.51** Amit's son was born on 10 January 2012. On what day of the week was he born?

- Ans**
- ☒ A. Monday
  - ☒ B. Tuesday
  - ☒ C. Wednesday
  - ☒ D. Thursday

**Q.52** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(4, 25, 6)

(3, 28, 9)

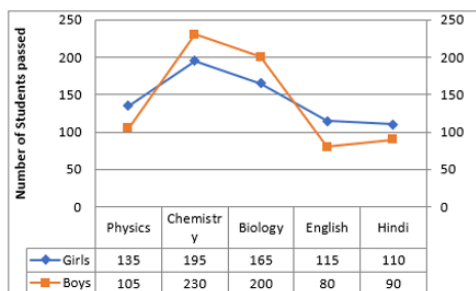
**Ans** ☒ A. (3, 81, 6)

☒ B. (7, 22, 3)

☒ C. (14, 55, 4)

☒ D. (12, 96, 8)

**Q.53** The graph and the table below show the number of boys and girls passed in five different subjects i.e. Physics, Chemistry, Biology, English and Hindi.



What is the ratio of the girls who have passed in Physics, Chemistry and Biology respectively?

**Ans** ☒ A. 9 : 13 : 11

☒ B. 9 : 15 : 13

☒ C. 8 : 11 : 14

☒ D. 9 : 13 : 8

**Q.54** Refer to the following letter series and answer the question.

(Left) TYANECMKEWAFHEQAPMNBEDHEKUWSDANMAWE (Right)

How many such consonants are there in the series which are immediately preceded by a vowel and also immediately followed by a vowel?

**Ans** ☒ A. Three

☒ B. Four

☒ C. Five

☒ D. Six

**Q.55** Three statements are followed by four conclusions numbered I, II, III and IV. You have to consider these statements to be true, even if they seem at variance from commonly known facts. Decide which of the given conclusions logically follow/s from the given statements.

**Statements:**

1. Some carnations are petunias.
2. All petunias are sunflowers.
3. Some sunflowers are not carnations.

**Conclusions:**

- I. Some sunflowers are carnations.
- II. All carnations are sunflowers.
- III. All petunias are carnations.
- IV. No sunflower is carnation.

**Ans**  **A. Only conclusions I follows**  
 **B. Only conclusions II and III follow.**  
 **C. Only conclusions I and IV follow.**  
 **D. Only conclusion IV follows.**

Section : **General Science**

**Q.56** In which organism sex is not determined genetically?

**Ans**  **A. Snail**  
 **B. Butterfly**  
 **C. Sparrow**  
 **D. Moth**

**Q.57** Two wires A and B are made of same material and have the same length but different cross-sectional areas. If the resistance of wire A is 16 times the resistance of wire B, the ratio of the cross-sectional area of wire A to that of wire B is:

**Ans**  **A. 1 : 4**  
 **B. 4 : 1**  
 **C. 1 : 16**  
 **D. 16 : 1**

**Q.58** 'Save the Narmada' movement originated as a protest against raising the height of Sardar Sarovar Dam. Some disadvantages of building dams are mentioned below. Which one is an advantage?

**Ans**  **A. Many tribals and peasants are displaced**  
 **B. Lot of public money is used**  
 **C. Causes deforestation and loss of biodiversity**  
 **D. Helpful in irrigation and electricity production**



**Q.59** Arrange the following metals in the decreasing order of reactivity:

K, Na, Zn, Cu, Hg, Ag

**Ans** ✓ **A.**  $K > Na > Zn > Cu > Hg > Ag$

✗ **B.**  $K > Na > Zn > Cu > Ag > Hg$

✗ **C.**  $K > Na > Zn > Hg > Cu > Ag$

✗ **D.**  $K > Na > Zn > Ag > Hg > Cu$

**Q.60** A student focusses a sharp image of sun using a spherical mirror on a sheet of paper, which starts to burn after some time. Which of the following statement/statements about the mirror is/are correct?

(a) It is concave spherical mirror

(b) It has positive focal length

(c) It is a converging mirror

**Ans** ✗ **A.** Both (a) and (b)

✗ **B.** Both (b) and (c)

✓ **C.** Both (a) and (c)

✗ **D.** (a), (b) and (c)

**Q.61** Which of the following statements is FALSE?

**Ans** ✓ **A.** In the mitochondria, acetic acid is broken down utilising oxygen.

✗ **B.** Oxygen is not necessary for the fermentation process.

✗ **C.** In the first stage of respiration, breakdown of glucose takes place.

✗ **D.** Pyruvic acid is produced in the first stage of respiration.

**Q.62** Which of the following is the commercial unit of electric energy?

**Ans** ✗ **A.** Joule

✓ **B.** Kilowatt hour

✗ **C.** Calorie

✗ **D.** Watt second

**Q.63** In Newlands' Octaves, the properties of which two elements were found to be the same?

**Ans** ✓ **A.** Li, Na

✗ **B.** H, Th

✗ **C.** Na, Mg

✗ **D.** Ca, Cl

**Q.64** The balanced reaction for following chemical reaction is:

Barium sulphate + Aluminium chloride  $\rightarrow$  Barium chloride + Aluminium sulphate

**Ans** ✗ **A.**  $BaSO_4 + AlCl_3 \rightarrow BaCl_2 + Al_2(SO_4)_3$

✓ **B.**  $3 BaSO_4 + 2 AlCl_3 \rightarrow 3 BaCl_2 + Al_2(SO_4)_3$

✗ **C.**  $2 BaSO_4 + 2 AlCl_3 \rightarrow 2 BaCl_2 + Al_2(SO_4)_3$

✗ **D.**  $BaSO_4 + AlCl_2 \rightarrow BaCl_2 + AlSO_4$

Q.65 The bluish colour of water in deep sea is due to:

- Ans
- ✓ A. scattering of light
  - ✗ B. reflection of light
  - ✗ C. refraction of light
  - ✗ D. dispersion of light

Q.66 What is the need to balance chemical equations?

- Ans
- ✗ A. To indicate the ratio of masses of reactants and products in which these react.
  - ✗ B. To satisfy the law of constant proportions.
  - ✗ C. To indicate the ratio of volumes of reactants and products in which these react.
  - ✓ D. To satisfy the law of conservation of mass.

Q.67 A white precipitate will be formed if we add ammonia solution to:

- Ans
- ✗ A.  $\text{Ba}(\text{NO}_3)_2$  solution
  - ✓ B.  $\text{AlCl}_3$  solution
  - ✗ C.  $\text{KNO}_3$  solution
  - ✗ D.  $\text{Mg}(\text{NO}_3)_2$  solution

Q.68 Which of the following substances are selectively reabsorbed from the initial filtrate by the tubular portion of the nephron in human kidney?

- Ans
- ✗ A. Glucose, water, amino acids and proteins
  - ✓ B. Glucose, water, salts and amino acids
  - ✗ C. Salts, glucose, fats and water
  - ✗ D. Water, glucose, salts and proteins

Q.69 Which of the following is not the use of bleaching powder?

- (i) to make drinking water free from germs
- (ii) in soda-acid fire extinguishers
- (iii) as an oxidising agent in many chemical industries
- (iv) for baking cakes

- Ans
- ✗ A. i
  - ✗ B. iii
  - ✓ C. iv
  - ✗ D. ii

**Q.70** Soil degradation is one of the major environmental problems being faced these days. A wide range of techniques to conserve soil are mentioned below. Select the INCORRECT option.

- Ans**
- ☒ A. Crop rotation
  - ☒ B. Overgrazing
  - ☒ C. Planting trees
  - ☒ D. Terrace farming

**Q.71** A contraceptive technique that increases phagocytosis of sperms within the uterus is:

- Ans**
- ☒ A. use of condoms
  - ☒ B. use of copper T
  - ☒ C. use of oral contraceptives
  - ☒ D. surgery

**Q.72** The resistivity of a material is dependent on which of the following factors?

- Ans**
- ☒ A. Temperature
  - ☒ B. Length
  - ☒ C. Area of cross section
  - ☒ D. Resistance

**Q.73** A convex mirror used as a rear-view mirror of a car has a focal length of 2 m. If a bus is located at a distance of 3 m from the mirror, where will its image be formed?

- Ans**
- ☒ A. 1.2 m behind the mirror
  - ☒ B. 1.2 m in front of the mirror
  - ☒ C. 0.83 m in front of the mirror
  - ☒ D. 0.83 m behind the mirror

**Q.74** Guard cells are involved in the process of \_\_\_\_\_.

- Ans**
- ☒ A. circulation
  - ☒ B. transpiration
  - ☒ C. tropic movements
  - ☒ D. transport of food

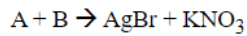
**Q.75** Which of the following rules is used to determine the direction of induced current due to the motion of coil at right angle to the magnetic field?

- Ans**
- ☒ A. Fleming's left-hand rule
  - ☒ B. Fleming's right-hand rule
  - ☒ C. Right-hand thumb rule
  - ☒ D. Maxwell's corkscrew rule

**Q.76** Which of the following has the maximum non-metallic characters in group 16 elements?

- Ans**
- ☒ A. Po
  - ☒ B. Se
  - ☒ C. O
  - ☒ D. S

**Q.77** What will come in place of A and B, respectively, in the given double displacement reaction?



- Ans**
- ☒ A. Ag and  $HNO_3$
  - ☒ B. HBr and NaOH
  - ☒ C.  $AgNO_3$  and KBr
  - ☒ D. HBr and NaOH

**Q.78** Which of the following is an example of a human cell that has the ability to modify its shape?

- Ans**
- ☒ A. Brain cell
  - ☒ B. Liver cells
  - ☒ C. WBC
  - ☒ D. RBC

**Q.79** A ray of light is incident on an interface separating two media along the normal to the interface. The angle between the incident ray and refracted ray is equal to:

- Ans**
- ☒ A.  $0^\circ$
  - ☒ B.  $30^\circ$
  - ☒ C.  $45^\circ$
  - ☒ D.  $90^\circ$

**Q.80** Which of the following situations is/are possible?

- (a) Magnetic field lines can be parallel to each other.
- (b) Magnetic field lines can be concentric circles.
- (c) Magnetic field lines can intersect each other.

- Ans**
- ☒ A. Only (a)
  - ☒ B. Only (b)
  - ☒ C. Both (a) and (b)
  - ☒ D. Both (a) and (c)

#### Section : General Awareness and Current Affairs

**Q.81** Who was conferred with Major Dhyan Chand Khel Ratna Award 2021 for his outstanding achievements in Para shooting?

- Ans**
- ☒ A. Manish Narwal
  - ☒ B. Harman Preet Singh
  - ☒ C. Praveen Kumar
  - ☒ D. Sharad Kumar

**Q.82** A cost incurred in the past and that cannot be recovered in the future is called \_\_\_\_\_.

- Ans**
- ☒ A. sunk cost
  - ☐ B. floating cost
  - ☐ C. prime cost
  - ☐ D. economic cost

**Q.83** Identify the personality from among the following who received the Padma Shri 2022 award in the sports field.

- Ans**
- ☒ A. Avani Lekhara
  - ☐ B. Tara Jauhar
  - ☐ C. Shivnath Mishra
  - ☐ D. Shaibal Gupta

**Q.84** What does the term 'Upa' in the term Upanishad denote?

- Ans**
- ☐ A. Happiness
  - ☐ B. Secret
  - ☐ C. Totality
  - ☒ D. Nearness

**Q.85** What is the direction of the Inter Tropical Convergence Zone in winter?

- Ans**
- ☒ A. Southward
  - ☐ B. Northward
  - ☐ C. Eastward
  - ☐ D. Westward

**Q.86** Panchayati Raj Institutions in India have been established following the \_\_\_\_\_ of the Constitution Of India.

- Ans**
- ☐ A. 42<sup>nd</sup> Amendment Act
  - ☐ B. 57<sup>th</sup> Amendment Act
  - ☒ C. 73<sup>rd</sup> Amendment Act
  - ☐ D. 86<sup>th</sup> Amendment Act

**Q.87** Sohan Singh Bhakna was the first president of the \_\_\_\_\_ founded by Indians in the United States of America in 1913.

- Ans**
- ☐ A. Swaraj Party
  - ☒ B. Ghadar Party
  - ☐ C. Swatantra Party
  - ☐ D. India Revolutionary party

**Q.88** How many participants from India won the gold medal in the 14th International Olympiad on Astronomy and Astrophysics (IOAA) 2021?

- Ans**
- ☒ A. 3
  - ☒ B. 4
  - ☒ C. 5
  - ☒ D. 6

**Q.89** Which day of the calendar year is acknowledged as the 'Rare Disease Day'?

- Ans**
- ☒ A. 08 February
  - ☒ B. 18 February
  - ☒ C. 28 February
  - ☒ D. 28 March

**Q.90** As of July 2022, under the Pradhan Mantri Shram Yogi Maan-Dhan Yojana (PM-SYM) (Old Age Protection), what percentage of monthly contribution is payable by the beneficiary?

- Ans**
- ☒ A. 25%
  - ☒ B. 30%
  - ☒ C. 40%
  - ☒ D. 50%

**Q.91** Which of the following features says that people of India have a direct role in electing their representatives?

- Ans**
- ☒ A. Parliamentary Form of Government
  - ☒ B. Separation of Powers
  - ☒ C. Secularism
  - ☒ D. Fundamental Rights

**Q.92** In which year was Steel Authority of India incorporated?

- Ans**
- ☒ A. 1973
  - ☒ B. 1979
  - ☒ C. 1982
  - ☒ D. 1987

**Q.93** The 'Mango Showers' phenomena in India is related to which season?

- Ans**
- ☒ A. Autumn
  - ☒ B. Summer
  - ☒ C. Winter
  - ☒ D. Rainy

Q.94

Gosikhurd National Irrigation Project is related to which of the following states?

Ans

☐ A. West Bengal

☐ B. Uttar Pradesh

☒ C. Maharashtra

☐ D. Punjab

Q.95

On which day is a major national festival celebrated every year to commemorate the enactment of the Constitution of India, which declared India to be a sovereign, democratic and republic state?

Ans

☒ A. 26th January

☐ B. 23rd March

☐ C. 15th August

☐ D. 2nd October

Q.96

In March 2022, which bank did RBI direct to stop onboarding new customers?

Ans

☐ A. Airtel Payment Bank

☒ B. Paytm Payments Bank

☐ C. AU Small Finance Bank

☐ D. Ujjivan Small Finance Bank

Q.97

Which of the following is NOT a direct tax in India?

Ans

☒ A. Excise Tax

☐ B. Income Tax

☐ C. Capital Gain tax

☐ D. Corporate tax

**Q.98**

KK Venugopal, the 15<sup>th</sup> Attorney General of India, received the first extension in his tenure in which of the following years?

**Ans**

☒ A. 2021

☒ B. 2022

☒ C. 2020

☒ D. 2019

**Q.99**

In February 2022, which state launched open-air classroom 'Paray Shikshalaya'?

**Ans**

☒ A. Haryana

☒ B. Punjab

☒ C. West Bengal

☒ D. Kerala

**Q.100** Which of the following is the prominent language spoken by 8.03% population of India as per 2011 census?

**Ans**

☒ A. Punjabi

☒ B. Gujarati

☒ C. Marathi

☒ D. Bengali





# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 18/08/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** A motor car starts with a speed of 60 km/h and increases its speed after every two hours by 15 km/h. In how much time will it cover a distance of 360 km?

- Ans**
- ☒ A. 2 hours
  - ☒ B. 5 hours
  - ☐ C. 7 hours
  - ☐ D. 9 hours

**Q.2** A can count 100 eggs in 4 minutes while B can count the same number of eggs in 5 minutes. How much time will be required if they work together to count 450 eggs?

- Ans**
- ☐ A. 5 min
  - ☒ B. 10 min
  - ☐ C. 15 min
  - ☐ D. 20 min

**Q.3** If three numbers are in the ratio 5 : 6 : 8 and the sum of their squares is 1250, then the product of those numbers is:

- Ans**
- ☐ A. 2400
  - ☒ B.  $2400\sqrt{10}$
  - ☐ C. 1200
  - ☐ D.  $1200\sqrt{10}$

**Q.4** Find the area of a triangle whose sides are 12 m, 14 m and 16 m.

- Ans**
- ☒ A.  $21\sqrt{15} m^2$
  - ☐ B.  $2\sqrt{15} m^2$
  - ☐ C.  $7\sqrt{15} m^2$
  - ☐ D.  $\sqrt{15} m^2$

**Q.5** Two boxes have chocolates in the ratio 7 : 5. If the difference in the number of chocolates is 28, find the number of chocolates in the box with larger numbers.

- Ans** ☒ A. 98  
☐ B. 91  
☐ C. 84  
☐ D. 77

**Q.6** An item costs ₹2,000 less than ₹5,000. The dealer offers a discount of 10% and the retailer further offers a discount of 5% on its CP. The final SP for the customer is:

- Ans** ☒ A. ₹2,565  
☐ B. ₹3,454  
☐ C. ₹2,878  
☐ D. ₹1,987

**Q.7** My father is presently 25 years older than me. The sum of our ages 5 years ago was 39 years. Find my present age.

- Ans** ☐ A. 20 years  
☐ B. 15 years  
☐ C. 13 years  
☒ D. 12 years

**Q.8** One of the roots of the equation  $x^2 - 12x + k = 0$  is  $x = 3$ . The other root is \_\_\_\_\_.

- Ans** ☐ A.  $x = -4$   
☒ B.  $x = 9$   
☐ C.  $x = 4$   
☐ D.  $x = -9$

**Q.9** The area (in square units) of the quadrilateral ABCD, formed by the vertices A (0, -2), B (2, 1), C (0, 4), and D (-2, 1) is:

- Ans** ☒ A. 12  
☐ B. 13  
☐ C. 14  
☐ D. 15

**Q.10** A group of class IX students conducted a survey for the number of family members in a household on 40 households in a locality, which resulted in the given frequency table. What is the mode of the data?

| Family size | Number of families |
|-------------|--------------------|
| 2-4         | 10                 |
| 4-6         | 8                  |
| 6-8         | 12                 |
| 8-10        | 6                  |
| 10-12       | 4                  |

- Ans** ☒ A. 6.8  
☐ B. 6.6  
☐ C. 6.7  
☐ D. 6.9

**Q.11** If two parallel lines are intersected by a transversal, then which of the options below is not necessarily correct?

- Ans**
- ☒ A. A pair of alternate interior angles have the same measure.
  - ☒ B. A pair of interior angles on the same side of the transversal have the same measure.
  - ☒ C. A pair of corresponding angles have the same measure.
  - ☒ D. A pair of vertically opposite angles have the same measure.

**Q.12** If  $a$  and  $b$  are the roots of  $x^2 + x - 2 = 0$ , then the quadratic equation in  $x$  whose roots are  $\frac{1}{a} + \frac{1}{b}$  and  $ab$  is:

- Ans**
- ☒ A.  $2x^2 - 3x + 2 = 0$
  - ☒ B.  $2x^2 + 5x - 2 = 0$
  - ☒ C.  $2x^2 - 5x + 2 = 0$
  - ☒ D.  $2x^2 + 3x - 2 = 0$

**Q.13** If the difference between two numbers is 52 and they are in the ratio 7 : 3, then find the greater of the two numbers.

- Ans**
- ☒ A. 65
  - ☒ B. 70
  - ☒ C. 84
  - ☒ D. 91

**Q.14** A truck travels at a speed of 60 km/h from city P to city Q and returns to city P by the same route at a speed of 100 km/h. What is the average speed of the truck for the given journey?

- Ans**
- ☒ A. 80 km/h
  - ☒ B. 75 km/h
  - ☒ C. 70 km/h
  - ☒ D. 85 km/h

**Q.15** In a clearance sale, a sari whose marked price was ₹10,490, is now sold for ₹9,441. What is the discount per cent on the sari?

- Ans**
- ☒ A. 12%
  - ☒ B. 15%
  - ☒ C. 18%
  - ☒ D. 10%

**Q.16** A television costs ₹35,000 less than a printer. If the cost of the printer is twice the cost of the television, then the cost of the television is:

- Ans**
- ☒ A. ₹35,000
  - ☒ B. ₹53,000
  - ☒ C. ₹17,500
  - ☒ D. ₹15,700

**Q.17** If  $x$  and  $y$  are the two digits of the number 115  $xy$  such that this number is divisible by 90, then the value of  $x + y$  is:

- Ans**
- ☒ A. 6
  - ☒ B. 3
  - ☒ C. 5
  - ☒ D. 2

Q.18 The value of  $5^3 \times 5^4 \times 5^2 = ?$

- Ans
- ☒ A.  $5^6$
  - ☒ B.  $5^9$
  - ☒ C.  $5^7$
  - ☒ D.  $5^5$

Q.19 The HCF of any set of 10 co-prime numbers is always

- Ans
- ☒ A. 2
  - ☒ B. 0
  - ☒ C. 10
  - ☒ D. 1

Q.20 The value of  $0.0486 \div 0.002 =$

- Ans
- ☒ A. 18.7
  - ☒ B. 13.8
  - ☒ C. 24.3
  - ☒ D. 21.5

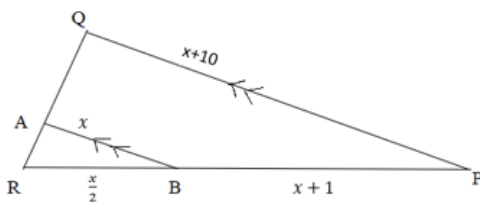
Q.21  $2.666... + 2.77...$  in fraction form is:

- Ans
- ☒ A.  $\frac{31}{9}$
  - ☒ B.  $\frac{29}{9}$
  - ☒ C.  $\frac{49}{9}$
  - ☒ D.  $\frac{47}{9}$

Q.22 The value of  $\sqrt{\frac{1-\cos \theta}{1+\cos \theta}}$  is:

- Ans
- ☒ A.  $\operatorname{cosec} \theta - \cot \theta$
  - ☒ B.  $\operatorname{cosec} \theta + \cot \theta$
  - ☒ C.  $\sec \theta - \cot \theta$
  - ☒ D.  $\sec \theta + \cot \theta$

Q.23 In the given figure,  $AB \parallel QP$ ,  $AB = x$ ,  $PQ = x + 10$ ,  $RB = \frac{x}{2}$ ,  $BP = x + 1$ . Find PQ



- Ans
- ☒ A. 4 units
  - ☒ B. 18 units
  - ☒ C. 13 units
  - ☒ D. 12 units

**Q.24** The simple interest on ₹1,280 at 5% p.a. for 3 years is:

- Ans**
- ☐ A. ₹195
  - ☐ B. ₹180
  - ☒ C. ₹192
  - ☐ D. ₹480

**Q.25** If  $9 : 12 :: 12 : x$ , and  $28 : 42 :: 42 : y$ , then the value of  $2x + y$  is:

- Ans**
- ☐ A. 79
  - ☒ B. 95
  - ☐ C. 84
  - ☐ D. 69

**Section : General Intelligence and Reasoning**

**Q.26** A statement is given followed by two assumptions numbered I and II. You have to assume everything in the statement to be true and decide which of the given assumptions is/are implicit in the statement.

**Statement:**

Essay writing is an art. It requires an understanding of the subject as well as a command over the language to be able to write a good essay.

**Assumptions:**

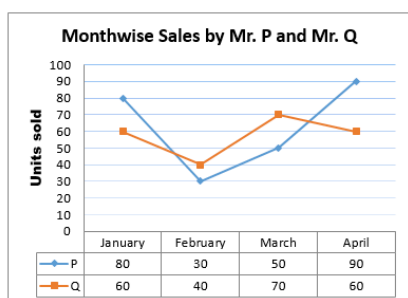
- I. Essays cannot be written without complete mastery over the subject.
- II. Anyone with a good command over the language can write a good essay.

- Ans**
- ☐ A. Only assumption I is implicit
  - ☐ B. Only assumption II is implicit
  - ☒ C. Neither assumption I nor II is implicit
  - ☐ D. Both assumptions I and II are implicit

**Q.27** Six girls decided to record a video of their talks, one on each separate day of the same week. Sunday will be a rest day. P said Friday will suit her. U will start the process and record on Monday. S will record immediately before T. Q will record on a day exactly between the days of U and S. T selected Thursday. Which day is left for R to record the video?

- Ans**
- ☐ A. Monday
  - ☐ B. Wednesday
  - ☐ C. Thursday
  - ☒ D. Saturday

- Q.28** The graph and the table below show the units sold by two salesmen, Mr. P and Mr. Q, in 4 months from January to April. Study the graph and the table and answer the question.



What is the respective ratio of the total units sold by Mr. P and Mr. Q during the 4 months?

- Ans** ☒ A. 25 : 23  
☒ B. 25 : 27  
☒ C. 24 : 23  
☒ D. 23 : 21

- Q.29** If '+' means ' $\div$ ', '-' means '+', ' $\times$ ' means '-' and ' $\div$ ' means ' $\times$ ', then what will be the value of the following expression?

$$[(23 \times 15) - (1 \div 4)] + (2 - 2) \div 2$$

- Ans** ☒ A. 4  
☒ B. 6  
☒ C. 8  
☒ D. 10

- Q.30** Which of the following numbers will replace the question mark (?) in the given series?

0, 2, 6, 12, 20, ?

- Ans** ☒ A. 30  
☒ B. 35  
☒ C. 28  
☒ D. 34

- Q.31** How many times are the hour and the minute hands of a clock at a right angle in a period of two days?

- Ans** ☒ A. 77  
☒ B. 88  
☒ C. 92  
☒ D. 48

- Q.32** A statement is given, followed by four conclusions given in the options. Find out which conclusion is true based on the given statement.

Statement:  $H = W > F \geq S \geq T > Y$

- Ans** ☒ A.  $Y < S$   
☒ B.  $H < F$   
☒ C.  $W < T$   
☒ D.  $T \geq F$

**Q.33** Eight friends Kriti, Durga, Manasi, Surya, Tahira, Vritti, Ahana and Yoshita are sitting around a square table in such a way that four friends are sitting on the corners of the table while the other four are sitting at the exact centre of sides of the table. All are facing the centre of the table. Surya is sitting at the third place to right of Durga. Only Tahira is between Kriti and Durga. Manasi is second to left of Durga. Only Vritti is sitting between Surya and Yoshita. Yoshita is second to left of Ahana. Vritti is second to left of Manasi. Who is sitting third to left of Tahira?

- Ans**
- ☒ A. Ahana
  - ☒ B. Manasi
  - ☒ C. Surya
  - ☒ D. Yoshita

**Q.34** 30 people are standing in a queue facing north. Manoj is standing at the 11<sup>th</sup> position from the front. Shahin is standing at the 7<sup>th</sup> position from the back. Neeraj is standing exactly in front of Shahin. How many people are standing between Neeraj and Manoj?

- Ans**
- ☒ A. 11
  - ☒ B. 12
  - ☒ C. 10
  - ☒ D. 13

**Q.35** Given below are three statements and three conclusions. Take the statements to be true even if they are at variance with commonly known facts, and decide whether the conclusion/s follow/s the given statements.

Statements:

- I. All grasses are shrubs.
- II. All roots are fruits.
- III. All fruits are flowers.

Conclusions:

- I. All grasses are flowers.
- II. All roots are flowers.
- III. Some flowers are fruits.

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Conclusions II and III follow
  - ☒ C. Only conclusion III follows
  - ☒ D. All the conclusions follow

**Q.36** Anita is standing facing the north direction. Then, she turns 135° anticlockwise. After that, she turns 90° clockwise. In which direction is she facing now?

- Ans**
- ☒ A. North-west
  - ☒ B. South-west
  - ☒ C. North-east
  - ☒ D. South-east

**Q.37** This question is based on the five, three-digit numbers given below:  
(Left) 158 438 182 325 230 (Right)

If 5 is added to the first digit of every number, in how many numbers will the first digit be exactly divisible by the second digit?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.38** Among six persons, P, Q, R, S, T and U, each one has a different weight. The weight of Q is more than only two other persons. The weight of P is more than U's weight. The weight of S is more than Q's weight. The weight of R is less than the weight of T. The weight of Q is more than the weight of T. U has the second highest weight among all the six persons. Who has the third highest weight among all six persons?

- Ans**
- ☐ A. P
  - ☒ B. S
  - ☐ C. R
  - ☐ D. T

**Q.39** Three statements are followed by three conclusions numbered I, II and III. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts, and decide which of the given conclusions logically follow/s from the given statements.

Statements:

All donkeys are zebras.

Some bulls are cats.

Some donkeys are apes.

Conclusions:

(I) Some zebras are bulls.

(II) Some zebras are apes.

(III) Some donkeys are cats.

- Ans**
- ☐ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☐ C. Only conclusion III follows
  - ☐ D. None of the conclusions follow

**Q.40** The position of how many letters will remain unchanged if each of the letters in the word 'DIRECT' is arranged in alphabetical order?

- Ans**
- ☐ A. None
  - ☒ B. One
  - ☐ C. Two
  - ☐ D. Three

**Q.41** Select the option that is related to the fifth letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster and the fourth letter-cluster is related to the third letter-cluster.

BEING : YVRMT :: PRIDE : KIRWV :: CLEAN : ?

- Ans**
- ☐ A. XPVRM
  - ☐ B. GOVZP
  - ☒ C. XOVMZ
  - ☐ D. XOWZM

**Q.42** In a certain code language, 'GLEPK' is written as 'DIBMH' and 'QRYHN' is written as 'NOVEK'. How will 'POTER' be written in that language?

- Ans**
- ☐ A. LMPOB
  - ☐ B. LMQOB
  - ☐ C. MLPOB
  - ☒ D. MLQBO



**Q.43** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding / subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(1, 8, 3)

(2, 21, 5)

**Ans** ☒ A. (7, 128, 10)

☒ B. (2, 26, 3)

☒ C. (4, 33, 7)

☒ D. (5, 112, 11)

**Q.44** Janhvi starts walking from her home and goes 45 m towards the west. She then turns right and walks 32 m. Then, she turns right and walks 88 m. After that, she turns right and walks 50 m. Finally, she turns right again and walks 43 m. How far and in which direction is she now from her home? (All turns are 90 degree turns only)

**Ans** ☒ A. 16 m, South

☒ B. 45 m, North

☒ C. 18 m, North

☒ D. 18 m, South

**Q.45** Which two numbers should be interchanged to make the given equation correct?

$$7 \times 8 + 9 - 6 \div 3 = 59$$

**Ans** ☒ A. 7 and 3

☒ B. 8 and 9

☒ C. 6 and 9

☒ D. 3 and 6

**Q.46** Three statements are followed by four conclusions numbered I, II, III and IV. You have to consider these statements to be true, even if they seem at variance from commonly known facts. Decide which of the given conclusions logically follow/s from the given statements.

**Statements:**

1. All couriers are shipments.
2. All shipments are transports.
3. No haul is transport.

**Conclusions:**

- I. No transport is shipment.
- II. All couriers are transports.
- III. Some transports are shipments.
- IV. No courier is haul.

**Ans** ☒ A. Only conclusions II and IV follow.

☒ B. Only conclusions I and IV follow.

☒ C. Only conclusions II, III and IV follow.

☒ D. All conclusions follow.

**Q.47** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

11 : 130 :: 7 : 58 :: 15 : ?

- Ans**
- ☒ A. 216
  - ☒ B. 224
  - ☒ C. 234
  - ☒ D. 248

**Q.48** Which of the following numbers will replace the question mark (?) in the given series?

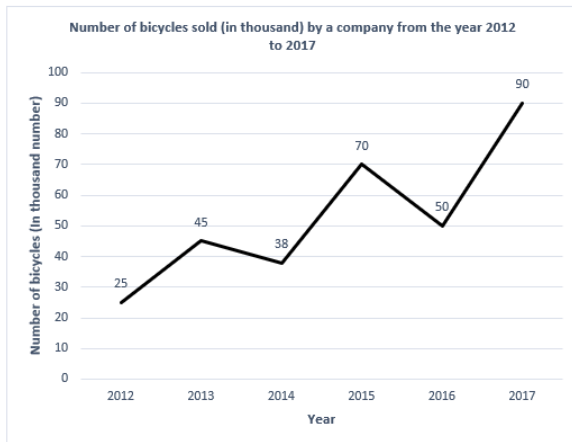
5, 13, 23, 49, ?, 193

- Ans**
- ☒ A. 82
  - ☒ B. 95
  - ☒ C. 105
  - ☒ D. 120

**Q.49** P, Q, R, S, T, U and V live on seven different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it is numbered 2, and so on till the topmost floor is numbered 7. U lives on the top floor. Only two persons live between T and Q. Q is on floor number 3. V lives on the floor immediately above P's floor. S lives on the floor immediately above R's floor. Q lives on the floor immediately below R's floor. Who lives on floor number 6?

- Ans**
- ☒ A. R
  - ☒ B. S
  - ☒ C. T
  - ☒ D. V

**Q.50** Study the following line graph carefully and answer the given question.



The number of bicycles sold in 2013 is approximately what percent of the number of bicycles sold in 2017?

- Ans**
- ☒ A. 100%
  - ☒ B. 10%
  - ☒ C. 50%
  - ☒ D. 45%

- Q.51** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/Symbol | 5 | 6 | 8 | 3 | % | # | 7 |
|---------------|---|---|---|---|---|---|---|
| Codes         | U | S | C | K | D | T | A |

Conditions:

- If the first element is an odd number and the last element is an even number, the codes for these two (the first and the last elements) are to be interchanged.
- If the second element is a symbol and the fifth element is an even number, the codes for these two (the second and the fifth elements) are to be interchanged.
- If the third element is a number and the fourth element is a symbol, both these elements (the third and the fourth elements) are to be coded as W.

Question: 5 # % 6 7 # 3 8

- Ans**
- ☒ A. U T D S A T K C
  - ☒ B. C A D S T T K U
  - ☒ C. C T D S A T K U
  - ☒ D. C T W W A T K U

- Q.52** If '+' means '-', '-' means '+', '\*' means 'x' and 'x' means '+', what will come in place of the question mark (?) in the following equation?

$$12 \div 6 + 28 - 7 \times 14 = ?$$

- Ans**
- ☒ A. 72
  - ☒ B. 82
  - ☒ C. 80
  - ☒ D. 78

- Q.53** The position of how many letters will remain unchanged if each of the letters in the word 'LAMENT' is arranged in alphabetical order?

- Ans**
- ☒ A. None
  - ☒ B. One
  - ☒ C. Two
  - ☒ D. Three

- Q.54** A, B, C, D, E and F were six friends playing games around a circular table. They were standing facing the centre of the table. E was standing to the immediate left of A. C was second to the left of F. There were exactly two people between D and A. B was at the immediate right of A. Which friend was at the immediate right of F?

- Ans**
- ☒ A. C
  - ☒ B. A
  - ☒ C. D
  - ☒ D. E

- Q.55** Select the option that represents the letters that, when placed from left to right in the same sequence in the blanks below, will complete the letter series.

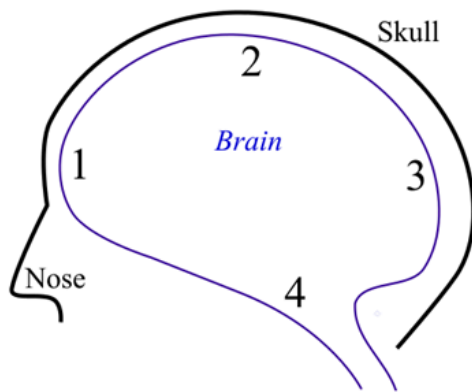
B \_ M \_ Q \_ V M W \_ B V M W \_ B V \_ \_ T

- Ans**
- ☒ A. V W V R S M R
  - ☒ B. V W B R S M W
  - ☒ C. V W V R R M W
  - ☒ D. V W B V S W M

Q.56 An AC generator works on the principle of:

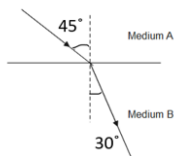
- Ans
- ✓ A. electromagnetic induction
  - ✗ B. force on a current carrying conductor
  - ✗ C. heating effect of electric current
  - ✗ D. electromagnetism

Q.57 Which of the following numbers indicates the spinal cord's location in the human brain?



- Ans
- ✗ A. Number 1
  - ✗ B. Number 2
  - ✗ C. Number 3
  - ✓ D. Number 4

Q.58 The path of a ray of light incident on an interface separating two media is shown in the figure below. The refractive index of medium A with respect to medium B is equal to:



- Ans
- ✓ A.  $\sqrt{2}$
  - ✗ B.  $\frac{1}{\sqrt{2}}$
  - ✗ C.  $\frac{1}{2\sqrt{2}}$
  - ✗ D.  $2\sqrt{2}$

Q.59 Which of the following uses spores to reproduce?

- Ans
- ✗ A. Amoeba
  - ✗ B. Yeast
  - ✗ C. Mango
  - ✓ D. Ferns

**Q.60** An object is placed at the principal focus of a concave lens. Which of the following options represents the characteristics of the image formed?

- Ans**
- ☒ A. Real and enlarged
  - ☒ B. Real and diminished
  - ☒ C. Virtual and enlarged
  - ☒ D. Virtual and highly diminished

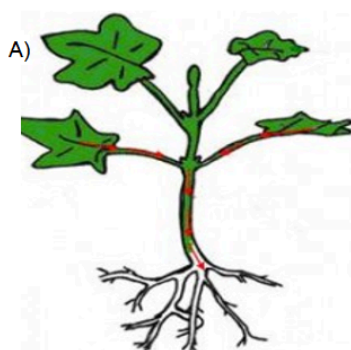
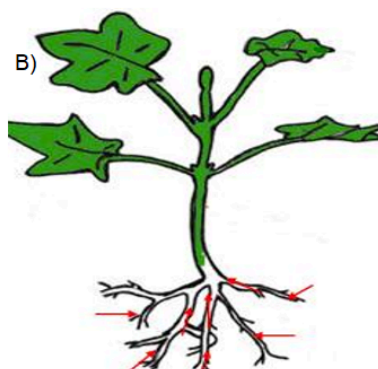
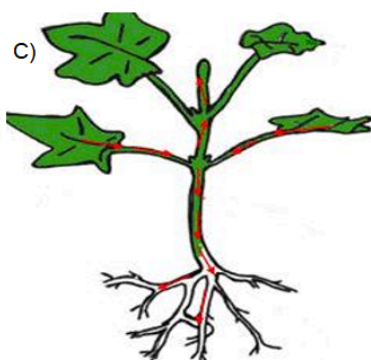
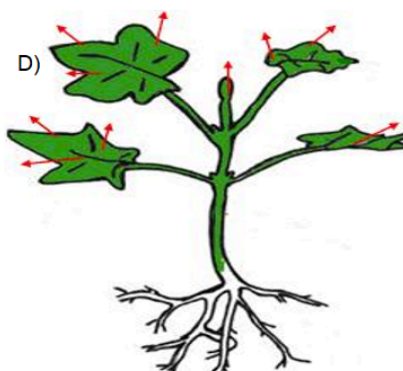
**Q.61** Which of the following elements is the most reactive?

- Ans**
- ☒ A. Pb
  - ☒ B. Al
  - ☒ C. Ca
  - ☒ D. Mg

**Q.62** A boy focusses a sharp image of a distant object on a screen using a lens. The distance between the lens and screen is approximately equal to:

- Ans**
- ☒ A.  $f$
  - ☒ B.  $f/2$
  - ☒ C.  $f/3$
  - ☒ D.  $2f$

**Q.63** Which figure is the correct representation of the movement of food in phloem?



- Ans**
- ☒ A. A
  - ☒ B. B
  - ☒ C. C
  - ☒ D. D

**Q.64** Which of the following statements is/are correct?

- (i) Magnetic field strength is strongest at the centre of a bar magnet.
- (ii) No two magnetic field lines can intersect.
- (iii) Magnetic field lines always form closed continuous curves.

**Ans** ☒ A. Only (i)

☒ B. Only (ii)

☒ C. Both (i) and (ii)

☒ D. Both (ii) and (iii)

**Q.65** Which of the following is NOT a possible isomer of hexane?

**Ans** ☒ A. 2-ethyl pentane

☒ B. 2-methyl pentane

☒ C. 3-methyl pentane

☒ D. 2, 2 dimethyl butane

**Q.66** Consider the below statements and identify the correct answer.

Statement-I: If a substance loses oxygen during a reaction, it is said to be reduced.

Statement-II: If a substance gains hydrogen during a reaction, it is said to be reduced.

**Ans** ☒ A. Both the statements are true.

☒ B. Both the statements are false.

☒ C. Statement-I is true, and Statement-II is false.

☒ D. Statement-I is false, and Statement-II is true.

**Q.67** Consider the below statements and identify the correct answer.

Statement I: Dobereiner gave the law of triads.

Statement II: Dobereiner tried to arrange the elements with different properties into groups, having three elements each.

**Ans** ☒ A. Both statements are correct. Statement II is correct explanation of Statement I.

☒ B. Both Statements are correct. Statement I is correct explanation of Statement II.

☒ C. Only Statement I is Correct.

☒ D. Only Statement II is correct.

**Q.68** A wire of a given material has length 'l' and resistance 'R'. Another wire of the same material having three times the length and twice the area of cross section will have a resistance equal to:

**Ans** ☒ A.  $\frac{3}{2}R$

☒ B.  $\frac{2}{3}R$

☒ C.  $\frac{1}{2}R$

☒ D.  $3R$

**Q.69** Which of the following should be done to conserve coal and petroleum?

- Ans**
- ☒ A. Avoid using public transportation or joining a carpool.
  - ☒ B. Do not overuse air conditioning or heating systems.
  - ☒ C. Solar cookers should be avoided at all costs.
  - ☒ D. Avoid substituting CFL bulbs for standard incandescent bulbs.

**Q.70** The table below shows the differences between the structure and function of plants and animals.

Which option shows the INCORRECT statement?

| Sr. no. | Plants                               | Animals                                  |
|---------|--------------------------------------|------------------------------------------|
| a.      | Do not move                          | Move in search of food, mate and shelter |
| b.      | Most tissues are dead                | Most tissues are living                  |
| c.      | Need less energy                     | Need more energy                         |
| d.      | Growth is limited to certain regions | Growth is limited to certain regions     |

- Ans**
- ☒ A. a
  - ☒ B. b
  - ☒ C. c
  - ☒ D. d

**Q.71** Some reasons highlighting the importance of delivering sex education in schools are mentioned below.

Choose the incorrect option.

- Ans**
- ☒ A. Knowledge about changes taking place during puberty
  - ☒ B. Discouraging various myths and misconceptions
  - ☒ C. Knowing about their body changes, teenagers start making fun of each other
  - ☒ D. Helps to keep teenagers away from sexual abuse

**Q.72** Match the following:

| A                     | B                              |
|-----------------------|--------------------------------|
| i. red cabbage leaves | a. olfactory indicator         |
| ii. methyl orange     | b. acid base indicator         |
| iii. Onion, clove     | c. natural acid base indicator |

- Ans**
- ☒ A. i-a, ii-b, iii-c
  - ☒ B. i-c, ii-b, iii-a
  - ☒ C. i-c, ii-a, iii-b
  - ☒ D. i-a, ii-c, iii-b



Q.73 Identify the correct chemical reaction involved in bleaching powder preparation

- Ans
- ✓ A.  $\text{Ca(OH)}_2 + \text{Cl}_2 \rightarrow \text{CaOCl}_2 + \text{H}_2\text{O}$
  - ✗ B.  $\text{NaCl} + \text{H}_2\text{O} + \text{CO}_2 + \text{NH}_3 \rightarrow \text{NH}_4\text{Cl} + \text{NaHCO}_3$
  - ✗ C.  $\text{NaHCO}_3 + \text{H}^+ \rightarrow \text{CO}_2 + \text{H}_2\text{O} + \text{Sodium salt of acid}$
  - ✗ D.  $2 \text{NaCl (aq)} + 2 \text{H}_2\text{O (l)} \rightarrow 2 \text{NaOH (aq)} + \text{Cl}_2 \text{ (g)} + \text{H}_2 \text{ (g)}$

Q.74 Which of the following properties do covalent compounds generally NOT exhibit?

- Ans
- ✓ A. They are not soluble in an organic solvent.
  - ✗ B. They are bad conductors of electricity and heat.
  - ✗ C. They form by sharing of electrons.
  - ✗ D. They do not form ions generally.

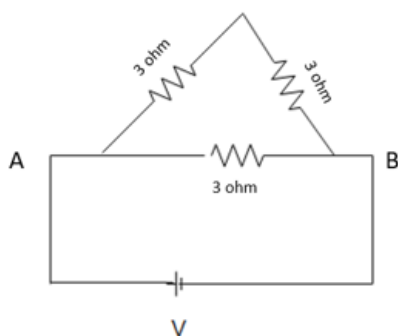
Q.75 1 horsepower equals:

- Ans
- ✗ A. 746 J
  - ✓ B. 746 W
  - ✗ C. 746 kW
  - ✗ D. 74.6 J/s

Q.76 Which of the following is NOT a biotic component of the ecosystem?

- Ans
- ✓ A. Soil
  - ✗ B. Flower
  - ✗ C. Insect
  - ✗ D. Frog

Q.77 The equivalent resistance between points A and B shown in the figure below:



- Ans
- ✓ A.  $2 \Omega$
  - ✗ B.  $9 \Omega$
  - ✗ C.  $4.5 \Omega$
  - ✗ D.  $6 \Omega$



**Q.78** How and when is oxygen produced as a waste product in plants?

- Ans**
- ✓ **A.** By photosynthesis during the day
  - ✗ **B.** By respiration during the day
  - ✗ **C.** By photosynthesis during the night
  - ✗ **D.** By respiration during the night

**Q.79** What was the achievement of Dobereiner's triads?

- Ans**
- ✓ **A.** First attempt to relate the properties of elements with atomic mass.
  - ✗ **B.** First attempt to study the atomicity of molecules.
  - ✗ **C.** First attempt to study the colour of elements.
  - ✗ **D.** First attempt to study the size of atoms.

**Q.80** Which of the following statements are correct?

- (a) For a lens the first principal focus is the position of the object whose image is at infinity
- (b) For a lens the first principal focus is the position of the object whose image is formed at twice the focal length.
- (c) For a lens the second principal focus is the position of the real image whose object is at infinity
- (d) For a lens the second principal focus is the position of the object whose image is formed at twice the focal length

- Ans**
- ✗ **A.** Both (a) and (b)
  - ✗ **B.** Both (b) and (c)
  - ✓ **C.** Both (a) and (c)
  - ✗ **D.** Both (b) and (d)

Section : **General Awareness and Current Affairs**

**Q.81** Which of the following is worshipped by people during the festival of Pongal?

- Ans**
- ✓ **A.** The Sun
  - ✗ **B.** The Moon
  - ✗ **C.** God Shiva
  - ✗ **D.** Maa Durga

**Q.82**

According to the 'World Economic Outlook-April 2022' report, raised India's GDP growth estimate to 9% for 2022-23 and for 2023-24 it forecast the economy to grow by 7.1%. Who released this report?

**Ans**

- ☐ A. World Bank
- ☐ B. Ministry of Finance of India
- ☐ C. Reserve Bank of India
- ☒ D. International Monetary Fund (IMF)

**Q.83**

Which Amendment of the Constitution of India envisages the Gram Sabha as the foundation of the Panchayat Raj System to perform functions and powers entrusted to it by the State Legislatures?

**Ans**

- ☐ A. 54th
- ☐ B. 63rd
- ☐ C. 71st
- ☒ D. 73rd

**Q.84**

In India, Mangrove Forests are majorly found in which of the following states?

**Ans**

- ☐ A. Maharashtra
- ☐ B. Telangana
- ☒ C. West Bengal
- ☐ D. Nagaland

**Q.85**

In March 2022, which state has become the first to start 'Air Health Service' in rural areas?

**Ans**

- ☐ A. Tamil Nadu
- ☐ B. Gujarat
- ☒ C. Odisha
- ☐ D. Bihar

**Q.86**

India launched a commemorative logo to mark her 30<sup>th</sup> anniversary of diplomatic ties with which of these countries?

**Ans**

- ✓ A. Israel
- ✗ B. Canada
- ✗ C. Spain
- ✗ D. America

**Q.87**

Which of the following falls under Article 51A of the Indian Constitution?

**Ans**

- ✗ A. Fundamental rights
- ✓ B. Fundamental Duties
- ✗ C. Cultural and Education Rights
- ✗ D. Promotion of International peace and security

**Q.88**

Pankaj Advani bagged his 41st title by defeating whom, to lift his 8th title at the Asian 100 UP Billiards Championship 2022?

**Ans**

- ✗ A. Aditya Mehta
- ✓ B. Dhruv Sitwala
- ✗ C. Sourav Kothari
- ✗ D. Manan Chandra

**Q.89**

Which social reformer founded the 'Brahmo Samaj' in 1828 and became famous for his pioneering role in advocating education and opposing practices like Sati, child marriage and social division?

**Ans**

- ✗ A. Swami Dayanand Saraswati
- ✓ B. Raja Ram Mohan Roy
- ✗ C. Ishwarchandra Vidyasagar
- ✗ D. Swami Vivekananda

**Q.90**

In how many states was the first round of Mission Indradhanush (IMI) 4.0 organised by the Union Ministry of Health and Family Welfare in February 2022, with an aim to increase full immunisation coverage?

**Ans**

- ✗ A. 8
- ✓ B. 11
- ✗ C. 14
- ✗ D. 16

Q.91

In January 2022, Paytm Money launched India's first intelligent messenger called \_\_\_\_\_.

Ans

☐ A. Cops

☒ B. Pops

☐ C. Pay Money

☐ D. PayU

Q.92

According to the Economic Survey 2021-22, what is the rank of India (Globally) in average annual net gain in forest area?

Ans

☐ A. 1<sup>st</sup>

☐ B. 2<sup>nd</sup>

☒ C. 3<sup>rd</sup>

☐ D. 4<sup>th</sup>

Q.93

Under which five-year plan was Bharat Nirman started by the Government of India to upgrade rural infrastructure?

Ans

☐ A. Sixth Five Year Plan

☐ B. Eighth Five Year Plan

☐ C. Ninth Five Year Plan

☒ D. Tenth Five Year Plan

Q.94

Who among the following is considered as the founder of Islam?

Ans

☐ A. Prophet Yusuf

☐ B. Prophet Noah

☒ C. Prophet Muhammad

☐ D. Prophet Abraham

Q.95

Identify the long jumper of India who won a silver medal at the U-20 World Athletics Championships in the year 2021.

Ans

☐ A. Mercy Kuttan

☒ B. Shaili Singh

☐ C. Nayana James

☐ D. Seema Punia

**Q.96** Which of the following ministries introduced The Weapons of Mass Destruction and their Delivery Systems (Prohibition of Unlawful Activities) Amendment Bill, 2022, in the Lok Sabha on 5 April 2022?

- Ans**
- ☒ A. Ministry of Law and Justice
  - ☒ B. Ministry of External Affairs
  - ☒ C. Ministry of Defence
  - ☒ D. Ministry of Home Affairs

**Q.97** How many languages are there in the 8<sup>th</sup> Schedule of the Indian Constitution as on June 2022?

- Ans**
- ☒ A. 15
  - ☒ B. 19
  - ☒ C. 22
  - ☒ D. 25

**Q.98** Which of the following places is a harnessing site for geothermal energy in India?

- Ans**
- ☒ A. Manikaran
  - ☒ B. Tarapur
  - ☒ C. Bokaro
  - ☒ D. Kolkata

**Q.99** Which of the following is NOT included in the financial budget of India?

- Ans**
- ☒ A. Fiscal deficit
  - ☒ B. Primary deficit
  - ☒ C. Revenue deficit
  - ☒ D. Credit control

**Q.100** The original Constitution of 1950 envisaged a Supreme Court with a Chief Justice and \_\_\_\_\_ puisne Judges - leaving it to Parliament to increase this number.

- Ans**
- ☒ A. 11
  - ☒ B. 7
  - ☒ C. 14
  - ☒ D. 17



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 18/08/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** In how many years will a sum of ₹10,000 become ₹13,310 at 10% compound interest per annum, compounded annually?

**Ans** ☒ A. 2

☒ B. 3

☒ C. 4

☒ D. 5

**Q.2** The fraction equivalent to 0.474747... is:

**Ans** ☒ A.  $\frac{27}{100}$

☒ B.  $\frac{27}{9}$

☒ C.  $\frac{11}{27}$

☒ D.  $\frac{47}{99}$

**Q.3** If  $a + b = 56$  and  $(a - b)^2 = 496$ , find the value of product of a and b.

**Ans** ☒ A. 660

☒ B. 560

☒ C. 760

☒ D. 460

**Q.4** A and B invest ₹42,000 and ₹56,000 respectively, in a business. At the end of the year they make a profit of ₹87,220. Find B's share in the profit.

**Ans** ☒ A. ₹49,840

☒ B. ₹48,480

☒ C. ₹45,620

☒ D. ₹47,240

**Q.5** If each interior angle of a regular polygon is  $135^\circ$ , then the number of sides that polygon has is:

- Ans**
- ☒ A. 8
  - ☐ B. 10
  - ☐ C. 12
  - ☐ D. 15

**Q.6** The area (in square units) of the triangle formed by the vertices (0,2), (2,3) and (3,1) is:

- Ans**
- ☐ A. 5.5
  - ☐ B. 4.4
  - ☐ C. 3.5
  - ☒ D. 2.5

**Q.7** A class of 30 students appeared in a test. The average score of 12 students is 80, and that of the rest is 75. What is the average score of the class?

- Ans**
- ☐ A. 87
  - ☐ B. 67
  - ☐ C. 56
  - ☒ D. 77

**Q.8** If  $x^2 + 2x + 9 = (x - 2)(x - 3)$ , then the resultant equation is:

- Ans**
- ☐ A. a quadratic equation
  - ☐ B. a cubic equation
  - ☒ C. not a quadratic equation
  - ☐ D. a cubic polynomial

**Q.9** Two pipes X and Y can fill a cistern in 21 hours and 24 hours, respectively. The pipes are opened simultaneously and it is found that due to a leakage in the bottom it takes 48 minutes more to fill the cistern. When the cistern is full, in how much time will the leak empty it if no pipe is open during that time?

- Ans**
- ☐ A. 120 hours
  - ☒ B. 168 hours
  - ☐ C. 144 hours
  - ☐ D. 130 hours

**Q.10** Which of the following is the greatest number that divides 72 and 119 and leaves 3 and 4 as respective remainders?

- Ans**
- ☒ A. 23
  - ☐ B. 19
  - ☐ C. 21
  - ☐ D. 17

**Q.11** If  $3x - 2y = 10$  and  $xy = 11$ , the value of  $27x^3 - 8y^3$  is \_\_\_\_\_

- Ans**
- ☒ A. 2980
  - ☐ B. 3170
  - ☐ C. 2569
  - ☐ D. 3336

**Q.12** A vendor sold 25 laptops at a profit of 12% and 15 laptops at a profit of 20%. If he had sold all the 40 laptops at a profit of 18%, his profit would have increased by ₹30,000. What is the cost price of each laptop, if the cost price of all the 40 laptops is the same?

- Ans**
- ☐ A. ₹28,000
  - ☐ B. ₹27,000
  - ☐ C. ₹26,000
  - ☒ D. ₹25,000

**Q.13** If  $\sec 4A = \operatorname{cosec} (3A - 50^\circ)$ , where  $4A$  and  $3A$  are acute angles, find the value of  $A + 75$ .

- Ans**
- ☐ A.  $78^\circ$
  - ☐ B.  $67^\circ$
  - ☐ C.  $105^\circ$
  - ☒ D.  $95^\circ$

**Q.14** The sum of ages of P and Q is 15 years more than the sum of ages of Q and R. How many years younger is R as compared to P?

- Ans**
- ☐ A. 12
  - ☐ B. 13
  - ☒ C. 15
  - ☐ D. 19

**Q.15** How many seconds will a boy take to run one complete round around a square field of side 38 metres, if he runs at a speed of 6 km/h?

- Ans**
- ☐ A. 50.1
  - ☐ B. 61.2
  - ☐ C. 71.2
  - ☒ D. 91.2

**Q.16** The smallest natural number that must be added to 1212 to make it a perfect square is:

- Ans**
- ☒ A. 13
  - ☐ B. 24
  - ☐ C. 27
  - ☐ D. 18

**Q.17** Two angles are complementary. The larger angle is  $6^\circ$  less than thrice the measure of the smaller angle. What is the measure of the larger angle?

- Ans**
- ☐ A.  $54^\circ$
  - ☐ B.  $57^\circ$
  - ☐ C.  $63^\circ$
  - ☒ D.  $66^\circ$

**Q.18** If  $AB = x + 3$ ,  $BC = 2x$  and  $AC = 4x - 5$ , then for what value of 'x' does B lie on AC?

- Ans**
- ☐ A. 2
  - ☐ B. 3
  - ☐ C. 5
  - ☒ D. 8



**Q.19** The diagonal and one side of a rectangular plot are 65 m and 63 m, respectively. What is the perimeter of the rectangular plot?

- Ans**
- ☒ A. 256 m
  - ☒ B. 225 m
  - ☒ C. 196 m
  - ☒ D. 158 m

**Q.20** If 10% of 24% of  $x$  is 240, then  $x = ?$

- Ans**
- ☒ A. 100
  - ☒ B. 10000
  - ☒ C. 1000
  - ☒ D. 100000

**Q.21** Which of the following pairs of numbers are co-primes?

- Ans**
- ☒ A. 12 and 18
  - ☒ B. 34 and 35
  - ☒ C. 7 and 14
  - ☒ D. 17 and 170

**Q.22** Find the smallest number by which 6300 must be multiplied to make it a perfect square.

- Ans**
- ☒ A. 6
  - ☒ B. 7
  - ☒ C. 12
  - ☒ D. 15

**Q.23** A man buys 15 identical articles for a total of ₹15. If he sells each of them for ₹1.23, then his profit percentage is:

- Ans**
- ☒ A. 23%
  - ☒ B. 8%
  - ☒ C. 32%
  - ☒ D. 50%

**Q.24** Find the mode of the data 2, 2, 3, 5, 15, 15, 15, 20, 21, 23, 25, 15, 23, 25.

- Ans**
- ☒ A. 21
  - ☒ B. 15
  - ☒ C. 23
  - ☒ D. 25

**Q.25** Find the roots of  $\frac{6}{x} - \frac{2}{x-1} - \frac{1}{x-2} = 0$ .

- Ans**
- ☒ A.  $\frac{4}{3}$  and  $\frac{3}{2}$
  - ☒ B.  $\frac{4}{5}$  and 3
  - ☒ C.  $\frac{4}{3}$  and 3
  - ☒ D.  $\frac{4}{5}$  and  $\frac{3}{2}$

**Q.26** Which of the following numbers will replace the question mark (?) in the given series?

2, 14, 70, 210, ?

- Ans**
- ☒ A. 410
  - ☒ B. 630
  - ☒ C. 210
  - ☒ D. 420

**Q.27** Which of the following options is the closest approximate value which will come in place of question mark (?) in the following equation?

$$26.52 \times 3.89 - 7.79 \times 2 + 27.39 = ?$$

- Ans**
- ☒ A. 119
  - ☒ B. 136
  - ☒ C. 82
  - ☒ D. 181

**Q.28** L, K, J, H, G, F, D and S live on eight different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 8. L lives exactly one floor above K and exactly one floor below G. Only K lives between H and L, whereas H lives exactly one floor above J. Only D lives between S and J. F lives on the 8<sup>th</sup> floor, while S lives on the 1<sup>st</sup> floor.

On which floor does K live?

- Ans**
- ☒ A. 7<sup>th</sup>
  - ☒ B. 5<sup>th</sup>
  - ☒ C. 4<sup>th</sup>
  - ☒ D. 3<sup>rd</sup>

**Q.29** Q started from a point and walked towards the south for 42 m, then from there he turned right and walked 2 m, then he turned right again and walked 30 m, and then turned left and walked 10 m. In which direction is Q facing now?

(All turns are 90 degree turns only)

- Ans**
- ☒ A. East
  - ☒ B. West
  - ☒ C. North
  - ☒ D. South

**Q.30** Which of the following alphanumeric clusters will replace the question mark (?) in the series to make it logically complete?

BE 2, GJ 3, LO 5, QT 7, ?

- Ans**
- ☒ A. VY 6
  - ☒ B. VY11
  - ☒ C. WX 6
  - ☒ D. WX 7

**Q.31** Three statements are given, followed by two conclusions numbered I and II. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

Statements:

1. Some avalanches are precipitations.
2. Some cataclysms are avalanches.
3. All avalanches are storms.

Conclusions:

- I. Some storms are cataclysms.  
II. No precipitation is storms.

**Ans**  **A. Only conclusion I follows**  
 **B. Only conclusion II follows**  
 **C. Neither conclusion I nor II follows**  
 **D. Both conclusions I and II follow**

**Q.32** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(12, 51, 5)

(5, 36, 7)

**Ans**  **A. (19, 44, 3)**  
 **B. (13, 10, 7)**  
 **C. (14, 120, 16)**  
 **D. (11, 51, 6)**

**Q.33** A statement is given, followed by four conclusions given in the options. Find out which conclusion is true based on the given statement.

Statement:  $K = U = R > N > E > G < W$

**Ans**  **A.  $K < N$**   
 **B.  $G < R$**   
 **C.  $W < N$**   
 **D.  $K = N$**

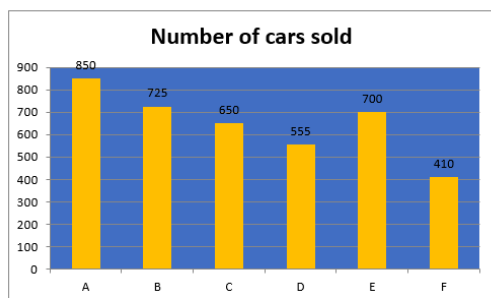
**Q.34** P, Q, R, S and T are sitting in a straight row, facing north. Neither Q nor S sit at the exact central position of the row. R is adjacent to S, while P and T are sitting at the extreme ends of the row. Who is sitting at the exact central position of the row?

**Ans**  **A. R**  
 **B. Q**  
 **C. S**  
 **D. T**

**Q.35** A certain number of people are sitting in a row, facing the north. Only 7 persons sit between F and U. F is at one of the extreme ends of the row. Only 9 persons sit between H and U. Only 12 persons sit between E and H. E is at the extreme right end. H is at the 19<sup>th</sup> position from the extreme left end. H is 14<sup>th</sup> from the extreme right end. If no other person is sitting in the row, what is the total number of persons seated?

**Ans**  **A. 31**  
 **B. 32**  
 **C. 33**  
 **D. 34**

- Q.36** The following chart shows the numbers of cars sold by a company at its six branches named A, B, C, D, E and F. Study the chart and answer the question.



For how many branches was the sale of the cars above the average sale for all six branches?

- Ans** ☒ A. Two  
☒ B. Three  
☒ C. Four  
☒ D. Five
- Q.37** In a certain code language, 'LEFT' is written as 'VGFN' and 'DESK' is written as 'MTFF'. How will 'HELP' be written in that language?
- Ans** ☒ A. QMFJ  
☒ B. RMFJ  
☒ C. RNFJ  
☒ D. SMFJ
- Q.38** Which of the following numbers will replace the question mark (?) in the given series?

13, 21, 33, 54, 91, ?

- Ans** ☒ A. 153  
☒ B. 162  
☒ C. 175  
☒ D. 183
- Q.39** Based on the given statement, two conclusions are drawn. Find out which conclusion is true based on the statement.
- Statement:  $B \geq M > G$ ,  $S < G \geq Y = L$

Conclusions:

1.  $B > Y$
2.  $M = L$

- Ans** ☒ A. Only conclusion 1 is true  
☒ B. Only conclusion 2 is true  
☒ C. Both conclusions 1 and 2 are true  
☒ D. Neither conclusion 1 nor 2 is true

- Q.40** G, H, I, J, K and L live on six different floors of the same building. The lowermost floor in the building is numbered 6, the floor above it is numbered 5, and so on till the topmost floor is numbered 1.

J lives on an even numbered floor. G and K each live on an odd numbered floor. I lives on floor number 2. H lives on an odd numbered floor, immediately above L and immediately below I. G does not live on the topmost floor. Who lives on the lowermost floor?

- Ans** ☒ A. J  
☒ B. L  
☒ C. G  
☒ D. K

- Q.41** The table given below shows the record of the number of students who got selected in the entrance exam of M.Phil. in a particular central university from five different states of India over the years. Study the table and answer the question.

| States<br>Years | Kashmir | Bihar | MP  | Punjab | Delhi |
|-----------------|---------|-------|-----|--------|-------|
| 2017            | 300     | 440   | 250 | 350    | 280   |
| 2018            | 400     | 400   | 280 | 400    | 320   |
| 2019            | 450     | 350   | 240 | 260    | 260   |
| 2020            | 500     | 380   | 400 | 320    | 400   |
| 2021            | 430     | 420   | 540 | 280    | 350   |

The number of students who got selected in 2020 from Bihar was approximately what percentage of the total number of students who got selected from Delhi for all the years together?

- Ans**
- ☒ A. 15.5%
  - ☒ B. 23.6%
  - ☒ C. 20.5%
  - ☒ D. 15.0%

- Q.42** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

3 : 12 :: 25 : 78 :: 21 : ?

- Ans**
- ☒ A. 63
  - ☒ B. 66
  - ☒ C. 42
  - ☒ D. 48

- Q.43** In a certain code language, TRIP is written as WULS and SOME is written as VRPH. How will CLAN be written in the same language?

- Ans**
- ☒ A. FPDQ
  - ☒ B. FOEQ
  - ☒ C. FODQ
  - ☒ D. FODR

- Q.44** How many such pairs of letters are there in the word 'CAPITAL' (in both forward and backward directions) each of which have as many letters between them in the word as there are in the English alphabetical order?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

- Q.45** Read the given statement and conclusions carefully. Assuming that the information given in the statements is true, decide which of the given conclusions logically follow(s) from the statement.

**Statement:**

Cyclone Sepa is expected to make landfall by 3 p.m. today on the Balasore coast. Rough seas, heavy rain and strong winds are expected to lash Balasore from 11 a.m. onwards. Power supply in Balasore is likely to be affected from 2 p.m. to 9 p.m.

**Conclusions:**

- I. There could be power cuts in Balasore after 3 p.m. today.
- II. It would be unsafe for fishermen to venture out into the sea today, till the cyclone passes.

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Neither conclusion I nor II follows
  - ☒ D. Both conclusions I and II follow

**Q.46** Three statements are followed by three conclusions numbered I, II and III. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts, and decide which of the given conclusions logically follow/s from the given statements.

Statements:

All toys are plastics.

All plastics are disposables.

Some toys are fibres.

Conclusions:

(I) Some fibres are plastics.

(II) Some disposables are fibres.

(III) No fibre is a disposable.

- Ans**
- ☒ A. Only conclusions I and II follow
  - ☐ B. Only conclusions II and III follow
  - ☐ C. Either conclusion I or conclusion III follows
  - ☐ D. None of the conclusions follow

**Q.47** Which of the following options is the closest approximate value which will come in place of question mark (?) in the following equation?

$$48.9 \times 3.95 - 2.97 + 17.86 = ?$$

- Ans**
- ☐ A. 140
  - ☐ B. 125
  - ☒ C. 211
  - ☐ D. 250

**Q.48** Study the given letter, symbol series and answer the question that follows.

L @ S O J ^ B U # W R < E M @ N U # B \* H ! A & L E W % H & G A \* S A # L D

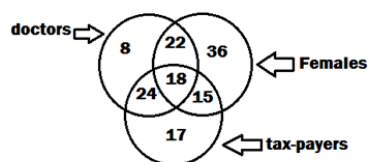
How many consonants are immediately preceded by a symbol and immediately followed by a vowel?

- Ans**
- ☐ A. 5
  - ☐ B. 4
  - ☒ C. 6
  - ☐ D. 3

**Q.49** What is the angle traced by the hour hand in 23 minutes?

- Ans**
- ☒ A.  $11.5^\circ$
  - ☐ B.  $12^\circ$
  - ☐ C.  $12.5^\circ$
  - ☐ D.  $13^\circ$

- Q.50** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



How many such females are there who are also tax-payers but NOT doctors?

- Ans** ☒ A. 18  
☒ B. 15  
☒ C. 33  
☒ D. 40

- Q.51** Study the given letter series and answer the question that follows.

K I O X J E T R U L E B A C K J M N

How many such vowels are there each of which is immediately followed by atleast two consonants appearing together in the above series?

- Ans** ☒ A. 1  
☒ B. 2  
☒ C. 3  
☒ D. 4

- Q.52** What will come in place of the question mark (?) in the following equation, if '+' and '-' are interchanged and also '×' and '÷' are interchanged?

$$8 - 13 + 18 \div 9 \times 3 = ?$$

- Ans** ☒ A. 33  
☒ B. -33  
☒ C. 32  
☒ D. -32

- Q.53** What is the angle traced by the hour hand in 18 minutes?

- Ans** ☒ A. X  
☒ B. Y  
☒ C. B  
☒ D. Z

- Q.54** Vikas took a bus from a bus stop. The bus travelled 50 m towards the west. Then, it took a right turn and travelled 70 m. Then, it took a left turn and travelled 15 m. Then, it took a left turn and travelled 30 m. Then, it took a left turn and travelled 35 m. Then, it took a right turn and travelled 10 m. Finally, it took a left turn and travelled 30 m to reach the school. How far and in which direction is the bus stop from the school ? (All turns are 90 degree turns only)

- Ans** ☒ A. 30 m, South  
☒ B. 30 m, North  
☒ C. 40 m, South  
☒ D. 40 m, East

**Q.55** Select the option that is related to the fifth letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster and the fourth letter-cluster is related to the third letter-cluster.

SMILE : ELIMS :: MASTE : ETSAM :: STARV : ?

- Ans**
- ☒ A. SRVAT
  - ☒ B. VRTAS
  - ☒ C. VTARS
  - ☒ D. VRATS

Section : General Science

**Q.56** To connect a number of resistors in parallel can be considered equivalent to:

- Ans**
- ☒ A. increasing cross sectional area of the conductor
  - ☒ B. decreasing cross sectional area of the conductor
  - ☒ C. increasing length of the conductor
  - ☒ D. increasing resistance of the conductor

**Q.57** Oral contraceptive pills work by stopping \_\_\_\_\_.

- Ans**
- ☒ A. ovulation and implantation
  - ☒ B. fertilisation and implantation
  - ☒ C. ovulation and fertilisation
  - ☒ D. ovulation

**Q.58** Which of the following is NOT a part of the 5 R's needed to be followed for sustainable development?

- Ans**
- ☒ A. Refuse
  - ☒ B. Regeneration
  - ☒ C. Repurpose
  - ☒ D. Recycle

**Q.59** A metallic wire having resistivity  $\rho$  is cut into four equal parts. The resistivity of each part is:

- Ans**
- ☒ A.  $\rho/2$
  - ☒ B.  $\rho/4$
  - ☒ C.  $\rho$
  - ☒ D.  $4\rho$

**Q.60** An optical device Y has positive focal length. Y is:

- Ans**
- ☒ A. either a concave lens or a concave mirror
  - ☒ B. either a convex lens or a convex mirror
  - ☒ C. either a convex lens or a concave mirror
  - ☒ D. either concave lens or a convex mirror



**Q.61** Mendeleev's Periodic Law states that:

- Ans**
- ☒ A. the properties of elements are the periodic function of their atomic numbers
  - ☒ B. the properties of elements are the periodic function of their colour
  - ☒ C. the properties of elements are the periodic function of their atomic masses
  - ☒ D. the properties of elements are the periodic function of their magnetic properties

**Q.62** Caustic soda is generally NOT used in the \_\_\_\_\_.

- Ans**
- ☒ A. paper and pulp industry
  - ☒ B. manufacture of ammonia
  - ☒ C. fabric industry
  - ☒ D. detergent industry

**Q.63** A spherical mirror forms an erect and diminished image. Identify the correct statement(s) about the spherical mirror.

- (A) The mirror is concave.
- (B) The mirror forms a virtual image.
- (C) The mirror has positive focal length.

- Ans**
- ☒ A. Only A
  - ☒ B. Only B
  - ☒ C. Both A and B
  - ☒ D. Both B and C

**Q.64** \_\_\_\_\_ is represented by the root apex's constantly dividing cells.

- Ans**
- ☒ A. Meristematic growth
  - ☒ B. Germination
  - ☒ C. Increase hormonal level
  - ☒ D. Maturation

**Q.65** Which of the following reactions represents symbolic combination reaction?

- Ans**
- ☒ A.  $A + B \rightarrow C$
  - ☒ B.  $XY \rightarrow X + Y$
  - ☒ C.  $PQ + R \rightarrow PR + Q$
  - ☒ D.  $AB + CD \rightarrow AC + BD$

**Q.66** All the compounds of which of the following sets belongs to the same homologous series?

- Ans**
- ☒ A.  $C_2H_6$ ,  $C_2H_4$ ,  $C_2H_2$
  - ☒ B.  $C_4H_8$ ,  $C_5H_8$ ,  $C_6H_{10}$
  - ☒ C.  $C_3H_8$ ,  $C_4H_{10}$ ,  $C_5H_{12}$
  - ☒ D.  $C_6H_{10}$ ,  $C_6H_{12}$ ,  $C_6H_{14}$

**Q.67** How many autosomes will be present in a sexually reproducing organism with the chromosome number  $2n = 18$ ?

- Ans**
- ☒ A. 16
  - ☒ B. 17
  - ☒ C. 15
  - ☒ D. 18

**Q.68** The apparent position of a star keeps on changing slightly because:

- Ans**
- ☒ A. the physical conditions of the atmosphere keep changing
  - ☐ B. the physical conditions of the atmosphere are stationary
  - ☐ C. the atmosphere consists of a mixture of gases
  - ☐ D. the atmosphere scatters star light

**Q.69** The magnetic field produced due to a circular coil carrying a current having six turns will be how many times that of the field produced due to a single circular loop carrying the same current?

- Ans**
- ☐ A. 2 times
  - ☐ B. 4 times
  - ☒ C. 6 times
  - ☐ D. 8 times

**Q.70** Calcium sulphate dihydrate is the chemical name of:

- Ans**
- ☒ A. gypsum
  - ☐ B. plaster of Paris
  - ☐ C. washing soda
  - ☐ D. baking powder

**Q.71** The formation of water from hydrogen and oxygen is an example of \_\_\_\_\_.

- Ans**
- ☒ A. combination reaction
  - ☐ B. decomposition reaction
  - ☐ C. displacement reaction
  - ☐ D. oxidation and reduction

**Q.72** Which of the following events takes place during diastole in the human heart?

- Ans**
- ☐ A. Blood enters the lungs
  - ☐ B. Blood leaves the ventricle
  - ☐ C. Blood enters the aorta
  - ☒ D. Blood enters the ventricle

**Q.73** Three of the following statements pertaining to non-biodegradable plastics indicate their implications on animals, plants and our surrounding. Choose the odd one out.

- Ans**
- ☐ A. Reduce the fertility of the soil
  - ☒ B. Plastic bags are durable carry bags
  - ☐ C. Can prove fatal when eaten by animals
  - ☐ D. Choke the drains

**Q.74** Which of the following is the most electropositive element?

- Ans**
- ☐ A. Ca
  - ☒ B. Cs
  - ☐ C. Mg
  - ☐ D. Na

**Q.75** Identify the FALSE statement.

**Ans** ☒ A. The sunflower is a phototropic plant.

☒ B.

Hydrotropism is the tendency to grow in moist areas, i.e., the movement of roots towards high humidity.

☒ C. Geotropism is demonstrated by the downward migration of roots.

☒ D. The growth of pollen tubes towards ovules is an example of geotropism

**Q.76** A magnet, when moved near a coil, produces an induced current. Which of the following method(s) can be used to increase the magnitude of the induced current?

(i) Increasing the number of turns in the coil

(ii) Increasing the speed of the magnet

(iii) Increasing the resistivity of the wire of the coil

**Ans** ☒ A. Only (i)

☒ B. Only (iii)

☒ C. Both (i) and (ii)

☒ D. Both (ii) and (iii)

**Q.77** The first and second members, respectively, of the ketone homologous series are:

**Ans** ☒ A. methanone, ethanone

☒ B. ethanone, propanone

☒ C. propanone, butanone

☒ D. butanone, propanone

**Q.78** Magnification produced by a lens is equal to:

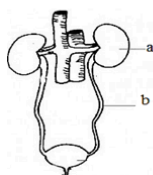
**Ans** ☒ A.  $-v/u$

☒ B.  $v/u$

☒ C.  $-u/v$

☒ D.  $u/v$

**Q.79** The diagram of the human excretory system is given below. Select the option that correctly shows the functions of parts 'a' and 'b'.



**Ans** ☒ A. a - Formation of urine, b - Throwing urine outside the body

☒ B. a - Formation of urine, b - Carrying urine for storage

☒ C. a - Collection of urine, b - Formation of urine

☒ D. a - Formation of urine, b - Collection of urine

**Q.80** Two wires A and B are made of same material and have the same length but different cross-sectional areas. If the resistance of wire A is 9 times the resistance of wire B, the ratio of the radius of wire A to that of wire B is:

- Ans**
- ☐ A. 1 : 9
  - ☐ B. 9 : 1
  - ☒ C. 1 : 3
  - ☐ D. 3 : 1

Section : General Awareness and Current Affairs

**Q.81** Which of the following was the guest nation at the Hyderabad Literary Festival 2022?

- Ans**
- ☐ A. Canada
  - ☒ B. United Kingdom
  - ☐ C. Australia
  - ☐ D. China

**Q.82** As per NITI Aayog National Multidimensional Poverty Index – 2021, which state is the poorest?

- Ans**
- ☐ A. Jharkhand
  - ☐ B. Chhattisgarh
  - ☒ C. Bihar
  - ☐ D. Himachal Pradesh

**Q.83** Which Article deals with protection of life and personal liberty?

- Ans**
- ☐ A. Article 31
  - ☒ B. Article 21
  - ☐ C. Article 22
  - ☐ D. Article 12

Q.84

As of January 2022, which country has become the world's top exporter of cucumber?

Ans

☐ A. Canada

☐ B. China

☒ C. India

☐ D. America

Q.85

Safflower, shisham, khair, arjun and mulberry are the main trees of which vegetation?

Ans

☒ A. Tropical Deciduous Forests

☐ B. Montane Forests

☐ C. Mangrove Forests

☐ D. Tropical Evergreen Forests

Q.86

Select the correct group of scientists who are the recipients of the Shanti Swarup Bhatnagar Prize for Science and Technology, 2021.

Ans

☒ A. Dr. Amit Singh, Dr. Kanishka Biswas and Dr. Anish Ghosh

☐ B. Dr. Vatsasla Thirumalai, Dr. Abhijit Mukharjee and Dr. Subi Jacob George

☐ C. Dr. Bushra Ateeq, Dr. Ritesh Agarwal and Dr. Surajit Dhara

☐ D. Dr. Subimal Ghosh, Dr. Neena Gupta and Dr. Dhiraj Kumar

Q.87

The country's first commercial-scale biomass-based hydrogen plant is coming up in which district of Madhya Pradesh?

Ans

☒ A. Khandwa

☐ B. Betul

☐ C. Anuppur

☐ D. Agar Malwa

Q.88

The rate of increase in ex-ante consumption due to a unit increment in income is called \_\_\_\_\_.

Ans

☐ A. marginal propensity to save

☐ B. average propensity to save

☒ C. marginal propensity to consume

☐ D. average propensity to consume

**Q.89** Which of the following established by Raja Rammohan Roy was a precursor in socio-religious reforms in Bengal?

- Ans**
- ☒ A. Dharma Sabha
  - ☒ B. Atmiya Sabha
  - ☒ C. Arya Samaj
  - ☒ D. Prarthana Samaj

**Q.90** In which of the following years was The Indian Official Language Act passed?

- Ans**
- ☒ A. 1953
  - ☒ B. 1973
  - ☒ C. 1963
  - ☒ D. 1936

**Q.91** The Asiatic lion population largely resides in the protected park area of \_\_\_\_\_.

- Ans**
- ☒ A. Balphakram National Park
  - ☒ B. Anamudi Shola National Park
  - ☒ C. Gir National Park
  - ☒ D. Bhitarkanika National Park

**Q.92** Which team won the Santosh Trophy 2021-22, the 75<sup>th</sup> edition of the Football tournament?

- Ans**
- ☒ A. Karnataka
  - ☒ B. West Bengal
  - ☒ C. Kerala
  - ☒ D. Meghalaya

**Q.93** Which of the following was the first city planned by Mughal Empire?

- Ans**
- ☒ A. Fatehpur Sikri
  - ☒ B. Islamabad
  - ☒ C. Agra
  - ☒ D. Delhi

**Q.94** Who is the Chief Election Commissioner of India as on March 2022?

- Ans**
- ☒ A. Anup Chandra Pandey
  - ☒ B. Rajiv Kumar
  - ☒ C. Sushil Chandra
  - ☒ D. KK Menon

**Q.95** Which of the following medicinal plants is the best remedy to treat blood pressure?

- Ans**
- ☒ A. Sarpagandha
  - ☒ B. Navmallika
  - ☒ C. Rajnigandha
  - ☒ D. Alukam

**Q.96** The Panchayati Raj Institutions DO NOT exist in which of the following states as on June 2022?

- Ans**
- ☒ A. Tripura
  - ☒ B. Manipur
  - ☒ C. Nagaland
  - ☒ D. Arunachal Pradesh

**Q.97**

Who is the Controller General of Accounts (CGA) as on 15<sup>th</sup> June 2022?

- Ans**
- ☒ A. Deepak Das
  - ☒ B. Soma Roy
  - ☒ C. Girraj Prasad Gupta
  - ☒ D. Sonali Singh

**Q.98** About 85% of the Indian population of colonial India depended on which of the following sector of the economy?

- Ans**
- ☒ A. Agriculture
  - ☒ B. Handicraft industries
  - ☒ C. Transport
  - ☒ D. Hospitality and real estate

**Q.99** Which Indian Badminton Player won a silver medal in the All England Badminton Championships 2022 in Birmingham?

- Ans**
- ☒ A. Lakshya Sen
  - ☒ B. PV Sindhu
  - ☒ C. Kidambi Srikanth
  - ☒ D. Saina Nehwal

**Q.100** What is the assistance to be given to the elderly, per person per month, after the age of 60 years, under the 'Jiyo Parsi' Scheme with effect from 22 October 2021?

- Ans**
- ✓ A. ₹10,000
  - ✗ B. ₹15,000
  - ✗ C. ₹20,000
  - ✗ D. ₹25,000





# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 18/08/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

## Section : Mathematics

**Q.1** A group of people contains men, women and children. If 40% of them are men, 35% are women and rest are children, and their average weights are 70 kg, 60 kg and 30 kg, respectively. The average weight of the group is:

- Ans**
- ☒ A. 56.5 gm
  - ☒ B. 45.5 gm
  - ☒ C. 45.5 kg
  - ☒ D. 56.5 kg

**Q.2** A shadow of a tower standing on a level ground is found to be  $40\sqrt{3}$  meters longer when the Sun's altitude is  $30^\circ$  than when it is  $60^\circ$ . The height of the tower is:

- Ans**
- ☒ A. 40 m
  - ☒ B. 60 m
  - ☒ C. 50 m
  - ☒ D. 70 m

**Q.3** A sum, when invested at  $12\frac{1}{2}\%$  simple interest per annum, amounts to ₹8,250 after 2 years. What is the simple interest?

- Ans**
- ☒ A. ₹1,650
  - ☒ B. ₹1,700
  - ☒ C. ₹1,820
  - ☒ D. ₹1,910

**Q.4** Simplify:  $6(x^3 - 2x^2 + 3x) - (x^3 + 2x - 3)$ .

- Ans**
- ☒ A.  $5x^3 - 12x^2 + 16x + 3$
  - ☒ B.  $5x^3 - 12x^2 + 16x - 3$
  - ☒ C.  $5x^3 + 12x^2 + 16x + 3$
  - ☒ D.  $5x^3 + 12x^2 + 16x - 3$

**Q.5** The sum of two numbers is 32 and one of them exceeds the other by 18. Find the greater number.

- Ans**
- ☒ A. 24
  - ☒ B. 28
  - ☒ C. 27
  - ☒ D. 25

**Q.6** If  $40 : 35 :: 35 : x$ , find the value of  $x$ .

- Ans**
- ☒ A.  $\frac{49}{16}$
  - ☒ B.  $\frac{245}{8}$
  - ☒ C.  $\frac{49}{14}$
  - ☒ D.  $\frac{49}{8}$

**Q.7** Simplify  $\frac{8^2 \times 3^3}{\sqrt{64} \times \sqrt{81}}$ .

- Ans**
- ☒ A. 27
  - ☒ B. 72
  - ☒ C. 64
  - ☒ D. 24

**Q.8** Raju and Raman can complete a piece of work in 12 days and 16 days, respectively. If they work on alternate days, starting with Raju, in how many days will the work be completed?

- Ans**
- ☒ A.  $13\frac{1}{3}$  days
  - ☒ B.  $13\frac{2}{3}$  days
  - ☒ C.  $14\frac{1}{3}$  days
  - ☒ D.  $14\frac{2}{3}$  days

**Q.9** The sum of the present ages of a father and his daughter is 80 years. Eight years ago, the father's age was seven times the age of his daughter. Eight years from now, what will be the daughter's age?

- Ans**
- ☒ A. 24 years
  - ☒ B. 22 years
  - ☒ C. 20 years
  - ☒ D. 18 years

**Q.10** The difference between the selling price on a discount of 32% and two successive discounts of 20% each on a certain bill is ₹25. Find the actual amount of the bill.

- Ans**
- ☒ A. ₹200
  - ☒ B. ₹425
  - ☒ C. ₹625
  - ☒ D. ₹576

**Q.11** A car can cover 275 km in 5 hours. If its speed is reduced by 5 km/h, then how much time will the car take to cover a distance of 250 km?

- Ans**
- ☒ A. 4 hr 30 min
  - ☒ B. 5 hr
  - ☒ C. 5 hr 30 min
  - ☒ D. 6 hr

**Q.12** What is the nature of the roots of the quadratic equation  $x^2 - 5x + 7 = 0$ ?

- Ans**
- ☒ A. Not real
  - ☒ B. Real, irrational, unequal
  - ☒ C. Real, rational, unequal
  - ☒ D. Real, rational, equal

**Q.13** Which of the following pairs is NOT coprime?

- Ans**
- ☒ A. (15, 17)
  - ☒ B. (11, 13)
  - ☒ C. (17, 23)
  - ☒ D. (17, 34)

**Q.14** The total surface area of a cylinder of diameter 10 cm is 330 square centimeters. Find the height of the cylinder?

- Ans**
- ☒ A. 2.5 cm
  - ☒ B. 5.5 cm
  - ☒ C. 6.5 cm
  - ☒ D. 10.5 cm

**Q.15** Find the roots of the equation  $6p^2 - 5p - 6 = 0$ .

- Ans**
- ☒ A.  $-\frac{2}{3}$  and  $\frac{3}{2}$
  - ☒ B.  $\frac{2}{3}$  and  $\frac{2}{3}$
  - ☒ C.  $\frac{3}{4}$  and  $\frac{3}{2}$
  - ☒ D.  $-\frac{1}{3}$  and  $\frac{4}{3}$

**Q.16** Find the number of sides in a regular polygon if its each interior angle is  $160^\circ$ .

- Ans**
- ☒ A. 14
  - ☒ B. 15
  - ☒ C. 17
  - ☒ D. 18

**Q.17** A shopkeeper sells an item at a profit of 25% and dishonestly uses a weight that is 30% less than the actual weight. Find his total profit%.

- Ans**
- ☒ A. 65.75%
  - ☒ B. 42%
  - ☒ C. 23%
  - ☒ D. 78.57%

**Q.18** Mohit's salary is ₹15,000 per month. He spends ₹5,000 on house rent, ₹2,000 on bills and rest of the amount is his monthly savings. Find his savings in a year, if in the month of his birthday he spent his complete monthly saving for birthday celebration.

- Ans**
- ☒ A. ₹88,000
  - ☒ B. ₹96,000
  - ☒ C. ₹8,000
  - ☒ D. ₹17,000

**Q.19** If  $d^2 + \frac{1}{d^2} = 18$ , and  $d > \frac{1}{d}$  then the value of  $d^3 - \frac{1}{d^3}$  is:

- Ans**
- ☒ A. 76
  - ☒ B. 81
  - ☒ C. 91
  - ☒ D. 64

**Q.20** Simplify  $\left(\frac{1}{3}\right)^{-3} + \left(\frac{1}{5}\right)^{-4} + \left(\frac{1}{15}\right)^{-2}$ .

- Ans**
- ☒ A. 777
  - ☒ B. 877
  - ☒ C. 756
  - ☒ D. 856

**Q.21** Find the value of  $325 \times 5 + 31 \times 21 - 22 \times (63 - 52)$ .

- Ans**
- ☒ A. 2034
  - ☒ B. 2044
  - ☒ C. 2024
  - ☒ D. 2014

**Q.22** Find the median class of:

| CI | 0-50 | 50-100 | 100-150 | 150-200 |
|----|------|--------|---------|---------|
| F  | 12   | 15     | 13      | 10      |

- Ans**
- ☒ A. 0-50
  - ☒ B. 50-100
  - ☒ C. 100-150
  - ☒ D. 150-200

**Q.23** The parallel sides of a trapezium and its height are in an arithmetic progression with a common difference of 4. If the height is the highest term and the area of the trapezium is 160 sq. units, find the ratio of length of greatest parallel side to that of the smallest parallel side.

- Ans**
- ☒ A. 5: 1
  - ☒ B. 1: 5
  - ☒ C. 3: 2
  - ☒ D. 2: 3

**Q.24** The HCF of 108 and 144 is \_\_\_\_\_

- Ans**
- ☒ A. 36
  - ☒ B. 12
  - ☒ C. 24
  - ☒ D. 16

**Q.25** How many spherical solid marbles, each having a radius of 0.3 cm, can be made from a solid sphere having a radius of 6 cm?

- Ans**
- ☒ A. 9000
  - ☒ B. 8500
  - ☒ C. 8000
  - ☒ D. 7500

#### Section : General Intelligence and Reasoning

**Q.26** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/symbol | 4 | % | 7 | 3 | # | * | 9 | @ | 6 |
|---------------|---|---|---|---|---|---|---|---|---|
| Code          | X | N | B | J | H | L | Y | F | R |

Conditions:

- (i) If the first element is an even number and the last a number, the codes for these two (the first and the last elements) are to be interchanged.
- (ii) If the first element is an odd number and the last an even number, the first and last elements are to be retained as it is (i.e first and last elements won't get coded).

Question: 7 \* % 3 @ 6

- Ans**
- ☒ A. BLNJFR
  - ☒ B. 7YNJF6
  - ☒ C. BLN3FR
  - ☒ D. 7LNJF6

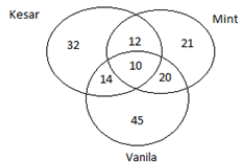
**Q.27** From point X, a person walks 45 m towards the east. He then takes a left turn and walks 40 m. He then takes a right turn and walks 90 m. He then takes a right turn and walks 60 m. Finally, he takes a right turn and walks 135 m to reach point Y. How far and in which direction is point X from point Y? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 20 m, South
  - ☒ B. 20 m, North
  - ☒ C. 15 m, South
  - ☒ D. 15 m, North

- Q.28** Seven boxes, A, B, C, D, E, F and G, are kept one over the other but not necessarily in the same order. Only two boxes are kept between G and B. B is kept at the bottom. C is kept on one of the positions above D. F is kept immediately above D. A is kept fifth from the bottom. E is kept at the top. How many boxes are kept between D and A?

**Ans** ☒ A. One  
☒ B. Two  
☒ C. Three  
☒ D. Four

- Q.29** Study the given diagram carefully and answer the following question. The numbers in different sections indicate the number of people who like different flavours of ice-cream.



How many people like Mint but NOT Kesar flavoured ice-cream?

**Ans** ☒ A. 21  
☒ B. 33  
☒ C. 41  
☒ D. 51

- Q.30** A statement is given followed by two assumptions numbered I and II. You have to assume everything in the statement to be true and decide which of the given assumptions is/are implicit in the statement.

**Statement:**

Due to the failure of the main grid, power supply to many parts of the city was affected.

**Assumptions:**

- I. The main grid is responsible for transmission of power to different parts of the city.
- II. Most people have backup power installations at their homes to manage during times when power supply is disrupted.

**Ans** ☒ A. Only assumption I is implicit  
☒ B. Only assumption II is implicit  
☒ C. Neither assumption I nor II is implicit  
☒ D. Both assumptions I and II are implicit

- Q.31** Select the option that is related to the fifth letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster and the fourth letter-cluster is related to the third letter-cluster.

PORTUGAL : UTRPOLGA :: URANUS : UUSRNA :: AMRITSAR : ?

**Ans** ☒ A. TSMIRRAA  
☒ B. AATRRSMI  
☒ C. TRRSMI AA  
☒ D. TSRRMIAA

- Q.32** Six friends, K, L, M, N, O and P, are sitting around a circular table facing the centre of the table. O is second to the left of N. P is second to the right of K. M is to the immediate right of L. N and L are immediate neighbours. Who is sitting to the immediate right of P?

**Ans** ☒ A. O  
☒ B. L  
☒ C. K  
☒ D. N

**Q.33** If '+' means '-', '-' means '+', '×' means '÷' and '÷' means '×', what will come in place of the question mark (?) in the following equation?

$$18 - 3 \times 14 \div 2 + 12 = ?$$

- Ans**
- ☒ A. 19
  - ☒ B. 21
  - ☒ C. 22
  - ☒ D. 24

**Q.34** In a certain code language, 'SIGMA' is written as 'FVTZN' and 'FNRYRQ' is written as 'SALED'. How will 'ARJUN' be written in that language?

- Ans**
- ☒ A. NEWHA
  - ☒ B. BPWAH
  - ☒ C. EWNAH
  - ☒ D. WENAH

**Q.35** In a queue of travellers at the emigration counter facing north, Pankaj is 9th from the extreme left end and Puja is 17th from extreme right end. If the positions of Pankaj and Puja are interchanged, then the new position of Pankaj will be 15th from the extreme left end. Find the number of travellers between Puja and Pankaj.

- Ans**
- ☒ A. 4
  - ☒ B. 5
  - ☒ C. 6
  - ☒ D. 3

**Q.36** Five friends A, B, C, D and E are sitting in a straight row, facing north. A is not at the exact centre position of the row. C is second from one extreme end, while fourth from the other extreme end. B and D sit at the extreme ends of the row. Who sits at the exact centre position of the row?

- Ans**
- ☒ A. E
  - ☒ B. A
  - ☒ C. C
  - ☒ D. D

**Q.37** A statement is given, followed by four conclusions given in the options. Find out which conclusion is true based on the given statement.

Statement:  $J \leq H \leq G = R > Z = E > D$

- Ans**
- ☒ A.  $Z < D$
  - ☒ B.  $D > R$
  - ☒ C.  $H > R$
  - ☒ D.  $J \leq G$

**Q.38** Study the given number series and answer the question that follows.

2 6 7 4 9 3 6 5 1 9 5 2 4 5 9 4 2 3 7 1

How many even numbers are immediately preceded by an odd number and immediately followed by a prime number?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.39** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 are not allowed.)

(80, 16, 20)

(144, 36, 24)

- Ans**
- ☒ A. (122, 12, 6)
  - ☒ B. (512, 25, 16)
  - ☒ C. (189, 49, 27)
  - ☒ D. (224, 36, 40)

**Q.40** Three statements are given, followed by two conclusions numbered I and II. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

1. All jokers are circuses.
2. All circuses are equestrians.
3. Some jokers are spectacles.

**Conclusions:**

- I. Some equestrians are spectacles.
- II. Some circuses are jokers.

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Neither conclusion I nor II follows
  - ☒ D. Both conclusions I and II follow

**Q.41** Each vowel in the word 'EXPLAIN' is changed to the letter following it in the English alphabetical order and each consonant is changed to the letter preceding it in the English alphabetical order. If each letter, thus formed, is arranged in alphabetical order, which letter will be third from the right end?

- Ans**
- ☒ A. M
  - ☒ B. O
  - ☒ C. Q
  - ☒ D. Y

**Q.42** Which of the following number will replace the question mark (?) and complete the given number series?

4, 5, 12, 39, 160, ?

- Ans**
- ☒ A. 850
  - ☒ B. 805
  - ☒ C. 800
  - ☒ D. 804

**Q.43** If '+' means '×', '×' means '+', '-' means '÷', and '÷' means '-', what will come in place of the question mark (?) in the following equation?

$13 - 17 + 24 \div 54 \times 18 + 28 \times 14 = ?$

- Ans**
- ☒ A. 225
  - ☒ B. 380
  - ☒ C. 415
  - ☒ D. 510



**Q.44** Which of the following numbers will replace the question mark (?) in the given series?

17, 30, 44, 59, 75, ?

- Ans**
- ☒ A. 85
  - ☒ B. 92
  - ☒ C. 102
  - ☒ D. 111

**Q.45** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

64 : 81 :: 121 : 144 :: 169 : ?

- Ans**
- ☒ A. 216
  - ☒ B. 200
  - ☒ C. 225
  - ☒ D. 196

**Q.46** Select the option that represents the letters that, when placed from left to right in the same sequence in the blanks below, will complete the letter series.

B \_ X T \_ \_ H Y \_ M B \_ Z \_ M

- Ans**
- ☒ A. MHBHTT
  - ☒ B. TMHBHT
  - ☒ C. HMBTHT
  - ☒ D. BMHHTT

**Q.47** Umesh is standing facing the south-west direction. He then takes a  $90^\circ$  clockwise turn. After that, he takes a  $135^\circ$  clockwise turn. He finally takes a  $90^\circ$  anticlockwise turn. In which direction is he facing now?

- Ans**
- ☒ A. North-east
  - ☒ B. North-west
  - ☒ C. North
  - ☒ D. West

**Q.48** This question is based on the following 3-digit numbers.

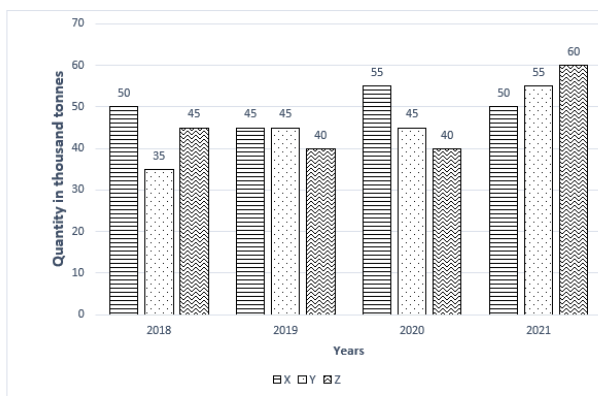
543 769 552 342 245

(Example- 697 – First digit = 6, second digit = 9 and third digit = 7)

If in each of the numbers, 1 is added to the first digit of every number, in how many numbers will the first digit be exactly divisible by the third digit of the same number?

- Ans**
- ☒ A. Two
  - ☒ B. Three
  - ☒ C. Four
  - ☒ D. Five

- Q.49** The bar graph given below shows the data on the production of milk products (in thousand tonnes) by three branches, X, Y and Z, of a dairy product company over the years. Study the graph and answer the question.



For which branch(es) of the dairy product company was the average production for the given 4 years the minimum?

- Ans** ☒ A. Branch X  
☒ B. Branch Y  
☒ C. Branch Z  
☒ D. Branches Y and Z

- Q.50** If '+' means '+', '-' means '×', '×' means '+', '+' means '-', what will come in place of the question mark (?) in the following equation?

$$9 \times 8 + 4 - 8 + 5 = ?$$

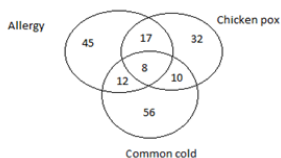
- Ans** ☒ A. 35  
☒ B. 18  
☒ C. 23  
☒ D. 20

- Q.51** Based on the given statement, four conclusions are drawn. Find out which conclusion is true based on the statement.

Statement:  $Y < O \leq G \leq K = U > L > P$

- Ans** ☒ A.  $O = P$   
☒ B.  $Y > L$   
☒ C.  $K > P$   
☒ D.  $G = Y$

- Q.52** Study the given diagram carefully and answer the following question. The numbers in different sections indicate the number of persons who have suffered from different diseases.



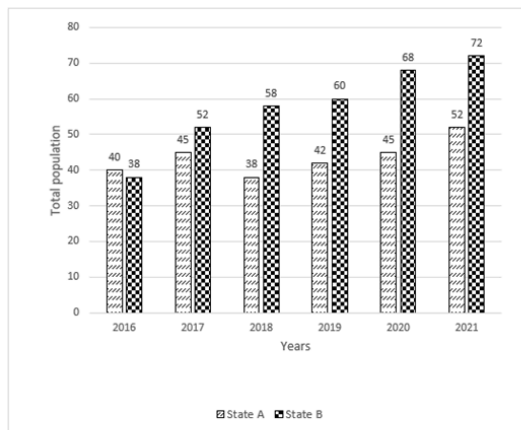
How many people have suffered from both Allergy and Chicken pox but NOT Common cold?

- Ans** ☒ A. 25  
☒ B. 17  
☒ C. 32  
☒ D. 45

**Q.53** If 1 January 2011 was a Saturday, then what day of the week was 31 December 2011?

- Ans**
- ☒ A. Friday
  - ☒ B. Saturday
  - ☒ C. Sunday
  - ☒ D. Monday

**Q.54** The bar graph given below shows the population of two states, A and B, (in lakhs) over the years. Study the graph and answer the question.



What is the approximate average population of state B for all the given years?

- Ans**
- ☒ A. 65 lakhs
  - ☒ B. 58 lakhs
  - ☒ C. 62 lakhs
  - ☒ D. 70 lakhs

**Q.55** All 72 students of a class are standing in a row facing the north. Shalabh is standing at the extreme left end of the row. Only 8 students are standing between Shalabh and Kimaya. Virali is 26<sup>th</sup> from the extreme right end of the row. How many students are standing between Virali and Kimaya?

- Ans**
- ☒ A. 35
  - ☒ B. 36
  - ☒ C. 37
  - ☒ D. 38

#### Section : General Science

**Q.56** Select the INCORRECT option with reference to the Chipko Andolan.

- Ans**
- ☒ A. It forced the government to rethink their priorities in the use of forest produce
  - ☒ B. People realised that forests are needed to maintain the quality of soil
  - ☒ C. It involved the community in forest conservation efforts
  - ☒ D. It was a violent movement to save the trees

**Q.57** Which of the following is the storage carbohydrate in plants?

- Ans**
- ☒ A. Glucose
  - ☒ B. Starch
  - ☒ C. Sucrose
  - ☒ D. Glycogen

**Q.58** Which of the following is NOT a unit of heat energy?

- Ans**
- ☐ A. Joule
  - ☐ B. Watt second
  - ☐ C. Calorie
  - ☒ D. Kilowatt

**Q.59** Which of the following has the largest atomic radius?

- Ans**
- ☐ A. Fluorine
  - ☐ B. Oxygen
  - ☐ C. Chlorine
  - ☒ D. Iodine

**Q.60** The current through horizontal straight wire flows from west to east. The direction of the magnetic field lines as viewed from the east end will be:

- Ans**
- ☐ A. clockwise in a plane perpendicular to the wire
  - ☒ B. anticlockwise in a plane perpendicular to the wire
  - ☐ C. clockwise in the plane of the wire
  - ☐ D. anticlockwise in the plane of the wire

**Q.61** Which of the following rules is used to determine the force on a current carrying conductor kept inside a magnetic field ?

- Ans**
- ☐ A. Fleming's right-hand rule
  - ☐ B. Maxwell's corkscrew rule
  - ☒ C. Fleming's left-hand rule
  - ☐ D. Right hand thumb rule

**Q.62** How will the plant be affected if the rate of respiration becomes more than the rate of photosynthesis?

- Ans**
- ☐ A. Plant growth will increase due to more energy produced.
  - ☐ B. Plant growth will slow down.
  - ☒ C. More food will be oxidised than that produced, and plant will starve and die.
  - ☐ D. Plants will store a lot amount of food

**Q.63** The \_\_\_\_\_ DOES NOT function as an excretory organ in humans.

- Ans**
- ☐ A. skin
  - ☐ B. lungs
  - ☒ C. small intestine
  - ☐ D. large intestine

**Q.64** The property/properties that must be possessed by a material to be chosen for making heating element of heating devices is/are:

- (i) high melting point
- (ii) high resistivity
- (iii) low resistance

**Ans** ☒ A. Only (i) and (ii)

☐ B. Only (ii) and (iii)

☐ C. Only (i) and (iii)

☐ D. (i), (ii), (iii)

**Q.65** The magnification produced by a spherical mirror is  $-0.5$ . The image formed by the mirror is:

**Ans** ☐ A. real, inverted and enlarged

☒ B. real, inverted and diminished

☐ C. virtual, erect and enlarged

☐ D. virtual, erect and diminished

**Q.66** Some plants can also produce new plants from their roots. An example of such a plant is \_\_\_\_\_.

**Ans** ☒ A. Sweet Potato

☐ B. Cactus

☐ C. Ginger

☐ D. Bryophyllum

**Q.67** Which of the following chemical reactions represents the chlor-alkali process?

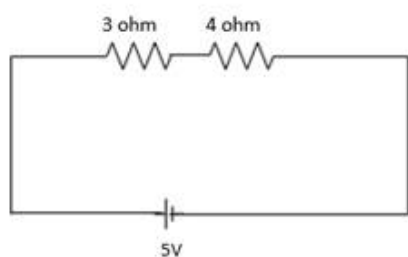
**Ans** ☐ A.  $\text{Ca(OH)}_2 + \text{Cl}_2 \rightarrow \text{CaOCl}_2 + \text{H}_2\text{O}$

☐ B.  $\text{NaCl} + \text{H}_2\text{O} + \text{CO}_2 + \text{NH}_3 \rightarrow \text{NH}_4\text{Cl} + \text{NaHCO}_3$

☐ C.  $\text{NaHCO}_3 + \text{H}^+ \rightarrow \text{CO}_2 + \text{H}_2\text{O} + \text{Sodium salt of acid}$

☒ D.  $2 \text{NaCl (aq)} + 2 \text{H}_2\text{O (l)} \rightarrow 2 \text{NaOH (aq)} + \text{Cl}_2 \text{ (g)} + \text{H}_2 \text{ (g)}$

**Q.68** The current across the 3 ohm resistance in the given circuit is:



**Ans** ☐ A.  $7/5 \text{ A}$

☒ B.  $5/7 \text{ A}$

☐ C.  $3/5 \text{ A}$

☐ D.  $5/3 \text{ A}$

**Q.69** Which of the following line(s) act as a normal to a spherical mirror?

- (i) Line joining the pole and centre of curvature
- (ii) Line joining the centre of curvature and point of incidence
- (iii) Line joining focus and point of incidence

**Ans** ✓ **A.** Both (i) and (ii)

✗ **B.** Both (ii) and (iii)

✗ **C.** Both (i) and (iii)

✗ **D.** (i), (ii) and (iii)

**Q.70** \_\_\_\_\_ aid (s) in the emulsification of fat.

**Ans** ✗ **A.** Pepsin

✗ **B.** HCl

✓ **C.** Bile salts

✗ **D.** Vit- K Trypsin

**Q.71** Some effects of large production of biodegradable waste are mentioned below. Choose the INCORRECT statement.

**Ans** ✓ **A.** Amount of waste sent to landfills increases

✗ **B.** Gives out foul smell

✗ **C.** Replenishment of soil nutrients

✗ **D.** Act as breeding ground for mosquitoes and spread diseases

**Q.72** Carbon is able to form stable compounds because of:

**Ans** ✓ **A.** its smaller atomic size

✗ **B.** Its ability to form covalent bond

✗ **C.** the presence of p-orbital

✗ **D.** its allotropic forms

**Q.73** Planets do not twinkle because

**Ans** ✗ **A.** they scatter less light

✓ **B.** they act as extended source of light

✗ **C.** they act as a point source of light

✗ **D.** they scatter more light

**Q.74** A magnesium ribbon burns with a dazzling flame in air (oxygen) and changes into a white substance 'X'. The X is:

**Ans** ✓ **A.** MgO

✗ **B.** Mg(OH)<sub>2</sub>

✗ **C.** MgCO<sub>3</sub>

✗ **D.** Mg

**Q.75** Compounds  $C_2H_6$  and  $C_3H_8$  are differ by \_\_\_\_\_ unit and belong to \_\_\_\_\_ series.

- Ans**
- ☒ A.  $CH_3$ , heterogeneous
  - ☒ B.  $CH_2$ , heterogeneous
  - ☒ C.  $CH_2$ , homologous
  - ☒ D.  $CH_3$ , homologous

**Q.76** Some features of genes are mentioned below. Which option states the INCORRECT feature of genes?

- Ans**
- ☒ A. They are segments of DNA.
  - ☒ B. They control traits by producing proteins.
  - ☒ C. They do not undergo any change.
  - ☒ D. Each germ cell has one gene set.

**Q.77** Consider the below statements and identify the correct answer.

Statement I: Metallic character decreases across a period as we move from left to right.

Statement II: The effective nuclear charge acting on the valence shell electrons increases across a period, the tendency to lose electrons will decrease.

- Ans**
- ☒ A. Both statements are correct. Statement II is correct explanation of Statement I.
  - ☒ B. Both statements are correct. Statement I is correct explanation of Statement II.
  - ☒ C. Only Statement I is correct.
  - ☒ D. Only Statement II is correct.

**Q.78** Match the following:

| Substance                     | pH     |
|-------------------------------|--------|
| i. Lemon juice                | a. 14  |
| ii. Gastric juice             | b. 1.2 |
| iii. Milk of magnesia         | c. 2.2 |
| iv. Sodium hydroxide solution | d. 10  |

- Ans**
- ☒ A. i-a, ii-b, iii-c, iv-d
  - ☒ B. i-c, ii-b, iii-d, iv-a
  - ☒ C. i-c, ii-b, iii-a, iv-d
  - ☒ D. i-d, ii-b, iii-c, iv-a



- Q.79** What happens when sodium metal reacts with water?
- Ans** ☒ A. Hydrogen gas and sodium hydroxide solution are produced.  
☐ B. Chlorine gas and sodium hydroxide solution are produced.  
☐ C. No reaction takes place.  
☐ D. Only sodium hydroxide solution is produced.

- Q.80** The focal length of a diverging lens is 50 cm. The power of the lens is:
- Ans** ☐ A. 5 D  
☐ B. -5 D  
☐ C. 2 D  
☒ D. -2 D

Section : General Awareness and Current Affairs

- Q.81** India is the third largest country in South Asia, with \_\_\_\_\_ of Earth's land area.
- Ans** ☐ A. 6.5%  
☐ B. 5.7%  
☐ C. 4.3%  
☒ D. 2.3%

- Q.82** Article 243E of the Indian Constitution is related to which feature of Panchayat?
- Ans** ☐ A. Reservation of seat  
☐ B. Constitution of Panchayats  
☐ C. Composition of Panchayats  
☒ D. Duration of Panchayat

- Q.83** As of July 2022, PM-PAKSA is aligned to the 15<sup>th</sup> Finance Commission cycle period up to \_\_\_\_\_ and is a Central Sector (CS) scheme under the Ministry of Minority Affairs.
- Ans** ☐ A. 2022-23  
☒ B. 2025-26  
☐ C. 2024-27  
☐ D. 2021-23

- Q.84** Who has developed the Tamanna tool related to education in India?
- Ans** ☒ A. Central Board of Secondary Education (CBSE) and National Council of Educational Research and Training (NCERT)  
☐ B. University Grants Commission  
☐ C. All India Council for Technical Education  
☐ D. Indian Certificate of Secondary Education



**Q.85** When was Bandhan Bank formed?

- Ans**
- ☐ A. 2011
  - ☐ B. 2013
  - ☒ C. 2015
  - ☐ D. 2017

**Q.86** The 36th National Games of India will take place in \_\_\_\_\_ cities of Gujarat between 27 September and 10 October 2022.

- Ans**
- ☐ A. four
  - ☒ B. six
  - ☐ C. eight
  - ☐ D. five

**Q.87** In which of the following years was the first Republic Day of India celebrated?

- Ans**
- ☐ A. 1947
  - ☐ B. 1948
  - ☐ C. 1949
  - ☒ D. 1950

**Q.88** Which Article of the Constitution of India deals with duties of Prime Minister as respects the furnishing of information to the President, etc.?

- Ans**
- ☐ A. Article 62
  - ☐ B. Article 69
  - ☐ C. Article 73
  - ☒ D. Article 78

**Q.89** Which two banks have merged with Punjab National Bank in 2020?

- Ans**
- ☐ A. Syndicate Bank and Allahabad Bank
  - ☒ B. Oriental Bank of Commerce and United Bank of India
  - ☐ C. Dena Bank and Vijaya Bank
  - ☐ D. Andhra Bank and Corporation Bank

**Q.90** The Scheme of Assistance to National Sports Federations (NSFs) has been extended to train and field national teams for national and international competitions between:

- Ans**
- ☒ A. 2022 and 2026
  - ☐ B. 2022 and 2025
  - ☐ C. 2022 and 2024
  - ☐ D. 2021 and 2025

**Q.91** The bends formed in the river when river water erodes its banks on the outside of the channel are known as:

- Ans**
- ☐ A. Tributaries
  - ☐ B. Distributaries
  - ☐ C. Braided channels
  - ☒ D. Meanders

Q.92

Which of the following famous churches of India is INCORRECTLY matched with its location?

Ans

☒ A. St. Paul Cathedral - Kolkata

☒ B. Basilica of Bom Jesus - Goa

☒ C. Santa Cruz Basilica - Kochi

☒ D. St. John in the Wilderness Church - Pondicherry

Q.93

Ramakrishna Mission was founded in 1897 by \_\_\_\_\_.

Ans

☒ A. Ramkrishna Paramhansa

☒ B. Swami Vivekanand

☒ C. Dayanand Saraswati

☒ D. Raja Ram Mohan Roy

Q.94

Which languages are to be used for all or any of the official purposes of the State of Tripura as per the Tripura Official Languages Act, 1964?

Ans

☒ A. Bengali and Kokborok

☒ B. Telugu and Lepcha

☒ C. Konkani and English

☒ D. Hindi and Bengali

Q.95

In which of the following years was a joint venture signed between the Government of India and Suzuki Motor Corporation, to launch the Maruti 800 car for the first time in India?

Ans

☒ A. 1998

☒ B. 1978

☒ C. 1986

☒ D. 1982

Q.96

The Constitution of India has \_\_\_\_\_ parts and \_\_\_\_\_ schedules.

Ans

☒ A. 10; 22

☒ B. 22; 10

☒ C. 12; 25

☒ D. 25; 12

**Q.97** Which of the following is an independent financial institution established in 1990 under an Act of the Indian Parliament, with the objective of assisting in the growth and development of Micro, Small and Medium Enterprises (MSMEs) sector?

- Ans**
- ☐ A. FSDC
  - ☐ B. MSS
  - ☐ C. NBFC
  - ☒ D. SIDBI

**Q.98** Which state has become India's first state to launch AVGC (Animation, Visual Effects, Gaming, and Comics) Centre of Excellence?

- Ans**
- ☐ A. Kerala
  - ☐ B. Jharkhand
  - ☒ C. Karnataka
  - ☐ D. Haryana

**Q.99** Where was the first Biosafety Level-3 (BSL-3) Containment Mobile Laboratory inaugurated in February 2022 to strengthen the healthcare infrastructure of South Asia?

- Ans**
- ☐ A. Nagpur
  - ☐ B. Pune
  - ☒ C. Nashik
  - ☐ D. Mumbai

**Q.100** The Dam Rehabilitation and Improvement Project was started in which year?

- Ans**
- ☐ A. 2002
  - ☒ B. 2012
  - ☐ C. 2021
  - ☐ D. 2009



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 22/08/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** Rani borrowed an amount of ₹2,00,000 from the bank to start a business. How much simple interest will she pay at the rate of 7% per annum after 2 years?

- Ans**
- ☒ A. ₹26,000
  - ☒ B. ₹24,000
  - ☒ C. ₹28,000
  - ☒ D. ₹28,500

**Q.2** The diagonal of a quadrilateral is 32 m long, and its two offsets are 6 m and 10 m long. The area of the quadrilateral is

- Ans**
- ☒ A. 220 m<sup>2</sup>
  - ☒ B. 250 m<sup>2</sup>
  - ☒ C. 256 m<sup>2</sup>
  - ☒ D. 276 m<sup>2</sup>

**Q.3** Find the nature of the roots of  $x^2 - 14x + 49 = 0$

- Ans**
- ☒ A. No real roots
  - ☒ B. Real and equal roots
  - ☒ C. Distinct roots
  - ☒ D. Imaginary roots

**Q.4** Simplify:  $3x(x - 6) + x^2 + 6x - 9 + 24 - x^3$ .

- Ans**
- ☒ A.  $15 + 12x + 4x^2 - x^3$
  - ☒ B.  $15 - 12x + 4x^2 - x^3$
  - ☒ C.  $15 + 12x + 4x^2 + x^3$
  - ☒ D.  $15 - 12x + 4x^2 + x^3$

**Q.5** A father is presently 3 times his daughter's age. After 10 years he will be twice as old as her. Find the daughter's present age.

- Ans**
- ☒ A. 5 years
  - ☒ B. 10 years
  - ☒ C. 15 years
  - ☒ D. 20 years

**Q.6** A number, when divided by the sum of 335 and 265, gives three times the difference between 335 and 265 as the quotient and 35 as the remainder. What is that number?

- Ans**
- ☒ A. 124535
  - ☒ B. 128235
  - ☒ C. 126035
  - ☒ D. 127535

**Q.7** Two numbers are in the ratio 5: 7. If their HCF is 17, then find the numbers.

- Ans**
- ☒ A. 68, 85
  - ☒ B. 85, 102
  - ☒ C. 102, 136
  - ☒ D. 85, 119

**Q.8** Find the value of  $2\sec^2 A + 4\operatorname{cosec}^2 A - 2\tan^2 A - 4\cot^2 A$ .

- Ans**
- ☒ A. 2
  - ☒ B. 4
  - ☒ C. 6
  - ☒ D. 8

**Q.9** Simplify:  $6^2 + 7^2 + \sqrt{16}$

- Ans**
- ☒ A. 98
  - ☒ B. 89
  - ☒ C. 94
  - ☒ D. 80

**Q.10** In  $\triangle ABC$  and  $\triangle DEF$ ,  $\angle A = 40^\circ$ ,  $\angle B = 55^\circ$ ,  $\angle D = 55^\circ$ ,  $\angle E = 85^\circ$  and  $m(\overline{AB}) = m(\overline{FD})$ . Then which of the options below is correct?

- Ans**
- ☒ A.  $\triangle ABC \cong \triangle FDE$
  - ☒ B.  $\triangle ABC \cong \triangle DFE$
  - ☒ C.  $\triangle ABC \cong \triangle FED$
  - ☒ D.  $\triangle ABC \cong \triangle EDF$

**Q.11** Simplify  $1.\overline{24}$  as an improper fraction.

**Ans**

✓ A.  $\frac{41}{33}$

✗ B.  $\frac{124}{99}$

✗ C.  $\frac{123}{90}$

✗ D.  $\frac{91}{90}$

**Q.12** Ravi started a business by investing ₹50,000. After six months Raju joined him and invested an amount of ₹1,00,000. In one year since Ravi invested, they earned a profit of ₹63,000. What is Raju's share of the profit?

**Ans**

✓ A. ₹31,500

✗ B. ₹32,500

✗ C. ₹32,000

✗ D. ₹31,000

**Q.13** A student scored 80/80 marks in term 1 and 75/90 marks in term 2. What will be his percentage of final score, if the weightage given to the terms is 40% and 60%, respectively. (correct to the nearest integer)

**Ans**

✗ A. 70%

✗ B. 95%

✓ C. 90%

✗ D. 85%

**Q.14** The population of a town is 2,24,375. If it increases at the rate of 4% per annum, what will be its population 2 years hence?

**Ans**

✗ A. 2,32,846

✗ B. 2,36,864

✗ C. 2,40,468

✓ D. 2,42,684

**Q.15** A triangle has sides of length 5 cm, 7 cm and 10 cm. Find the area of the triangle (in  $\text{cm}^2$ ).

**Ans**

✗ A. 25

✓ B.  $2\sqrt{66}$

✗ C.  $7\sqrt{10}$

✗ D. 350

Q.16

The value of  $\left(a + \frac{1}{b}\right)^r \left(a - \frac{1}{b}\right)^s \div \left(b + \frac{1}{a}\right)^r \left(b - \frac{1}{a}\right)^s$  is:

Ans

✓ A.  $\left(\frac{a}{b}\right)^{r+s}$

✗ B.  $\left(\frac{b}{a}\right)^{r+s}$

✗ C.  $(ab)^{r+s}$

✗ D.  $\frac{a^r}{b^s}$

Q.17

A blanket is sold for ₹1,148, which results in a loss of 30%. For how much should it be sold to gain 5%?

Ans

✗ A. ₹1,734

✗ B. ₹1,423

✗ C. ₹1,543

✓ D. ₹1,722

Q.18

Kohli is younger than Rohit by 3 years. If the ages of Kohli and Rohit are in the ratio 7 : 8, how old is Kohli?

Ans

✗ A. 18 years

✗ B. 27 years

✓ C. 21 years

✗ D. 24 years

Q.19

For a trip of 800 km, a truck travels the first 300 km at a speed of 50 km/h. At what speed should it cover the remaining distance, so that the average speed is 60 km/h?

Ans

✗ A.  $\frac{600}{13}$  km/h

✗ B. 52 km/h

✓ C.  $\frac{750}{11}$  km/h

✗ D. 72 km/h

Q.20

If two angles of a triangle measure  $60^\circ$  and  $80^\circ$ , respectively, then the measure of the third angle of this triangle is:

Ans

✓ A.  $40^\circ$

✗ B.  $50^\circ$

✗ C.  $60^\circ$

✗ D.  $70^\circ$

Q.21

The price of an article is increased by 20% and then two successive discounts of 5% each are allowed. The selling price of the article is \_\_\_\_\_ above its cost price.

Ans

✗ A. 9.2%

✗ B. 6.9%

✗ C. 7.8%

✓ D. 8.3%

**Q.22** Find the quadratic equation that has  $(1 + \sqrt{3})$  as one of its roots.

- Ans**
- ☒ A.  $x^2 + \sqrt{3}x + 1 = 0$
  - ☒ B.  $x^2 - 2x - 2 = 0$
  - ☒ C.  $x^2 + 2x + 1 = 0$
  - ☒ D.  $x^2 + 2x + 2 = 0$

**Q.23** A 210 m long train crosses a man walking at a speed of 4.5 km/h in the opposite direction in 12 seconds. What is the speed (in km/h) of the train?

- Ans**
- ☒ A. 58.5
  - ☒ B. 59.5
  - ☒ C. 60.5
  - ☒ D. 61.5

**Q.24** A 91 cm-long wire is cut into two pieces so that one piece length is three-fourth of the other. Find the length of the shorter piece.

- Ans**
- ☒ A. 39 cm
  - ☒ B. 36.23 cm
  - ☒ C. 42.17 cm
  - ☒ D. 38 cm

**Q.25** Two trains of equal speed are running in opposite directions. If their lengths are 120 metres and 140 metres and they cross each other in 10 sec, then find the speed of each train.

- Ans**
- ☒ A. 10 m/s
  - ☒ B. 13 m/s
  - ☒ C. 14 m/s
  - ☒ D. 16 m/s

#### Section : General Intelligence and Reasoning

**Q.26** Mahesh started from a point facing towards the west, turned left and walked for X m, then turned right and walked for 22 m, then turned left and walked for 11 m, and then turned left again and walked for 22 m. He is exactly 21 m away from the starting point. What is the value of X which was covered in the first leg of his journey?

(All turns are 90 degree turns only)

- Ans**
- ☒ A. 10 m
  - ☒ B. 11 m
  - ☒ C. 12 m
  - ☒ D. 21 m

**Q.27** Answer the following question which is based on the given four letter clusters.

STED, LAYM, JOEK, CLDP

If in each of the clusters, each letter is changed to the next letter in the English alphabetical order, how many letter clusters thus formed will have no vowel?

- Ans**
- ☒ A. Three
  - ☒ B. Two
  - ☒ C. One
  - ☒ D. None



**Q.28** Which of the following options is the closest approximate value which will come in place of question mark(?) in the following equation?

$$(\sqrt{360} + 12 \div 6 \times 3 - \sqrt{170}) \div 2 = ?$$

- Ans**
- ☒ A. 4
- ☒ B. 6
- ☒ C. 8
- ☒ D. 5

**Q.29** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

PARTS : RDVYY

CLOSE : EOSXK

- Ans**
- ☒ A. TEMPO : PQOFU
- ☒ B. RHINO : TKMSU
- ☒ C. CLASS : EODVV
- ☒ D. MANGO : ODRTS

**Q.30** Study the given letter, number, symbol series and answer the question that follows.

T % N 9 \* M \$ 3 U = L 8 Y @ G & 3 E > W

Find out the total number of letters that are immediately followed by a symbol and immediately preceded by a number.

- Ans**
- ☒ A. 1
- ☒ B. 2
- ☒ C. 3
- ☒ D. 4

**Q.31** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/Symbol | 7 | 8 | 5 | & | 6 | % | 2 |
|---------------|---|---|---|---|---|---|---|
| Codes         | S | D | M | U | T | L | A |

Conditions:

- If the first element is an odd number and the last element is an even number, the codes for these two (the first and the last elements) are to be interchanged.
- If the second element is a symbol and the fifth element is an even number, the codes for these two (the second and the fifth elements) are to be interchanged.
- If the third element is a number and the fourth element is a symbol, both these elements (the third and the fourth elements) are to be coded as Y.

Question: 7 6 & 5 8 % 6 2

- Ans**
- ☒ A. ATYYDLTS
- ☒ B. ADUMTLTS
- ☒ C. ATUMDLTS
- ☒ D. STUMDLTA

**Q.32** In this question, a statement is followed by two conclusions. Which of the two conclusions is/are true with respect to the statement?

Statement:  $T = S \geq N = A \leq U > P < Q$

Conclusions:

I.  $S > Q$

II.  $A \leq T$

- Ans**
- ☒ A. Only conclusion I is true
  - ☒ B. Only conclusion II is true
  - ☒ C. Both conclusions I and II are true
  - ☒ D. Neither conclusion I nor II is true

**Q.33** Six students P, Q, R, S, T and U sit in a straight line, facing north. P and S are sitting at the extreme ends of the line. T is sitting adjacent to P, while U is sitting adjacent to S. Only one person sits between Q and S. Who is sitting adjacent to Q apart from R?

- Ans**
- ☒ A. S
  - ☒ B. R
  - ☒ C. U
  - ☒ D. T

**Q.34** Seven boxes, P, Q, R, S, T, U and V, are kept one over the other but not necessarily in the same order. R is kept just below T. V is kept just above Q, which is just above S. Only three boxes are kept between V and U. V is the topmost box. Which is the correct position of Box P?

- Ans**
- ☒ A. Second box from the top
  - ☒ B. Immediately below S
  - ☒ C. Immediately above Q
  - ☒ D. Immediately below U

**Q.35** A statement is given followed by two arguments I and II. Read the statement and the arguments carefully and select the appropriate answer from the given options.

**Statement:**

In spite of all apartments having the same square foot area, rents of the apartments above the 6<sup>th</sup> floor are higher in most high-rise apartment buildings.

**Arguments:**

- I. It is riskier to live on higher floors, since the dependence on lifts is much more critical than the lower floors which can be accessed by stairs.
- II. Air pollution is several times lower on higher floors than on the lower floors.

- Ans**
- ☒ A. Argument I weakens, while argument II strengthens the statement
  - ☒ B. Argument II weakens, while argument I strengthens the statement
  - ☒ C. Both arguments I and II weaken the statement
  - ☒ D. Both arguments I and II strengthen the statement

**Q.36** Starting from a point X, Shekhar walks 70 m towards the north. Then, he takes a left turn and walks 150 m. Then, he takes a left turn and walks 70 m. Finally, he takes a left turn and walks 90 m to reach point Y. How far and in which direction is point X from point Y? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 60 m, West
  - ☒ B. 50 m, South
  - ☒ C. 60 m, East
  - ☒ D. 50 m, West

**Q.37** Six students, P, Q, R, S, T and U each are of different heights. P is taller than only two students. T is taller than only one student but shorter than exactly four students. S is taller than only four students but is not the tallest. Q is taller than none of the students. R is not the tallest. Who is the tallest student?

- Ans**
- ☐ A. S
  - ☐ B. T
  - ☒ C. U
  - ☐ D. P

**Q.38** At a function, the chief guest was accompanied by some people, and all were sitting in the audience gallery facing towards the west. P sits second to the left of the chief guest, Q sits fourth to the right of P. The number of people sitting to the right of Q is exactly one less than the number of people sitting to the left of Q. No one sits to the left of P. How many total people were sitting in the audience gallery?

- Ans**
- ☐ A. 9
  - ☒ B. 8
  - ☐ C. 7
  - ☐ D. 10

**Q.39** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.  
 $12 : 145 :: 9 : 82 :: 11 : ?$

- Ans**
- ☐ A. 123
  - ☒ B. 122
  - ☐ C. 121
  - ☐ D. 120

**Q.40** What will come in place of the question mark (?) in the following equation, if '+' is interchanged with '-', and '-' is interchanged with '×'?

$$7 \times 7 + 8 - 12 \times 6 + 17 - 14 - 100 = ?$$

- Ans**
- ☐ A. 125
  - ☐ B. 132
  - ☐ C. 99
  - ☒ D. 107

**Q.41** Eight lawyers with the initials A, K, L, M, N, O, P and Q were sitting around a square table and were facing the centre. Four of them were sitting at the corners, while the other four were at the exact centre of the sides. L, at a corner, was to the immediate right of M and was diagonally opposite to A. Q, sitting at a corner, was next to both M and K. P was second to the left of A. N was not sitting diagonally opposite to M. Which lawyer was second to the left of K?

- Ans**
- ☒ A. O
  - ☐ B. N
  - ☐ C. P
  - ☐ D. L

**Q.42** When the minute hand covers a distance of 2 hours and 20 minutes, then what is the angular distance covered by it?

- Ans**
- ☐ A.  $480^\circ$
  - ☐ B.  $590^\circ$
  - ☐ C.  $720^\circ$
  - ☒ D.  $840^\circ$

**Q.43** This question is based on the following 3-letter words.

RAT DOT FRY CUT

If in each of the words, each letter is changed to the next letter in the English alphabetical order, how many words thus formed will have no vowel?

- Ans**
- ☒ A. None
  - ☒ B. One
  - ☒ C. Two
  - ☒ D. Three

**Q.44** Three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

1. All tigers are lions.
2. No cat is lion.
3. Some jaguars are cats.

**Conclusions:**

- I. Some jaguars are lions.
- II. No jaguar is tiger.
- III. Some lions are tigers.

- Ans**
- ☒ A. Only conclusions I follows
  - ☒ B. Only conclusions II and III follow.
  - ☒ C. Only III follows
  - ☒ D. Only conclusions I and II follow.

**Q.45** P, Q, R, S, T and U live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it is numbered 2, and so on till the topmost floor is numbered 6. Exactly three persons live between the floors of R and Q. T lives on the floor immediately above P's floor. U lives on the floor immediately above Q's floor. R lives on the floor immediately below S's floor. T lives on floor number 4. Q does not live on floor number 5. Who lives on floor number 6?

- Ans**
- ☒ A. U
  - ☒ B. P
  - ☒ C. R
  - ☒ D. S

- Q.46** The following table shows the number of male and female students studying in different streams (i.e. Arts, Science, Commerce and Law) of a college. Study the table and answer the question.

| Streams      | Male       | Female     |
|--------------|------------|------------|
| Arts         | 202        | 112        |
| Science      | 260        | 280        |
| Commerce     | 116        | 190        |
| Law          | 78         | 65         |
| <b>Total</b> | <b>656</b> | <b>647</b> |

What is the percentage of female Commerce students in the total students of the college?

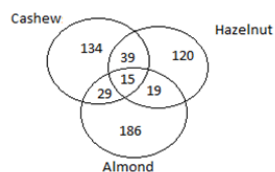
- Ans** ☒ A. 13.28%  
☒ B. 14.58%  
☒ C. 15.95%  
☒ D. 16.46%

- Q.47** Which of the following terms will replace the question mark (?) in the given series to make it logically complete ?

D6W, G7T, M11N, V20E, ?

- Ans** ☒ A. H34S  
☒ B. H36S  
☒ C. G36S  
☒ D. H36T

- Q.48** Study the given diagram carefully and answer the following question. The numbers in different sections indicate the number of persons who like different dry fruits during snack time.



How many people like Hazelnut but NOT Cashew?

- Ans** ☒ A. 15  
☒ B. 39  
☒ C. 120  
☒ D. 139

- Q.49** In a certain code language, 'ACADEMY' is written as 'FSJHDEB' and 'BARRIER' is written as 'YKNVUCC'. How will 'ATTEMPT' be written in that language?

- Ans** ☒ A. AVRIWVB  
☒ B. AVRMWVB  
☒ C. AVRNWVB  
☒ D. BVWMRVA

**Q.50** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 are not allowed.)

(24, 12, 72)

(15, 16, 60)

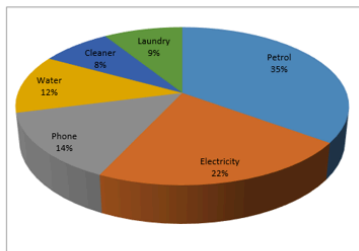
**Ans** ✓ **A.** (20, 24, 120)

✗ **B.** (18, 12, 56)

✗ **C.** (30, 40, 156)

✗ **D.** (17, 20, 65)

**Q.51** The following chart shows the percentage of expenditure of Mr. Kumar on various heads in a month. The total monthly expenditure of the house is Rs. 1,12,000 (Rupees One lac twelve thousand only). Study the chart and answer the question.



What is the total expenditure of Mr. Kumar on Petrol and Water taken together during this month?

**Ans** ✗ **A.** Rs. 51600

✗ **B.** Rs. 52220

✓ **C.** Rs. 52640

✗ **D.** Rs. 54440

**Q.52** Which two signs should be interchanged to make the given equation correct?

$$28 - 28 \div 14 + 7 \times 2 = 16$$

**Ans** ✗ **A.**  $\times$  and  $-$

✗ **B.**  $\times$  and  $\div$

✗ **C.**  $+$  and  $\div$

✓ **D.**  $+$  and  $-$

**Q.53** Three statements are given followed by four conclusions I, II, III and IV. You have to consider these statements to be true, even if they seem at variance from commonly known facts. Decide which of the given conclusions logically follow/s from the given statements.

**Statements:**

1. Some pamphlets are copies.
2. All copies are readers.
3. All readers are scrolls.

**Conclusions:**

- I. All pamphlets are scrolls.
- II. All copies are scrolls.
- III. Some readers are copies.
- IV. Some scrolls are pamphlets.

**Ans** ☒ A. Only conclusions I and III follow.  
☒ B. Only conclusions II, III and IV follow.  
☒ C. Only conclusions I, III and IV follow.  
☒ D. Only conclusions II and IV follow.

**Q.54** Which of the following numbers will replace the question mark (?) in the given series?

7, 20, 37, 56, 79, 108, ?

**Ans** ☒ A. 122  
☒ B. 126  
☒ C. 136  
☒ D. 139

**Q.55** Which of the following numbers will replace the question mark (?) in the given series?

45, 65, 90, 125, 180, ?

**Ans** ☒ A. 275  
☒ B. 280  
☒ C. 270  
☒ D. 285

#### Section : General Science

**Q.56** The ratio of a field produced due to a current carrying circular coil of  $n$  turns, to that of a field produced due to a single circular loop of the same radius carrying the same current is:

**Ans** ☒ A.  $n : 1$   
☒ B.  $1 : n$   
☒ C.  $1 : n^2$   
☒ D.  $1 : 1$

**Q.57** Elements of which of the following groups have the tendency to form acidic oxide?

**Ans** ☒ A. 1  
☒ B. 2  
☒ C. 13  
☒ D. 16

**Q.58** Yeast is used in making \_\_\_\_\_.

- Ans**
- ☒ A. curd
  - ☒ B. wine
  - ☒ C. cheese
  - ☒ D. antibiotics

**Q.59** An element A reacts with water to form a solution which turns phenolphthalein solution pink. The element A is most likely to be:

- Ans**
- ☒ A. S
  - ☒ B. Mg
  - ☒ C. C
  - ☒ D. Ag

**Q.60** A concave mirror forms a real, inverted and same sized image of an object. Where is the object placed?

- Ans**
- ☒ A. At C
  - ☒ B. Between f and C
  - ☒ C. Between f and pole
  - ☒ D. At infinity

**Q.61** Metal oxides are generally \_\_\_\_\_ in nature.

- Ans**
- ☒ A. acidic
  - ☒ B. basic
  - ☒ C. neutral
  - ☒ D. sweet

**Q.62** Humans have \_\_\_\_\_ pairs of autosomes.

- Ans**
- ☒ A. 22
  - ☒ B. 23
  - ☒ C. 46
  - ☒ D. 2

**Q.63** To investigate the conduction of electric current, Ravi performed an experiment. He took different aqueous solutions or liquids (as electrolyte) and tried to pass electricity and connected the circuit with a bulb. In the presence of which of the following, will the bulb NOT glow?

- Ans**
- ☒ A. Sodium chloride (aq)
  - ☒ B. Octane (l)
  - ☒ C. Calcium chloride (aq)
  - ☒ D. Copper sulphate (aq)

**Q.64** The speed of light in two transparent media A and B are  $2 \times 10^8$  m/sec and  $2.25 \times 10^8$  m/sec. The refractive index of medium A with respect to medium B is equal to:

- Ans**
- ☒ A. 1.125
  - ☒ B. 0.89
  - ☒ C. 4.25
  - ☒ D. 4.50



**Q.65** Alcohols react with sodium leading to the evolution of which of the following gases?

- Ans**
- ☐ A. Oxygen
  - ☐ B. Carbon dioxide
  - ☒ C. Hydrogen
  - ☐ D. No evolution of Gas

**Q.66** Movement in most of the animals is a co-ordinated activity of which of the following system/systems?

- Ans**
- ☒ A. Muscular, skeletal and nervous systems
  - ☐ B. Only skeletal and nervous systems
  - ☐ C. Only muscular system
  - ☐ D. Only nervous system

**Q.67** The process of producing an induced current by a changing magnetic field is called:

- Ans**
- ☐ A. electromagnetism
  - ☒ B. electromagnetic induction
  - ☐ C. electric conduction
  - ☐ D. electromagnetic radiation

**Q.68** A metallic wire of resistance  $100\ \Omega$  is bent into a circle having circumference equal to the length of the wire. The equivalent resistance between two diametrically opposite points of the circle is:

- Ans**
- ☒ A.  $25\ \Omega$
  - ☐ B.  $50\ \Omega$
  - ☐ C.  $75\ \Omega$
  - ☐ D.  $100\ \Omega$

**Q.69** In today's scenario, which change seen in human attitude has helped in decreasing the production of non-biodegradable waste to some extent?

- Ans**
- ☐ A. Improvement in lifestyle
  - ☐ B. Use of Plastic in Packaging
  - ☐ C. Use and throw attitude
  - ☒ D. Use of jute bags

**Q.70** Two types of cell divisions, A and B, are shown in the figure below. Which option provides the correct answer for:

i. Types of cell division

ii. When and where does division B take place?



A

B

**Ans**

i. A - Mitosis, B - Meiosis

✓ A.

ii. Meiosis takes place in reproductive cells for the formation of gametes

i. A - Meiosis, B - Mitosis

✗ B.

ii. Meiosis takes place in reproductive cells for the formation of gametes

i. A - Mitosis, B - Meiosis

✗ C.

ii. Meiosis takes place in body cells for growth

i. A and B – Meiosis

✗ D.

ii. Meiosis takes place in body cells for growth

**Q.71** Newlands' Octaves start with \_\_\_\_\_ and end with \_\_\_\_\_, respectively.

**Ans**

✗ A. Li; Na

✓ B. H; Th

✗ C. Mg; Ca

✗ D. He; Ar

**Q.72** Which reproductive parts of the flower contain the germ cells?

**Ans**

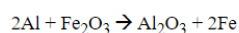
✗ A. Sepals and stamen

✗ B. Anther and sepals

✗ C. Petals and style

✓ D. Stamens and pistils

**Q.73** In the given chemical reaction, which of the following chemical species acts as an oxidising agent and as a reducing agent, respectively?



**Ans**

✗ A. Fe and Al

✗ B.  $\text{Al}_2\text{O}_3$  and Fe

✗ C. Al and Fe

✓ D.  $\text{Fe}_2\text{O}_3$  and Al

**Q.74** The resistance of a conductor is NOT dependent on:

**Ans**

✓ A. current flowing through the conductor

✗ B. temperature of the conductor

✗ C. length of the conductor

✗ D. area of cross section of the conductor

Q.75 Colourless plastids are called \_\_\_\_\_.

- Ans
- ☐ A. chloroplastids
  - ☐ B. chromoplastids
  - ☒ C. leucoplastids
  - ☐ D. apicoplastids

Q.76 The refractive index of a given transparent medium is 1.5. The speed of light in the medium is equal to:

- Ans
- ☒ A.  $2 \times 10^8 \text{ m/sec}$
  - ☐ B.  $3 \times 10^8 \text{ m/sec}$
  - ☐ C.  $4.5 \times 10^8 \text{ m/sec}$
  - ☐ D.  $0.5 \times 10^8 \text{ m/sec}$

Q.77 A potential difference of 5 V when applied across a conductor produces a current of 2.5 mA. The resistance of the conductor (in  $\Omega$ ) is:

- Ans
- ☐ A. 2
  - ☐ B. 20
  - ☐ C. 200
  - ☒ D. 2000

Q.78 Consider the below statements and identify the correct answer.

Statement- I: Human stomach produces nitric acid.

Statement-II: Hydrochloric acid helps in the digestion of food without harming the stomach.

- Ans
- ☐ A. Both statements are correct. Statement II is correct explanation of Statement I.
  - ☐ B. Both Statements are correct. Statement I is correct explanation of Statement II.
  - ☐ C. Only Statement I is correct.
  - ☒ D. Only Statement II is correct.

Q.79 The magnification 'm' produced by a convex lens when the object is placed at a distance  $2f$  from the lens is given by:

- Ans
- ☐ A.  $m = +1$
  - ☒ B.  $m = -1$
  - ☐ C.  $m = +2$
  - ☐ D.  $m = -2$

Q.80 \_\_\_\_\_ is a type of water collection system found in Madhya Pradesh.

- Ans
- ☒ A. Bundhis
  - ☐ B. Surangams
  - ☐ C. Kattas
  - ☐ D. Kulhs

**Q.81** As of July 2022, which of the following states has set up Bharosa Centres – a one-stop facility to aid women and children subjected to sexual assaults and violence?

- Ans**
- ☐ A. Odisha
  - ☒ B. Telangana
  - ☐ C. Kerala
  - ☐ D. Gujarat

**Q.82** Which of the following sports events was hosted by India from 20 January 2022 in Mumbai, Navi Mumbai and Pune?

- Ans**
- ☐ A. Asian Champions Trophy
  - ☐ B. FIFA Women's World Cup
  - ☒ C. AFC Women's Asian Cup
  - ☐ D. Asian Track & Para-Cycling Championships

**Q.83** Bhawna Jat, Ravina and Munita Prajapati's combined effort won India a bronze medal in the team category of the women's 20 km race walk event at the World Race Walking Team Championships 2022 in: \_\_\_\_\_.

- Ans**
- ☐ A. Norway
  - ☐ B. United Arab Emirates
  - ☒ C. Oman
  - ☐ D. Sweden

**Q.84** How many subjects are entitled and listed in the Indian Constitution for Panchayat?

- Ans**
- ☐ A. 25
  - ☐ B. 19
  - ☐ C. 33
  - ☒ D. 29

**Q.85** The Regional Rural Banks Act was passed in which year by the Government of India?

- Ans**
- ☐ A. 1966
  - ☒ B. 1976
  - ☐ C. 1986
  - ☐ D. 1996

Q.86

In which state will India's first graphene innovation centre be established?

Ans

☐ A. Maharashtra

☒ B. Kerala

☐ C. Haryana

☐ D. Punjab

Q.87

Which of the following is a sacred text related to Buddhism?

Ans

☐ A. Hadith

☐ B. Agama

☒ C. Tripitaka

☐ D. Tanakh

Q.88

Who immediately succeeded Raja Ram Mohan Roy as leader of the Brahmo Samaj?

Ans

☐ A. Dwarkanath Tagore

☒ B. Debendra Nath Tagore

☐ C. Ravindra Nath Tagore

☐ D. Dr. Atma Ram

Q.89

Which of the following features is associated with deserts?

Ans

☐ A. Alluvial fan

☒ B. Barchans

☐ C. Moraines

☐ D. Tarn pools

Q.90

Prasanta Chandra Mahalanobis founded which of the following?

Ans

- ☐ A. Miranda House
- ☒ B. Indian Statistical Institute
- ☐ C. University of Lucknow
- ☐ D. Bhartiya Vidya Bhavan

Q.91 Which is the most popular festival among the Garos tribe of Meghalaya?

Ans

- ☒ A. Wangala Festival
- ☐ B. Yaoshang Festival
- ☐ C. Porag Festival
- ☐ D. Nuakhai Festival

Q.92 With whom did the Indian Army sign a contract worth ₹3131.82 crore for manufacture and supply of missiles?

Ans

- ☒ A. Bharat Dynamics Limited
- ☐ B. Troop Comforts Limited
- ☐ C. Yantra India Limited
- ☐ D. India Optel Limited

Q.93 In which of the following cities is 'The Central Institute of Indian Languages (CIIL)' located?

Ans

- ☐ A. Bengaluru
- ☒ B. Mysuru
- ☐ C. Mangaluru
- ☐ D. Hubli

- Q.94** Who has been honoured with the Padma Bhushan award in Science and Engineering in January 2022?
- Ans** ☒ A. Sanjaya Rajaram  
☐ B. Subbanna Ayyappan  
☐ C. Sirpi Balasubramaniam  
☐ D. Buddhadeb Bhattacharjee
- Q.95** The Chhota Nagpur Plateau can be found in which of the following Indian states?
- Ans** ☐ A. Rajasthan  
☐ B. Karnataka  
☒ C. Jharkhand  
☐ D. Assam
- Q.96** Which of the following Acts legally guarantees 100 days of wage employment in a financial year to adult members of a rural household, who are seeking employment and willing to do unskilled manual work?
- Ans** ☐ A. Indira National Rural Employment Guarantee Act  
☒ B. Mahatma Gandhi National Rural Employment Guarantee Act  
☐ C. Ambedkar National Rural Employment Guarantee Act  
☐ D. Nehru National Rural Employment Guarantee Act
- Q.97** Which of the following terms refers to a climatic condition in the marine environment that results in a period of warming of the water body?
- Ans** ☒ A. El Nino  
☐ B. La Nina  
☐ C. El Mino  
☐ D. La Mino
- Q.98** The Goods and Services Tax, which includes both goods and services, was introduced by the Government of India with effect from \_\_\_\_\_.
- Ans** ☐ A. 28 February 2016  
☐ B. 1 April 2015  
☒ C. 1 July 2017  
☐ D. 1 March 2018
- Q.99** Who has the executive authority to advise the State Government on legal matters and to perform other duties of legal character?
- Ans** ☒ A. Advocate-General  
☐ B. Comptroller and Auditor General  
☐ C. Attorney General  
☐ D. Solicitor General
- Q.100** Which feature of the Indian Constitution refers to the existence of governments at the state level and at the centre?
- Ans** ☐ A. Parliamentary form of government  
☒ B. Federalism  
☐ C. Fundamental rights  
☐ D. Secularism



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 22/08/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

Q.1 If  $(x + \frac{1}{x}) = k$ , find the value of  $x^3 + \frac{1}{x^3}$ .

- Ans
- ☒ A.  $k^3 + 3k$
  - ☒ B.  $k^3 - 3k$
  - ☐ C.  $3k - k^3$
  - ☐ D.  $k^3$

Q.2 The value of  $\frac{\sin^2 10^\circ + \sin^2 20^\circ + \sin^2 30^\circ + \sin^2 40^\circ + \sin^2 50^\circ + \sin^2 60^\circ + \sin^2 70^\circ + \sin^2 80^\circ + \sin^2 90^\circ}{\cos^2 20^\circ + \cos^2 40^\circ + \cos^2 50^\circ + \cos^2 70^\circ + \cot^2 45^\circ}$  is:

- Ans
- ☒ A.  $\frac{5}{3}$
  - ☐ B.  $\frac{3}{4}$
  - ☐ C.  $\frac{6}{5}$
  - ☐ D.  $\frac{4}{3}$

Q.3 The equation  $x^2 + 7x + 6 = 0$  can be written as:

- Ans
- ☐ A.  $(x - 1)(x + 6) = 0$
  - ☐ B.  $(x + 1)(x - 6) = 0$
  - ☐ C.  $(x - 1)(x - 6) = 0$
  - ☒ D.  $(x + 1)(x + 6) = 0$

Q.4 The volume of a cylinder is  $5500 \text{ m}^3$ . Find its diameter if the cylinder is 70 m high.

- Ans
- ☐ A. 5 m
  - ☐ B. 8 m
  - ☒ C. 10 m
  - ☐ D. 12 m



Q.5 The equivalent fraction of  $4.2222\dots$  is:

- Ans ☒ A.  $\frac{38}{9}$
- ☐ B.  $\frac{38}{100}$
- ☐ C.  $\frac{422}{99}$
- ☐ D.  $\frac{42}{99}$

Q.6 Two numbers are in the ratio 5: 3. If difference between the numbers is 54, then find the smaller number.

- Ans ☐ A. 135
- ☐ B. 91
- ☐ C. 115
- ☒ D. 81

Q.7 Simplify  $3(3x - 2) + x\left(\frac{4x}{2}\right) + 15 - 12$ .

- Ans ☐ A.  $2x^2 + 9x + 3$
- ☐ B.  $2x^2 + 6x - 3$
- ☐ C.  $2x^2 + 9x + 6$
- ☒ D.  $2x^2 + 9x - 3$

Q.8 A shop which sells sarees had offers going on wherein customers could buy 3 sarees and get 2 free. What is the discount that the customer gets?

- Ans ☒ A. 40%
- ☐ B. 50%
- ☐ C. 60%
- ☐ D. 30%

Q.9 51 men can complete a work in 12 days. Four days after they started working 6 more men joined them. How many days will they now take to complete the remaining work?

- Ans ☐ A.  $5\frac{9}{19}$  days
- ☒ B.  $7\frac{3}{19}$  days
- ☐ C.  $8\frac{1}{19}$  days
- ☐ D.  $6\frac{7}{19}$  days

Q.10 The sum of double of the largest two-digit prime number and triple of the largest three-digit prime number is equal to

- Ans ☐ A. 3029
- ☒ B. 3185
- ☐ C. 2195
- ☐ D. 6523

**Q.11** Which of the following is NOT a true statement?

- Ans**
- ☒ A. All rectangles are parallelograms.
  - ☒ B. Opposite sides of a rectangle are congruent and parallel.
  - ☒ C. Diagonals of a rectangle do not bisect each other.
  - ☒ D. Sum of any pair of adjacent angles of a rectangle is  $180^\circ$ .

**Q.12** The mean proportional between the numbers p and q is 8. Which of the following pairs of numbers can be the values of p and q?

- Ans**
- ☒ A. 10 and 6
  - ☒ B. 12 and 3
  - ☒ C. 16 and 4
  - ☒ D. 12 and 16

**Q.13** A starts from X at 9:00 a.m. and reaches Y at 1:00 p.m. on the same day, B also starts from Y at 9:00 a.m. and reaches X at 3 p.m. on the same day, following the same route as A. At what time do the two meet?

- Ans**
- ☒ A. 10:00 hrs
  - ☒ B. 11:12 hrs
  - ☒ C. 11:30 hrs
  - ☒ D. 11:24 hrs

**Q.14** The mean proportional of 16 and 144 is

- Ans**
- ☒ A. 44
  - ☒ B. 48
  - ☒ C. 34
  - ☒ D. 36

**Q.15** The average of the first twelve multiples of 11 is:

- Ans**
- ☒ A. 71.5
  - ☒ B. 70.5
  - ☒ C. 69.5
  - ☒ D. 68.5

**Q.16** From the numbers 51, 52, 53, ....100, find the sum of the smallest and the greatest prime numbers as given.

- Ans**
- ☒ A. 154
  - ☒ B. 123
  - ☒ C. 139
  - ☒ D. 150

**Q.17** 3 pencils and 5 pens together cost ₹81, whereas 5 pencils and 3 pens together cost ₹71. The cost of 1 pencil and 2 pens together is:

- Ans**
- ☒ A. ₹31
  - ☒ B. ₹26
  - ☒ C. ₹35
  - ☒ D. ₹29

**Q.18** For a grouped data, if  $X_i$  is the class mark and  $f_i$  is the corresponding frequency, then by direct method, mean  $\bar{x}$  is given by:

**Ans**

☒ A.  $\frac{\sum f_i x_i}{\sum x_i}$

☒ B.  $\frac{\sum x_i}{\sum f_i}$

☒ C.  $\frac{\sum f_i x_i}{\sum f_i}$

☒ D.  $\sum f_i x_i$

**Q.19** In a right-angled triangle, if the hypotenuse is 4 units greater than one side and 8 units greater than the other, then find the area of the triangle.

**Ans**

☒ A. 32 sq. units

☒ B. 100 sq. units

☒ C. 16 sq. units

☒ D. 96 sq. units

**Q.20** Simplify  $234 \times [8 - (6 + 2) \times 3] + 4234$ .

**Ans**

☒ A. 423

☒ B. 324

☒ C. 490

☒ D. 940

**Q.21** The product of the roots of  $x^2 - 7x + 12 = 0$  is \_\_\_\_\_.

**Ans**

☒ A. 7

☒ B. 12

☒ C. -7

☒ D. -12

**Q.22** By selling an item at a 10% profit a seller makes a profit of ₹777.70. Find the cost price of the item.

**Ans**

☒ A. ₹7,707

☒ B. ₹7,777

☒ C. ₹7,177

☒ D. ₹7,277

**Q.23** The value of

$$\{4 - 3 \times [7 - 8 \times (2 \times 4 - 10)]\} =$$

**Ans**

☒ A. -65

☒ B. -25

☒ C. 65

☒ D. 73

**Q.24** At what rate of per cent per annum will ₹1,300 give ₹520 as simple interest in 5 years?

- Ans**
- ☒ A. 4%
  - ☒ B. 5%
  - ☒ C. 7%
  - ☒ D. 8%

**Q.25** The total surface area of a cylinder of radius 70 m and height 140 m, is:

- Ans**
- ☒ A. 82,500 m<sup>2</sup>
  - ☒ B. 92,400 m<sup>2</sup>
  - ☒ C. 61,524 m<sup>2</sup>
  - ☒ D. 5124 m<sup>2</sup>

Section : General Intelligence and Reasoning

**Q.26** Based on the given statement, two conclusions are drawn. Find out which conclusion is true based on the statement.

Statement:  $C < D$ ,  $E \geq B$ ,  $B > D$

Conclusions:

1.  $B > C$
2.  $E < D$

- Ans**
- ☒ A. Only conclusion 1 is true
  - ☒ B. Only conclusion 2 is true
  - ☒ C. Both conclusions 1 and 2 are true
  - ☒ D. Neither conclusion 1 nor 2 is true

**Q.27** If each of the digits in the number given below is arranged in the descending order from left to right, what will be the product of the digits that are third from the left and fourth from the right in the new number thus formed?

(Left) 521987624 (Right)

- Ans**
- ☒ A. 36
  - ☒ B. 35
  - ☒ C. 28
  - ☒ D. 21

**Q.28** A certain number of people are sitting in a row, facing north. P is to the immediate left of Z. Only one person sits between G and D. G is to the left of D. H is fifth to the left of G. K is to the immediate right of D. P is third to the right of K. If no other person is sitting in the row, what is the total number of persons seated?

- Ans**
- ☒ A. 10
  - ☒ B. 11
  - ☒ C. 12
  - ☒ D. 13

**Q.29** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 are not allowed.)

(11, 57, 8)

(12, 63, 9)

**Ans** ☒ A. (12, 54, 11)

☒ B. (15, 75, 7)

☒ C. (12, 45, 8)

☒ D. (10, 64, 6)

**Q.30** Select the option that is related to the fifth letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster and the fourth letter-cluster is related to the third letter-cluster.

FAST: JDUU :: SLOW : WOQX :: JUMP : ?

**Ans** ☒ A. NXOQ

☒ B. NOXQ

☒ C. QXON

☒ D. XNOQ

**Q.31** Given below are three statements and three conclusions. Take the statements to be true even if they are at variance with commonly known facts, and decide whether the conclusion/s follow/s from the given statements.

Statements:

I. All chairs are desks.

II. All desks are chalks.

III. All chalks are boards.

Conclusions:

I. Some boards are desks.

II. Some chalks are chairs.

III. Some boards are chairs.

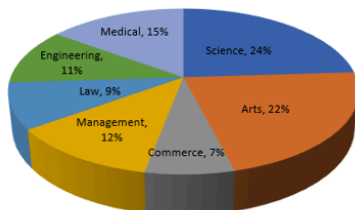
**Ans** ☒ A. Conclusions I and II follow

☒ B. Conclusion I and III follow

☒ C. Conclusion II and III follow

☒ D. All the conclusions follow

**Q.32** The following chart shows the percentage of students enrolled in different streams in a university. The total number of students enrolled in the university is 15200. Study the chart and answer the question.



How many students are enrolled in Medical, Engineering and Law streams taken together?

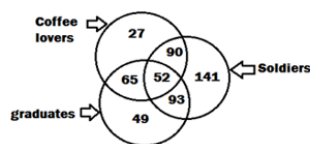
**Ans** ☒ A. 4680

☒ B. 5210

☒ C. 5320

☒ D. 5420

- Q.33** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



Which of the following statements is correct on the basis of the above diagram?

- Ans** ☒ A. The number of soldiers who are neither coffee lovers nor graduates is 193.  
☒ B. The number of graduates who are also coffee lovers but not soldiers is 65.  
☒ C. The number of coffee lovers who are both graduates and soldiers is 90.  
☒ D. The number of soldiers who are also coffee lovers is 27.

- Q.34** Seven surgeons, W, X, Y, Z, A, B and C, were sitting around a square table, facing the centre. Four of them are sitting at the corners while three are sitting at the exact centre of the sides. One of the centre of sides was empty. C, at one of the corners, was immediately next to both B and Y. Z was immediately next to both B and X. A was at the immediate right of X. Which surgeon was third to the right of W?

- Ans** ☒ A. Y  
☒ B. B  
☒ C. X  
☒ D. C

- Q.35** Which of the following numbers will replace the question mark (?) in the given series?

8, 9, 20, 63, 256, ?

- Ans** ☒ A. 1280  
☒ B. 1285  
☒ C. 1284  
☒ D. 1286

- Q.36** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 are not allowed.)

(36, 78, 13)

(121, 77, 7)

- Ans** ☒ A. (9, 56, 18)  
☒ B. (64, 85, 12)  
☒ C. (49, 63, 9)  
☒ D. (36, 72, 10)

- Q.37** Starting from his house, Varun walks 60 m towards the north. He then takes a right turn and walks 30 m. He then takes a right turn and walks 90 m. Finally, he takes another right turn and walks 30 m. How far and in which direction is Varun now from his house ? (All turns are 90 degree turns only)

- Ans** ☒ A. 25 m, East  
☒ B. 30 m, North  
☒ C. 30 m, South  
☒ D. 25 m, South

**Q.38** What is the angle traced by the minute hand in 48 minutes?

- Ans**
- ☒ A.  $190^\circ$
  - ☒ B.  $288^\circ$
  - ☒ C.  $372^\circ$
  - ☒ D.  $420^\circ$

**Q.39** If 1 is added to each odd digit and 2 is subtracted from each even digit in the number 53478231, what will be the sum of the digits that are second from the left and second from the right?

- Ans**
- ☒ A. 4
  - ☒ B. 6
  - ☒ C. 8
  - ☒ D. 10

**Q.40** A certain number of people are sitting in a row, facing the north. M is sitting at the extreme left end. K is to the immediate right of M. G is to the immediate right of K. Only five persons are sitting between G and D. D is at the 6<sup>th</sup> position from the extreme right end. G is at some place towards the left of D. If no other person is sitting in the row, what is the total number of persons seated?

- Ans**
- ☒ A. 12
  - ☒ B. 13
  - ☒ C. 14
  - ☒ D. 15

**Q.41** A statement is given followed by two arguments I and II. Read the statement and the arguments carefully and select the appropriate answer from the given options.

**Statement:**

Last year, only 30 percent of girl students in district X joined under-graduate courses after school, while 95 percent boys joined under-graduate courses.

**Arguments:**

- I. The state government has increased the number of scholarships for girl students in undergraduate courses in government colleges.
- II. Many girl students prefer to join vocational courses after school rather than undergraduate courses.

- Ans**
- ☒ A. Argument I weakens, while argument II strengthens the statement
  - ☒ B. Argument II weakens, while argument I strengthens the statement
  - ☒ C. Both arguments I and II weaken the statement
  - ☒ D. Both arguments I and II strengthen the statement

**Q.42** In a certain code language, 'PTEJAD' is written as 'OUEIAE' and 'FHNOT' is written as 'EIMOT'. How will 'TUPAI' be written in that language?

- Ans**
- ☒ A. UVPAH
  - ☒ B. VUPHI
  - ☒ C. SUQAI
  - ☒ D. PUHVA

**Q.43** Which of the following interchanges of signs would make the given equation correct?

$$12 \div 6 \times 18 + 16 - 15 = 5$$

- Ans**
- ☒ A. +, -
  - ☒ B. +, ×
  - ☒ C. ×, ÷
  - ☒ D. -, ÷

**Q.44** Which of the following numbers will replace the question mark (?) in the given series?

28, 29, 31, 35, 43, ?

- Ans**
- ☒ A. 55
  - ☒ B. 53
  - ☒ C. 59
  - ☒ D. 61

**Q.45** Stepping out from a flower shop, Jaya walks 100 m towards the north. She then takes a right turn and walks 45 m. She then takes right turn and walks 175 m. She then takes a left turn and walks 50 m. She then takes a left turn and walks 75 m to reach a tea stall. How far and in which direction is the flower shop from the tea stall ? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 105 m, North
  - ☒ B. 105 m, West
  - ☒ C. 95 m, East
  - ☒ D. 95 m, West

**Q.46** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the condition is your answer.

| Number/Symbol | 6 | 5 | & | @ | ? | 9 | < | # | 2 | % | ! | 3 | = | 7 |
|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code          | M | L | R | T | U | P | H | Y | A | V | C | X | D | G |

Conditions:

- (i) If the first element is a number and the last, a symbol, the codes for these two are to be interchanged.
- (ii) If the first element is an odd number and the last, an even number, the first and last elements are to be coded as Ø.
- (iii) If both second and third elements are perfect squares, the third element is to be coded as the code for the second element.

How will '6 < % 2 #' be coded?

- Ans**
- ☒ A. MHVAY
  - ☒ B. YHVAM
  - ☒ C. ØYCAØ
  - ☒ D. YYVAM

**Q.47** Refer to the following number series and answer the question.

2 5 6 9 8 0 3 8 6 7 2 5 2 2 6 8 3 6 5 3

How many such numbers are there in the series each of which is immediately preceded by an even number and immediately followed by an odd number?

- Ans**
- ☒ A. 2
  - ☒ B. 3
  - ☒ C. 4
  - ☒ D. 5

**Q.48** Six boys, Prateek, Kartik, Yash, Himmat, Dev and Nihit, are sitting in a straight line. All are facing the north direction. Prateek sits second to the left of Kartik. Dev is sitting at one of the extreme ends. Only Prateek is sitting between Yash and Himmat. Kartik sits to the immediate left of Nihit. Himmat sits third to the right of Dev. Who is sitting to the immediate left of Kartik?

- Ans**
- ☒ A. Yash
  - ☒ B. Himmat
  - ☒ C. Prateek
  - ☒ D. Dev

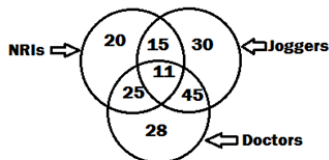


**Q.49** Some people are playing on a football ground. Only two are wearing red coloured T-shirts. Exactly three are wearing yellow-coloured T-shirts. The one who is wearing a red T-shirt passed the ball to the only individual wearing a saffron coloured T-shirt. The person wearing a white coloured T-shirt tackled the person wearing the saffron coloured T-shirt, and then passed the ball to the player who is wearing the green coloured T-shirt. No other individual is playing on the ground.

How many total players are playing football on the ground?

- Ans** ☒ A. 8  
☒ B. 9  
☒ C. 10  
☒ D. 7

**Q.50** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



How many such doctors are there who are also joggers but NOT NRIs?

- Ans** ☒ A. 45  
☒ B. 56  
☒ C. 28  
☒ D. 75

**Q.51** The following question is based on the given six, 4-digit numbers.

(Left) 8347, 5486, 9627, 4913, 8721, 6418 (Right)

(For example, 2456: 6 = digit in unit's place, 5 = digit in ten's place, 4 = digit in hundred's place, 2 = digit in thousand's place)

NOTE - All operations to be done from left to right.

What will be the resultant if the digit in hundred's place of the largest number is added to the digit in thousand's place of the smallest number?

- Ans** ☒ A. 7  
☒ B. 8  
☒ C. 10  
☒ D. 9

**Q.52** The following table shows the number of male and female employees working in four departments of an organization i.e. HR, Production, Marketing and Operations. Study the table and answer the question.

| Departments | Male | Female |
|-------------|------|--------|
| HR          | 35   | 65     |
| Production  | 160  | 155    |
| Marketing   | 176  | 140    |
| Operations  | 128  | 142    |

What is the ratio of the total number of employees in Production (both male and female taken together) and the total number of employees in Operations (both male and female employees taken together), respectively?

- Ans** ☒ A. 7 : 6  
☒ B. 7 : 3  
☒ C. 6 : 5  
☒ D. 8 : 5

**Q.53** The position of how many letters will remain unchanged if each of the letters in the word 'ACQUIRE' is arranged in alphabetical order?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.54** Based on the given statement, four conclusions are drawn. Find out which conclusion is NOT true based on the statement.

Statement:  $A < B < C \leq D = E > F > G$

- Ans**
- ☒ A.  $C \leq E$
  - ☒ B.  $A > E$
  - ☒ C.  $E > B$
  - ☒ D.  $D > G$

**Q.55** Which of the following terms will replace the question mark (?) in the given series to make it logically complete?

EHT-13, HKW-17, LOA-22, QTF-28, WZL-35, ?

- Ans**
- ☒ A. CGT-41
  - ☒ B. DHR-43
  - ☒ C. DGT-44
  - ☒ D. DGS-43

#### Section : General Science

**Q.56** The direction of a magnetic field due to a straight current carrying conductor can be determined using:

- Ans**
- ☒ A. right hand thumb rule
  - ☒ B. left hand thumb rule
  - ☒ C. Fleming's right-hand rule
  - ☒ D. Fleming's left-hand rule

**Q.57** Which of the following elements shows maximum valence electrons?

- Ans**
- ☒ A. Al
  - ☒ B. H
  - ☒ C. N
  - ☒ D. F

**Q.58** Consider the below statements and identify the correct answer.

Statement-I: On heating, the surface of copper powder becomes coated with black copper (II) oxide.

Statement-II: If hydrogen gas is passed over this heated material (CuO), the black coating on the surface turns brown.

- Ans**
- ☒ A. Both the statements are true.
  - ☒ B. Both the statements are false.
  - ☒ C. Statement-I is true, and statement-II is false.
  - ☒ D. Statement-I is false, and statement-II is true.

**Q.59** Which of the following devices is/are based on heating effect of electric current?

- (i) Incandescent lamp
- (ii) Electric geyser
- (iii) Electric generator

**Ans** ☒ A. Only (i)

☒ B. Only (ii)

☒ C. Both (i) and (ii)

☒ D. Both (i) and (iii)

**Q.60** Five solutions A, B, C, D and E, when tested with universal indicator, showed pH as 4, 1, 11, 7 and 9, respectively. The pH in increasing order of  $H^+$  ion concentration for these solutions is:

**Ans** ☒ A.  $C < D < E < A < B$

☒ B.  $C < E < D < A < B$

☒ C.  $D < C < E < A < B$

☒ D.  $C < D < E < B < A$

**Q.61** Which aspect of large dams has NOT been criticised?

**Ans** ☒ A. Social

☒ B. Economic

☒ C. Environmental

☒ D. Psychological

**Q.62** To cook some foods faster we can use \_\_\_\_\_.

**Ans** ☒ A. baking powder

☒ B. ammonium chloride

☒ C. sodium chloride

☒ D. bleaching powder

**Q.63** The resistance of a conductor is directly proportional to:

**Ans** ☒ A. area of cross section of the conductor

☒ B. length of the conductor

☒ C. current flowing through the conductor

☒ D. potential difference applied across the conductor

**Q.64** A convex lens having power 5 D is placed in contact with a concave lens having power  $-3$  D. The focal length of the combination will be:

**Ans** ☒ A. 50 cm

☒ B.  $-50$  cm

☒ C. 0.5 cm

☒ D.  $-0.5$  cm

**Q.65** What will be the fourth next member of the homologous series of the compound propene?

- Ans**
- ☒ A.  $C_2H_4$
  - ☒ B.  $C_4H_8$
  - ☒ C.  $C_7H_{14}$
  - ☒ D.  $C_6H_{12}$

**Q.66** Which of the following statements is/are true for a DC motor?

- (i) The function of the split rings is to reverse the flow of current.
- (ii) Maximum force is experienced by arms of the coil aligned parallel to the magnetic field
- (iii) Reversing current after every half rotation leads to continuous rotation of coil.

- Ans**
- ☒ A. Only (i)
  - ☒ B. Only (ii)
  - ☒ C. Both (i) and (ii)
  - ☒ D. Both (i) and (iii)

**Q.67** To which of the following organisms is the Cell Theory given by Schleiden and Schwann NOT applicable?

- Ans**
- ☒ A. Viruses
  - ☒ B. Animals
  - ☒ C. Fungi
  - ☒ D. Algae

**Q.68** Ramesh wants to choose a material for making filament of a bulb. The chosen material should possess which of the following properties?

- (i) Low melting point
- (ii) Ability to glow at high temperatures
- (iii) High resistance

- Ans**
- ☒ A. Only (i)
  - ☒ B. Only (ii)
  - ☒ C. Both (i) and (ii)
  - ☒ D. Both (ii) and (iii)

**Q.69** The amount of \_\_\_\_\_ in a plant cell alters its structure in order to facilitate movement.

- Ans**
- ☒ A. electro-chemical impulses
  - ☒ B. protein
  - ☒ C. water
  - ☒ D. hormones

**Q.70** Carbon is unable to form  $C^{4+}$  ion because \_\_\_\_\_.

- Ans**
- ☒ A. it gains electrons easily
  - ☒ B. it has tetra valency
  - ☒ C. its formation requires a large amount of energy
  - ☒ D. it shows catenation property

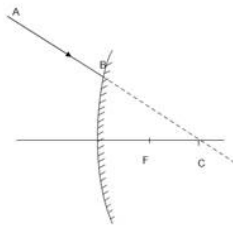
**Q.71** We can prepare eco-friendly carry bags with \_\_\_\_\_.

- Ans**
- ✓ A. paper
  - ✗ B. plastic
  - ✗ C. rubber
  - ✗ D. glass

**Q.72** What is the correct order of elements according to their valence shell electrons?

- Ans**
- ✗ A.  $\text{Li} > \text{O} > \text{C} > \text{F}$
  - ✓ B.  $\text{F} > \text{O} > \text{C} > \text{Li}$
  - ✗ C.  $\text{Ne} > \text{N} > \text{F} > \text{Be}$
  - ✗ D.  $\text{B} > \text{C} > \text{O} > \text{F}$

**Q.73** A light ray AB is incident on a convex mirror as shown in the figure. What will be the angle of reflection?



- Ans**
- ✓ A.  $0^\circ$
  - ✗ B.  $30^\circ$
  - ✗ C.  $45^\circ$
  - ✗ D.  $90^\circ$

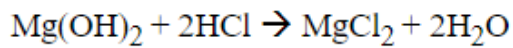
**Q.74** For a ray of light undergoing refraction through a triangular glass prism, the angle of deviation is the angle between:

- Ans**
- ✗ A. the incident ray and the refracted ray
  - ✗ B. the incident ray and the normal at the point of incidence
  - ✓ C. the incident ray and the emergent ray
  - ✗ D. the refracted ray and the emergent ray

**Q.75** Many scientists before Mendel had started studying the inheritance of traits in peas and other organisms, but Mendel succeeded in giving the laws of Inheritance. Some reasoning for Mendel's success are mentioned below. All are correct except one. Select the INCORRECT reasoning?

- Ans**
- ✗ A. He blended his knowledge of Science and Mathematics.
  - ✗ B. He studied the inheritance of one character at a time, whereas scientists before him had considered the organism as a whole.
  - ✗ C. He kept a count of individuals of a particular trait in each generation.
  - ✓ D. He worked with a small sample size.

Q.76 The following reaction is an example of \_\_\_\_\_.



- Ans
- ☒ A. decomposition reaction
  - ☒ B. combination reaction
  - ☒ C. neutralisation reaction
  - ☒ D. precipitate reaction

Q.77 Which of the following foods is high in iron?

- Ans
- ☒ A. Jaggery
  - ☒ B. Milk
  - ☒ C. Butter
  - ☒ D. Rice

Q.78 The radius of curvature of a given spherical mirror is -20 cm. The focal length of the mirror is:

- Ans
- ☒ A. -10 cm
  - ☒ B. -40 cm
  - ☒ C. 10 cm
  - ☒ D. 40 cm

Q.79 The phloem is the plant's vascular tissue that transports \_\_\_\_\_.

- Ans
- ☒ A. water
  - ☒ B. nutrients
  - ☒ C. Gases
  - ☒ D. oxygen

Q.80 'Double Circulation' CANNOT be observed in \_\_\_\_\_.

- Ans
- ☒ A. fish
  - ☒ B. frog
  - ☒ C. snake
  - ☒ D. eagle

Section : General Awareness and Current Affairs

Q.81

Every year, 'Parakram Divas' is celebrated on the birth anniversary of which Indian Nationalist?

Ans

- ☐ A. Rani Lakshmi Bai
- ☐ B. Lala Lajpat Rai
- ☐ C. Bhagat Singh
- ☒ D. Netaji Subhash Chandra Bose

Q.82

Geomorphology, the branch of Physical Geography is devoted to the study of which of the following fields?

Ans

- ☐ A. Study of atmosphere
- ☒ B. Study of landforms
- ☐ C. Study of soil
- ☐ D. Study of water

Q.83

In March 2022, which state government presented 'Children's Budget' for the first time as part of its annual financial plan?

Ans

- ☐ A. Andhra Pradesh
- ☒ B. Madhya Pradesh
- ☐ C. Himachal Pradesh
- ☐ D. Uttar Pradesh

Q.84

In which state is St. Thomas Cathedral Basilica Church located?

Ans

- ☐ A. Goa
- ☐ B. Kerala
- ☐ C. Maharashtra
- ☒ D. Tamil Nadu

**Q.85** Which of the following steps have NOT been taken by the government to attract foreign companies to invest in India?

**Ans**

- ☒ A. Special Economic Zones are being set up.
- ☒ B. SEZs setup production units do not have to pay taxes for an initial period of five years.
- ☒ C. Flexibility in the labour laws.
- ☒ D. Flexibility in the taxation system.

**Q.86** In February 2022 India won a record-extending fifth U-19 World Cup title, beating which country by four wickets in the final?

**Ans**

- ☒ A. England
- ☒ B. Canada
- ☒ C. Pakistan
- ☒ D. Australia

**Q.87** In January 2022, the Government of India launched which portal to share key performance indicators of the coal sector?

**Ans**

- ☒ A. Koyla Darpan
- ☒ B. Koyla Data
- ☒ C. Koyla Gyan
- ☒ D. Koyla Bit

**Q.88** The Fundamental Duties were added in the Indian Constitution by the recommendation of which of the following committees?

**Ans**

- ☒ A. Union Power Committee
- ☒ B. Swaran Singh Committee
- ☒ C. Provincial Constitution Committee
- ☒ D. Union Constitution Committee



**Q.89** Which State Government has in March 2022 launched the 'Dalit Bandhu' welfare scheme for empowering Dalit families of the state and enabling entrepreneurship among them through a ₹10 lakh direct benefit transfer per family?

- Ans**
- ☐ A. Odisha
  - ☐ B. Uttarakhand
  - ☒ C. Telangana
  - ☐ D. Punjab

**Q.90** In March 2022, in which state has India's first Virtual Smart Grid Knowledge Centre been inaugurated?

- Ans**
- ☐ A. Jharkhand
  - ☐ B. Himachal Pradesh
  - ☒ C. Haryana
  - ☐ D. Punjab

**Q.91** In which part of the Indian Constitution is Panchayati Raj described?

- Ans**
- ☐ A. Part VI
  - ☐ B. Part VII
  - ☐ C. Part VIII
  - ☒ D. Part IX

**Q.92** What is the name of the phenomenon of wearing down of relief variations of the surface of the Earth through erosion?

- Ans**
- ☐ A. Germination
  - ☐ B. Eruptions
  - ☒ C. Gradation
  - ☐ D. Solidification

**Q.93** As of July 2022, who among the following is the Chairman of 15<sup>th</sup> Finance Commission of India?

- Ans**
- ☐ A. Ashok Lahiri
  - ☐ B. Arvind Mehta
  - ☐ C. Anoop Singh
  - ☒ D. NK Singh

**Q.94** Sindhu Darshan festival is celebrated in which part of India?

- Ans**
- ☐ A. Punjab
  - ☐ B. Uttar Pradesh
  - ☐ C. Sikkim
  - ☒ D. Ladakh

**Q.95** Name the firm that has acquired neo bank Avail Finance in March 2022?

- Ans**
- ☐ A. Paytm
  - ☒ B. Ola
  - ☐ C. Uber
  - ☐ D. Phonepay

**Q.96** Which scheme has been introduced by the Department of Biotechnology, Government of India, for awarding writers for writing original books in Hindi on the subjects related to Biotechnology?

- Ans**
- ☒ A. Dr. Jagdish Chandra Bose Hindi Granth Lekhan Puraskar Yojna
  - ☐ B. Dr. Raman Bose Hindi Granth Lekhan Puraskar Yojna
  - ☐ C. Dr. Hargobind Khurana Hindi Granth Lekhan Puraskar Yojna
  - ☐ D. Dr. Aryabhatta Hindi Granth Lekhan Puraskar Yojna

**Q.97** Which flower of Himalaya has antiseptic properties and hence can help in the healing of bruises?

- Ans**
- ☒ A. Brahma Kamal
  - ☐ B. Datura
  - ☐ C. Parthenium
  - ☐ D. Ricinus

**Q.98** Who among the following was the Team India Flag Bearer at the 2022 Commonwealth Games opening ceremony in Birmingham?

- Ans**
- ☐ A. Lovlina Borgohain
  - ☒ B. PV Sindhu
  - ☐ C. Mirabai Chanu
  - ☐ D. Aditi Ashoke

**Q.99** How many languages as on June 2022 have the status of 'classical language' in India?

- Ans**
- ☐ A. 3
  - ☐ B. 4
  - ☐ C. 5
  - ☒ D. 6

**Q.100** In April 2022 the Lok Sabha passed the Constitution (Scheduled Castes and Scheduled Tribes) Orders (Second Amendment) Bill, 2022 which seeks to amend the Constitution to include Gonds and associated tribes in the Scheduled Tribes category in certain districts of \_\_\_\_\_.

- Ans**
- ☐ A. Assam
  - ☐ B. Himachal Pradesh
  - ☐ C. Sikkim
  - ☒ D. Uttar Pradesh



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 22/08/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

Q.1

The value of  $\frac{(4x^2-9y^2)^3+(9y^2-49z^2)^3+(49z^2-4x^2)^3}{(2x-3y)^3+(3y-7z)^3+(7z-2x)^3}$  is:

Ans

- ☐ A.  $(2x-3y)(3y-7z)(7z-2x)$
- ☒ B.  $(2x+3y)(3y+7z)(7z+2x)$
- ☐ C.  $42xyz (2x+3y)(3y+7z)(7z+2x)$
- ☐ D.  $42xyz (2x-3y)(3y-7z)(7z-2x)$

Q.2

A cosmetic product is available at 75% discount. If the shopkeeper charges ₹1,874, what is its marked price?

Ans

- ☐ A. ₹8,342
- ☒ B. ₹7,496
- ☐ C. ₹6,145
- ☐ D. ₹5,674

Q.3

The sum of the digits in a two-digit number is 9. If the value of the number is 6 more than 5 times the digit in the ones' place, then the number is:

Ans

- ☐ A. 45
- ☐ B. 18
- ☐ C. 27
- ☒ D. 36

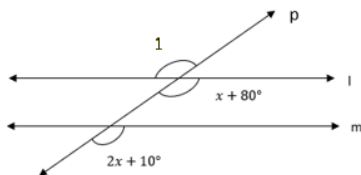
Q.4

A shopkeeper bought 12 dozen eggs at the rate of ₹5 per egg. 12 eggs broke in transit. He sold the remaining eggs at the rate of ₹6 per egg. Find his percentage of profit.

Ans

- ☐ A. 5%
- ☒ B. 10%
- ☐ C. 20%
- ☐ D. 15%

**Q.5** In the given figure line  $l$  is parallel to  $m$  and  $p$  is the transversal. Find the measure of the angle 1.



**Ans** ☒ A.  $140^\circ$

☒ B.  $150^\circ$

☒ C.  $300^\circ$

☒ D.  $200^\circ$

**Q.6** Ramesh invested ₹1,232 at 5% p.a. rate of simple interest in a bank. What amount will he get after 3 years?

**Ans** ☒ A. ₹1,848.80

☒ B. ₹1,285.80

☒ C. ₹2,145.80

☒ D. ₹1,416.80

**Q.7** Mr. Sharma, Mr. Gupta and Ms Sinha invested ₹4,000, ₹8,000 and ₹6,000, respectively, in a business. Mr. Sharma left after 6 months. If after 8 months, there was a gain of ₹34,000, then what will be the share of Mr. Gupta?

**Ans** ☒ A. ₹12,000

☒ B. ₹14,000

☒ C. ₹16,000

☒ D. ₹20,000

**Q.8** If  $3^{x-2} + 3^x = 7290$ , then the value of  $x$  is:

**Ans** ☒ A. 6

☒ B. 7

☒ C. 8

☒ D. 9

**Q.9** Two pipes A and B can fill a cistern in 36 minutes and 48 minutes, respectively. Both the pipes are opened at the same time and pipe B is closed after some time. If the cistern gets filled in half an hour, then after how many minutes was pipe B closed?

**Ans** ☒ A. 5

☒ B. 8

☒ C. 9

☒ D. 10

**Q.10** The monthly incomes of two friends Anuj and Mathew, are in the ratio 5 : 7 and each of them saves ₹10,000 every month. If the ratio of their expenditure is 2 : 3, find the income of Anuj.

**Ans** ☒ A. ₹15,000

☒ B. ₹20,000

☒ C. ₹50,000

☒ D. ₹5,000

**Q.11** The equation  $x^2 - 6x + 9 = 0$  can be written as:

- Ans**
- ☐ A.  $(x + 3)^2 = 0$
  - ☐ B.  $(x - 2)(x - 3) = 0$
  - ☐ C.  $(x - 2)(x - 3)^2 = 0$
  - ☒ D.  $(x - 3)^2 = 0$

**Q.12** A boat starting from point P goes downstream to point Q in 3 hours and returns back from point Q to the point P in 4 hours. If the speed of the water is 3 km/h, find the speed of the boat in still water.

- Ans**
- ☐ A. 12 km/h
  - ☒ B. 21 km/h
  - ☐ C. 32 km/h
  - ☐ D. 20 km/h

**Q.13** The value of  $\frac{1}{(1+\cot^2 x)^2} + \frac{\tan^2 x}{(1+\tan^2 x)^2} + \frac{1}{1+\tan^2 x}$  is:

- Ans**
- ☐ A. 5
  - ☐ B. 4
  - ☐ C. 3
  - ☒ D. 1

**Q.14** If the radius of a sphere is increased by 2 cm, then its surface area increases by  $704 \text{ cm}^2$ . Using  $\pi = \frac{22}{7}$ , find the radius of the sphere before the increase.

- Ans**
- ☒ A. 13 cm
  - ☐ B. 14 cm
  - ☐ C. 15 cm
  - ☐ D. 16 cm

**Q.15** The product of two numbers is 1472 and their HCF is 8. Find their LCM.

- Ans**
- ☐ A. 144
  - ☒ B. 184
  - ☐ C. 108
  - ☐ D. 176

**Q.16** Hariteja walked to his school at a speed of 4 km/h and returned on a scooter at 20 km/h. His average speed during the two-way journey is:

- Ans**
- ☐ A. 12 km/h
  - ☒ B.  $\frac{20}{3} \text{ km/h}$
  - ☐ C. 6 km/h
  - ☐ D. 8 km/h

**Q.17** The sum of the first 8 prime numbers divided by 7 is equal to \_\_\_\_\_

- Ans**
- ☒ A. 11
  - ☐ B. 10
  - ☐ C. 13
  - ☐ D. 14

Q.18 Find the value of  $7 + \{4 + 3 \text{ of } 4 - (5 + 3 - 6 \div 2)\}$ .

- Ans ☒ A. 18  
☐ B. 21  
☐ C. 15  
☐ D. 17

Q.19 Simplify:  $\frac{3}{2}x^2 + 2x - \frac{3}{2} + \frac{x^2}{2} - 6x + \frac{1}{2}$ .

- Ans ☐ A.  $2x^2 - 4x + 1$   
☒ B.  $2x^2 - 4x - 1$   
☐ C.  $2x^2 + 4x - 1$   
☐ D.  $2x^2 + 4x + 1$

Q.20 A and B together complete a work in 8 days. If B is 25% more efficient than A, then in how many days will A alone complete the same work?

- Ans ☐ A. 12 days  
☒ B. 18 days  
☐ C. 24 days  
☐ D. 6 days

Q.21 Which of the following is a quadratic equation whose roots are  $\frac{7}{3}$  and  $\frac{12}{5}$ ?

- Ans ☐ A.  $15x^2 - 70x + 84 = 0$   
☐ B.  $15x^2 - 72x + 84 = 0$   
☐ C.  $x^2 - 71x + 84 = 0$   
☒ D.  $15x^2 - 71x + 84 = 0$

Q.22 A cuboidal block, 12 cm by 24 cm by 30 cm, is cut up into an exact number of identical cubes. The least possible number of such cubes is:

- Ans ☐ A. 55  
☐ B. 50  
☐ C. 45  
☒ D. 40

Q.23 Find the value of  $\sqrt{\frac{0.030625}{0.001225}}$ .

- Ans ☒ A. 5  
☐ B. 15  
☐ C. 25  
☐ D. 20

Q.24 Which of the following is NOT a property of similar triangles?

- Ans
- ☒ A. Ratio of corresponding sides = Ratio of corresponding perimeters
  - ☒ B. Ratio of corresponding sides = Ratio of corresponding medians
  - ☒ C. Ratio of corresponding sides = Ratio of corresponding altitudes
  - ☒ D. Ratio of any two angles = Ratio of any two medians

Q.25 Find x, if the median is 28.5.

| CI | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 |
|----|------|-------|-------|-------|-------|-------|
| F  | 5    | X     | 20    | 15    | 7     | 5     |

- Ans
- ☒ A. 2
  - ☒ B. 4
  - ☒ C. 8
  - ☒ D. 7

Section : General Intelligence and Reasoning

Q.26 What are the two signs to be interchanged for making the following equation correct?

$$[(44 + 36) - (4 \times 4)] \div (1 - 5) \times 2 = 8$$

- Ans
- ☒ A. +, ÷
  - ☒ B. ×, ÷
  - ☒ C. +, ×
  - ☒ D. +, -

Q.27 In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/Symbol | 4 | 6 | 7 | \$ | # | @ | 2 |
|---------------|---|---|---|----|---|---|---|
| Codes         | H | F | M | E  | T | P | Z |

Conditions:

- (i) If the first element is an even number and the last element is also an even number, the codes for these two (the first and the last elements) are to be interchanged.
- (ii) If the second element is an even number and the fifth element is a symbol, the codes for these two (the second and the fifth elements) are to be interchanged.
- (iii) If the fourth element is a symbol and the sixth element is also a symbol, both these elements (the fourth and the sixth elements) are to be coded as N.

Question: 4 6 \$ 7 4 # @ 2

- Ans
- ☒ A. Z F E M H T P H
  - ☒ B. H F E M H T P Z
  - ☒ C. Z H E M F T P H
  - ☒ D. Z F E N H N P H



**Q.28** Which of the following interchanges of signs would make the given equation correct?

$$5 \times 4 \div 10 - 8 + 2 = 8$$

- Ans**
- ✓ A. +, -
  - ✗ B. ×, ÷
  - ✗ C. +, ×
  - ✗ D. +, ÷

**Q.29** Which of the following alphanumeric clusters will replace the question mark (?) in the series to make it logically complete?

ACE 9, BDF 12, GIK 27, HJL 30, ?, NPR 48, SUW 63

- Ans**
- ✓ A. MOQ 45
  - ✗ B. MNO 42
  - ✗ C. OPQ 48
  - ✗ D. NOP 42

**Q.30** Few birds (One each of Orange, Yellow, Black, Green, Grey, Red colour and three White coloured) were sitting in a row facing north. The black bird was an immediate neighbour of both, the red and the grey bird. The yellow bird was sitting to the immediate right of the green bird. Only three birds were sitting between the orange and the red bird and all these three birds were white. The yellow bird sat third to the right of the black bird. Which colour birds were sitting at the leftmost and rightmost ends of the row respectively?

- Ans**
- ✗ A. Yellow (Left) and White (Right)
  - ✗ B. White (Left) and Orange (Right)
  - ✓ C. Orange (Left) and Yellow (Right)
  - ✗ D. Grey (Left) and Red (Right)

**Q.31** Three statements are given, followed by two conclusions numbered I and II. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

Some beds are tables.

Some tables are cupboards.

Some cupboards are chairs.

**Conclusions:**

I. Some chairs are beds.

II. Some beds are cupboards.

- Ans**
- ✗ A. Only conclusion I follows
  - ✗ B. Only conclusion II follows
  - ✗ C. Both conclusions I and II follow
  - ✓ D. Neither conclusion I nor II follows

**Q.32** L, G, K, P, H and Z live on eight different floors of the same multistorey building with 2 floors being vacant. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 8. H lives on floor No. 1, K on No. 2, and P on No. 8. One immediate floor above and one immediate floor below Z are vacant. G's floor is immediately above the floor on which L lives and G's floor is also immediately below P's floor. Who lives on floor No. 4?

- Ans**
- ✗ A. L
  - ✓ B. Z
  - ✗ C. H
  - ✗ D. G

**Q.33** Which of the following number will replace the question mark (?) and complete the given number series?

45, 52, 61, 73, 90, ?

- Ans**
- ☒ A. 116
  - ☒ B. 112
  - ☒ C. 114
  - ☒ D. 115

**Q.34** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 are not allowed.)

(11, 64, 3)

(17, 36, 11)

- Ans**
- ☒ A. (24, 169, 11)
  - ☒ B. (21, 144, 32)
  - ☒ C. (26, 56, 8)
  - ☒ D. (30, 49, 11)

**Q.35** Which of the following numbers will replace the question mark (?) in the given series?

16, 18, 27, 55, 120, ?

- Ans**
- ☒ A. 230
  - ☒ B. 246
  - ☒ C. 240
  - ☒ D. 510

**Q.36** Shyam walked 10 m towards the north and then turned left and walked 11 m. He then turned right and walked for 13 m, turned right again and walked for 10 m. He then turned left and walked 14 m, and then finally turned right and walked 1 m. How far is Shyam from the starting point?

(All turns are 90 degree turns only)

- Ans**
- ☒ A. 34 m
  - ☒ B. 35 m
  - ☒ C. 33 m
  - ☒ D. 37 m

**Q.37** Study the given letter series and answer the question that follows.

Q I O M J E S T R U L E B A C K J M N

How many consonants are immediately preceded by a consonant and immediately followed by a vowel?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.38** A certain number of people are sitting in a row, facing north. D is to the immediate right of H. A is third to the left of C. Only three people sit between H and L. L is fifth to the right of C. D is at the extreme right end of the row. If no other person is sitting in the row, what is the total number of persons seated?

- Ans**
- ☒ A. 12
  - ☒ B. 14
  - ☒ C. 16
  - ☒ D. 18

**Q.39** In a certain code language, 'CURRY' is written as 'BSONT' and 'KHAKE' is written as 'JFXGD'. How will 'BHEEM' be written in that language?

- Ans**
- ☐ A. AFBBI
  - ☐ B. CFBBH
  - ☐ C. AEBBI
  - ☒ D. AFBAH

**Q.40** How much angular distance will be covered by the minute hand of a correct clock in a period of 3 hours 10 minutes?

- Ans**
- ☐ A.  $978^\circ$
  - ☐ B.  $1000^\circ$
  - ☒ C.  $1140^\circ$
  - ☐ D.  $1202^\circ$

**Q.41** Three statements are given, followed by two conclusions numbered I and II. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

Some purses are keys.

All lockers are keys.

All keys are pins.

**Conclusions:**

I. Some pins are purses.

II. No pin is a purse.

- Ans**
- ☒ A. Only conclusion I follows
  - ☐ B. Only conclusion II follows
  - ☐ C. Both conclusions I and II follow
  - ☐ D. Either conclusion I or II follows

**Q.42** Read the given statement and conclusions carefully. Assuming that the information given in the statements is true, decide which of the given conclusions logically follow(s) from the statement.

**Statement:**

Team A students lost 14 out of 20 games they played last season.

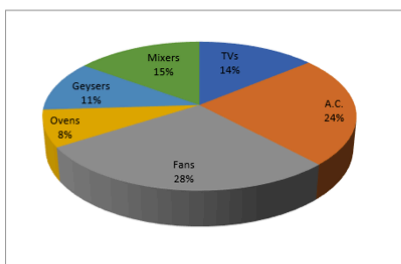
**Conclusions:**

I. Team A students are more interested in academics than sports.

II. Team A students are unlucky.

- Ans**
- ☐ A. Only conclusion I follows
  - ☐ B. Only conclusion II follows
  - ☒ C. Neither conclusion I nor II follows
  - ☐ D. Both conclusions I and II follow

- Q.43** The following chart shows the percentage of various products sold from an electronics goods shop during the year 2021. The total number of products sold from the shop during 2021 is 16800. Study the chart and answer the question.



How many more Fans have been sold from the shop in comparison to Ovens during 2021?

- Ans**
- ☒ A. 3200
  - ☒ B. 3360
  - ☒ C. 3420
  - ☒ D. 3566

- Q.44** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

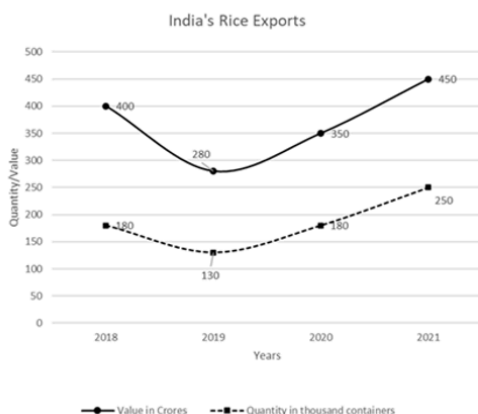
(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding / subtracting / multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(5, 62, 7)

(8, 188, 12)

- Ans**
- ☒ A. 6, 117, 19
  - ☒ B. 11, 390, 13
  - ☒ C. 10, 181, 9
  - ☒ D. 7, 114, 9

- Q.45** Study the following line graph carefully and answer the question.



Supposing if in 2020, the average value of goods sold per container was same as that of 2019, then what would be the new approximate value of total exports (in crores) in 2020 if number of containers in 2020 remains unchanged?

- Ans**
- ☒ A. 387
  - ☒ B. 555
  - ☒ C. 346
  - ☒ D. 500

**Q.46** Eight persons, A, B, C, D, E, F, G and H, are sitting around a square table facing the centre of the table. Four of them are sitting at the corners while the other four are sitting at the exact centre of the sides of the table. C is sitting at one of the corners. F is to the immediate right of C. Only H is sitting between C and G. D is sitting at one of the corners. A is not sitting at any of the corners. E is to the immediate left of B. E is the immediate neighbour of F. Which two persons are sitting towards the left of G but to the right of B?

- Ans**
- ☒ A. A and E
  - ☒ B. C and H
  - ☒ C. A and D
  - ☒ D. A and F

**Q.47** L, M, N, O, P, Q and R, are sitting in a straight row, facing north. Only three people sit between Q and N. M and O are immediate neighbours. O is at the extreme right end of the row. R is at the immediate left of N. Who is at the fifth position from the left end of the row?

- Ans**
- ☒ A. L
  - ☒ B. P
  - ☒ C. N
  - ☒ D. M

**Q.48** What will come in place of the question mark (?) in the following equation if '+' and '×' are interchanged and also '-' and '÷' are interchanged?

$$42 + 7 \div 24 \times 6 - 3 = ?$$

- Ans**
- ☒ A. 10
  - ☒ B. 12
  - ☒ C. 13
  - ☒ D. 14

**Q.49** A statement is given, followed by four conclusions given in the options. Find out which conclusion is true based on the given statement.

Statement:  $G < D < R = T > Y > Q = H$

- Ans**
- ☒ A.  $R < G$
  - ☒ B.  $D < T$
  - ☒ C.  $H > T$
  - ☒ D.  $G = T$

**Q.50** In this question, a statement is followed by two conclusions. Which of the two conclusions is/are true with respect to the statement?

Statement:  $A = F \geq S > H < Z > R = G$

Conclusions:

I.  $S < G$

II.  $S \geq A$

- Ans**
- ☒ A. Only conclusion I is true
  - ☒ B. Only conclusion II is true
  - ☒ C. Both conclusions I and II are true
  - ☒ D. Neither conclusion I nor II is true

**Q.51** Each vowel in the word OPTICAL is changed to the letter following it in the English alphabetical order and each consonant is changed to the letter preceding it in the English alphabetical order. Which of the following letters will appear twice in the group of letters thus formed?

- Ans**
- ☒ A. P
  - ☒ B. O
  - ☒ C. B
  - ☒ D. J

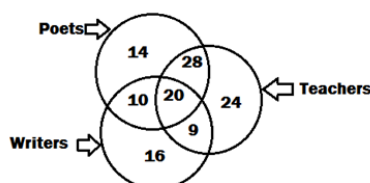
- Q.52** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

HCM : MHR

FET : KJY

- Ans**
- ✗ A. PRT : TPS
  - ✗ B. GHK : HKJ
  - ✓ C. UPJ : ZUO
  - ✗ D. UFL : LKU

- Q.53** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



Which of the following statements is correct on the basis of the above diagram?

- Ans**
- ✓ A. The number of teachers who are both writers and poets is 20.
  - ✗ B. The number of poets who are also teachers but not writers is 48.
  - ✗ C. The number of writers who are neither teachers nor poets is 10.
  - ✗ D. The number of poets who are also teachers is 44.

- Q.54** P started from a point facing north and then turned right and ran for 24 m east, turned left and walked for 26 m. He then turned left and first ran for 24 m and then walked for 6 m and then turned right and walked for 6 m, turned right again, and ran for 30 m. How much distance did he cover walking, and in which direction is he facing now?

(All turns are 90 degree turns only)

- Ans**
- ✗ A. 38 m, West
  - ✓ B. 38 m, East
  - ✗ C. 126 m, West
  - ✗ D. 126 m, East

- Q.55** Each vowel in the word INCURABLE is changed to the letter following it in the English alphabetical order and each consonant is changed to the letter preceding it in the English alphabetical order. How many vowels will be there in the new word thus formed?

- Ans**
- ✗ A. 2
  - ✓ B. 1
  - ✗ C. 3
  - ✗ D. 4

#### Section : General Science

- Q.56** A concave mirror having focal length of magnitude 20 cm forms a real image at a distance of 60 cm from it. The object distance (in cm) is:

- Ans**
- ✓ A. -30
  - ✗ B. +30
  - ✗ C. -15
  - ✗ D. +15

**Q.57** Consider the statements given below and identify the correct answer.

Statement-I: Washing soda is produced from sodium chloride.

Statement-II: It attacks dirt and grease to form water soluble products, which are then washed away on rinsing with water.

- Ans**
- ☒ A. Both the statements are true.
  - ☐ B. Both the statements are false.
  - ☐ C. Statement-I is true, and Statement-II is false.
  - ☐ D. Statement-II is true, and Statement-I is false.

**Q.58** In the reaction  $\text{ZnO} + \text{C} \rightarrow \text{Zn} + \text{CO}$ :

- Ans**
- ☐ A. carbon is reduced to CO
  - ☒ B. ZnO is reduced to Zn
  - ☐ C. ZnO is oxidized to Zn
  - ☐ D. Zn does not undergo redox reaction.

**Q.59** The component of white light that deviates the most on passing through a glass prism is:

- Ans**
- ☐ A. red
  - ☒ B. violet
  - ☐ C. blue
  - ☐ D. green

**Q.60** Ozone depletion in the stratosphere layer of the atmosphere is responsible for which of the following

- Ans**
- ☒ A. Increase of UV radiations reaching Earth's surface
  - ☐ B. Increase in greenhouse effect
  - ☐ C. Cooling of Earth's atmosphere
  - ☐ D. Increase in infrared radiations in the troposphere

**Q.61** Consider the below statements and identify the correct answer.

Statement-I: Ionic compounds are generally brittle and break into pieces when pressure is applied.

Statement-II: Ionic compounds have low melting and boiling points.

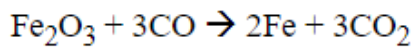
- Ans**
- ☐ A. Both the statements are true.
  - ☐ B. Both the statements are false.
  - ☒ C. Statement-I is true, and Statement-II is false.
  - ☐ D. Statement-II is true, and Statement-I is false.

**Q.62** An electric heater rated 1000 W and an electric geyser rated 2000 W are used for 4 hours daily. The energy consumed in 10 days (in kWh) is:

- Ans**
- ☐ A. 12
  - ☒ B. 120
  - ☐ C. 1200
  - ☐ D. 12000



Q.63 In the given reaction, \_\_\_\_\_ acts as a reducing agent.



- Ans
- ☐ A. Fe
  - ☐ B.  $\text{Fe}_2\text{O}_3$
  - ☐ C.  $\text{CO}_2$
  - ☒ D. CO

Q.64 Some features of alveoli are mentioned below. Select the INCORRECT option.

- Ans
- ☒ A. Are finger-like structures
  - ☐ B. Have large surface area
  - ☐ C. Are thin walled
  - ☐ D. Have extensive network of blood vessels

Q.65 The conversion of ethanol to ethanoic acid is an example of which of the following reactions?

- Ans
- ☐ A. Combustion reaction
  - ☒ B. Oxidation reaction
  - ☐ C. Addition reaction
  - ☐ D. Substitution reaction

Q.66 The S.I unit of induced potential difference is:

- Ans
- ☐ A. A
  - ☐ B. mA
  - ☒ C. V
  - ☐ D. mV

Q.67 In which part of the leaves do massive amounts of gaseous exchange take place during respiration?

- Ans
- ☒ A. Stomata
  - ☐ B. Grana
  - ☐ C. Thylakoid
  - ☐ D. Chlorophyll

Q.68 In some women, oviducts are blocked. These women are unable to bear babies because sperms cannot reach the egg for fertilisation. The doctors advise IVF (in vitro fertilisation) in such cases. Below are given some steps of the procedure. Select the INCORRECT step.

- Ans
- ☐ A. Fusion of egg and sperms is done outside the body
  - ☐ B. Zygote is formed and after a week placed in the uterus
  - ☐ C. Complete development takes place in the uterus
  - ☒ D. Zygote is kept outside and development takes place in a test tube



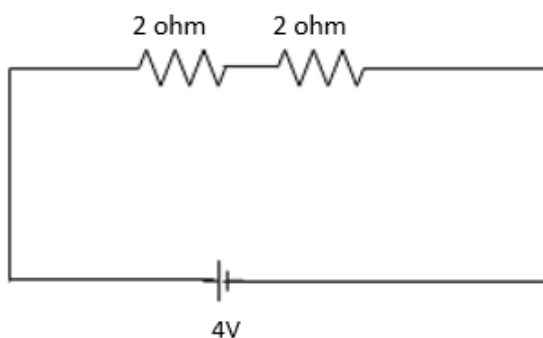
**Q.69** Which of the following will be the next member of the homologous series of hexene?

- Ans**
- ☒ A. Pentane
  - ☒ B. Heptane
  - ☒ C. Pentene
  - ☒ D. Heptene

**Q.70** Some features of the circulatory system in humans are mentioned below. Select the INCORRECT option.

- Ans**
- ☒ A. Platelets help in clotting of blood
  - ☒ B. Capillaries join to form veins
  - ☒ C. Hypertension is caused by constriction of veins
  - ☒ D. Lymph is also called tissue fluid

**Q.71** Calculate the total current in the circuit given below:



- Ans**
- ☒ A. 1A
  - ☒ B. 2A
  - ☒ C. 4A
  - ☒ D. 8A

**Q.72** In human males, why are testes present outside the abdominal cavity in a pouch called scrotum?

- Ans**
- ☒ A. It is richly supplied by blood vessels needed for sperm formation
  - ☒ B. It helps in maintaining temperature 2-3 degrees lower than the body for sperm formation
  - ☒ C. It helps in maintaining low pressure than the body for sperm formation
  - ☒ D. It secretes hormones for sperm formation

**Q.73** Which of the following is/are useful effort(s) for sustainability of resources?

- a. Switching off unnecessary lights and fans
- b. Using lift instead of stairs
- c. Repairing leaking taps for conserving water
- d. Using empty containers to store things
- e. Going to school by your own car instead of cycling

**Ans** ☒ A. Only b

☒ B. a, c and d

☒ C. Only e

☒ D. b and e

**Q.74** Which of the following triads is NOT a Dobereiner's triad?

(i) Li, Na, K

(ii) Ca, Sr, Ba

(iii) N, P, Sb

(iv) Cl, Br, I

**Ans** ☒ A. Only i

☒ B. Only ii

☒ C. Only iii

☒ D. Only iv

**Q.75** A convex lens produces a magnification of  $-3$  for an object placed at  $1.5$  m from the lens. Find the image distance (with correct sign).

**Ans** ☒ A.  $4.5$  m

☒ B.  $-4.5$  m

☒ C.  $0.5$  m

☒ D.  $-0.5$  m

**Q.76** Which of the following options states the different ways of excretion in plants?

**Ans** ☒ A. Only transpiration and diffusion

☒ B. Only transpiration and storage

☒ C. Only diffusion and storage

☒ D. Transpiration, diffusion and storage

**Q.77** A magnet, when moved near a coil, produces an induced potential difference in the coil. What happens when we increase the speed of the magnet near the coil?

- Ans**
- ✓ **A. The induced potential difference in the coil increases.**
  - ✗ **B. The induced potential difference in the coil decreases.**
  - ✗ **C. The induced potential difference remains the same.**
  - ✗ **D. The induced current in the coil remains the same.**

**Q.78** A spherical mirror converges a beam of light, at a given point on the principal axis. Which of the following statement(s) about the mirror is/are true?

- (a) The mirror used is concave
- (b) The mirror has positive focal length
- (c) The point of convergence is the principal focus of the mirror

- Ans**
- ✗ **A. Only (a)**
  - ✗ **B. Only (b)**
  - ✓ **C. Both (a) and (c)**
  - ✗ **D. Both (a) and (b)**

**Q.79** An electric heater is rated 2200 W at 220 V. The minimum rating of the fuse wire to be connected to the device is:

- Ans**
- ✗ **A. 5 A**
  - ✓ **B. 10 A**
  - ✗ **C. 20 A**
  - ✗ **D. 22 A**

**Q.80** What is the correct order of metallic character of the following metals?

- Ans**
- ✓ **A.  $\text{Mg} < \text{Na} < \text{Ba} < \text{Cs}$**
  - ✗ **B.  $\text{Na} < \text{Mg} < \text{Cs} < \text{Ba}$**
  - ✗ **C.  $\text{Cs} < \text{Ba} < \text{Na} < \text{Mg}$**
  - ✗ **D.  $\text{Ba} < \text{Cs} < \text{Mg} < \text{Na}$**

#### Section : General Awareness and Current Affairs

**Q.81** What is the name of the consumer awareness programme started by the Department of Consumer Affairs in 2022?

- Ans**
- ✓ **A. Consumer Empowerment Week**
  - ✗ **B. Consumer Awareness Week**
  - ✗ **C. Consumer Behaviour Week**
  - ✗ **D. Consumer Rights Week**

**Q.82** Who launched India's first 'One Health Consortium'?

- Ans**
- ✓ **A. Ministry of Science and Technology**
  - ✗ **B. Ministry of Health and Family Welfare**
  - ✗ **C. Ministry of Home Affairs**
  - ✗ **D. Ministry of Education**

**Q.83** Chauri Chaura incident occurred in which year?

- Ans**
- ☐ A. 1921
  - ☒ B. 1922
  - ☐ C. 1920
  - ☐ D. 1919

**Q.84** Kokborok is one of the state languages of Tripura. On 19<sup>th</sup> January 2022, Tripura celebrated which Kokborok day?

- Ans**
- ☐ A. 24<sup>th</sup>
  - ☐ B. 34<sup>th</sup>
  - ☒ C. 44<sup>th</sup>
  - ☐ D. 55<sup>th</sup>

**Q.85** What is the aim of Digital Government Mission launched by the Ministry of Electronics and Information Technology in January 2022?

- Ans**
- ☐ A. To provide welfare service meant for girl child and women
  - ☒ B. To have services proactively anticipate citizens' needs before they approach the services.
  - ☐ C. To provide employment information to youth living in rural areas
  - ☐ D. To help workers to meet their financial needs

**Q.86** What is the name of the sacred text of Christianity which consists of two parts: the Old Testament which is essentially the Hebrew text of the time of Jesus; And the New Testament that includes writings about Jesus Christ and the early church?

- Ans**
- ☒ A. Bible
  - ☐ B. Book of Psalms
  - ☐ C. Knowing God Jesus
  - ☐ D. De doctrina Christiana

**Q.87** Monazite ore is found in the sands of which of the following states of India?

- Ans**
- ☐ A. Rajasthan
  - ☐ B. Punjab
  - ☒ C. Kerala
  - ☐ D. Odisha

**Q.88** Article 12 to 35 contained in Part \_\_\_\_\_ of the Constitution deal with Fundamental Rights.

- Ans**
- ☐ A. I
  - ☐ B. II
  - ☒ C. III
  - ☐ D. IV

**Q.89**

In January 2022, the Zoological Survey of India (ZSI) underlined some green rules for living root bridges of which state to get the UNESCO world heritage site tag?

**Ans**

☐ A. Kerala

☒ B. Meghalaya

☐ C. Rajasthan

☐ D. Haryana

**Q.90**

Where was the 2nd National Para Shooting Championship 2022 between 21 and 25 March 2022 held?

**Ans**

☐ A. Chandigarh

☐ B. Puducherry

☒ C. New Delhi

☐ D. Lakshadweep

**Q.91**

Who is the Chief Justice of India as on March 2022?

**Ans**

☐ A. DY Chandrachud

☐ B. Uday Umesh Lalit

☒ C. NV Ramana

☐ D. Ranjan Gogoi

**Q.92**

Which Article of the Constitution of India enshrines one of the Directive Principles of State Policy which lays down that 'the State shall take steps to organise village panchayats and endow them with such powers and authority as may be necessary to enable them to function as units of self-government'?

**Ans**

☐ A. Article 32

☐ B. Article 37

☒ C. Article 40

☐ D. Article 48

**Q.93**

Which of the following statements in Economics is NOT correct?

**Ans**

☐ A. Total cost is the sum of the total variable cost and the total fixed cost.

☐ B. Average fixed cost curve is downward sloping.

☐ C.

Short run marginal cost, average variable cost and short run average cost curves are 'U'-shaped.

☒ D. In the long run, all inputs are fixed.

Q.94

In January 2022, India's first para-badminton academy was launched in which state?

Ans

☐ A. Haryana

☒ B. Uttar Pradesh

☐ C. Jharkhand

☐ D. Punjab

Q.95

How many private banks were nationalised by Indra Gandhi during the Fourth Five Year Plan in 1969?

Ans

☒ A. 14

☐ B. 24

☐ C. 10

☐ D. 17

Q.96

The Gua mines of Jharkhand is associated with which of the following minerals?

Ans

☒ A. Iron-ore

☐ B. Coal

☐ C. Zinc

☐ D. Bauxite

Q.97

\_\_\_\_\_ is the money that is available from an individual's salary after he/she pays local, state, and federal taxes.

Ans

☒ A. Disposable Income

☐ B. Personal Income

☐ C. National Income

☐ D. Per Capita Income

Q.98

Saga Dawa festival is celebrated in which of the following Indian states?

Ans

☐ A. Kerala

☒ B. Arunachal Pradesh

☐ C. Madhya Pradesh

☐ D. Uttar Pradesh

**Q.99**

In January 2022, which village became the first open-defecation free (ODF) Plus village of Mizoram?

**Ans**

☐ A. Khanpui

☐ B. Selam

☒ C. South Maubuang

☐ D. Dulte

**Q.100**

As of July 2022, what is the required age bracket of a subscriber to the Atal Pension Yojana?

**Ans**

☐ A. 16-25 years

☒ B. 18-40 years

☐ C. 21-60 years

☐ D. 14-35 years



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

## सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 23/08/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** A cyclist covers a distance of 2.5 km in 4 minutes 10 seconds. How long will he take to cover a distance of 6 km at the same speed?

- Ans**
- ☒ A. 11 minutes
  - ☒ B. 10 minutes
  - ☐ C. 9 minutes
  - ☐ D. 12 minutes

**Q.2** The value of  $\sqrt{144} + \sqrt{0.0169} - \sqrt{4.41} =$

- Ans**
- ☒ A. 10.03
  - ☐ B. 14.23
  - ☐ C. 15.4
  - ☐ D. 11.2

**Q.3** The average of thirteen consecutive integers is 36. If two times the smallest of these 13 integers is added to the largest of these 13 integers, what will be the sum obtained?

- Ans**
- ☐ A. 121
  - ☐ B. 115
  - ☐ C. 110
  - ☒ D. 102

**Q.4** If  $x^2 + xy + x = 18$  and  $y^2 + xy + y = 24$ , then the value of  $x + y$  is:

- Ans**
- ☐ A. 5 or -6
  - ☒ B. 6 or -7
  - ☐ C. -5 or 6
  - ☐ D. -6 or 7



**Q.5** Ten years ago, a mother was 3 times as old as her son. 5 years ago she was  $\frac{5}{2}$  times her son's age. What is her present age?

- Ans**
- ✓ A. 55 years
  - ✗ B. 45 years
  - ✗ C. 35 years
  - ✗ D. 30 years

**Q.6** If a sum of money doubles itself in 10 years at compound interest, then in how many years will it become 16 times of itself at the same rate?

- Ans**
- ✗ A. 10
  - ✗ B. 20
  - ✗ C. 30
  - ✓ D. 40

**Q.7** Which of the following is NOT a true statement?

- Ans**
- ✗ A. All squares are rhombuses.
  - ✗ B. All sides of a rhombus are congruent.
  - ✗ C. Diagonals of a rhombus bisect each other at right angles.
  - ✓ D. Sum of any pair of adjacent angles of a rhombus is not  $180^\circ$ .

**Q.8** Solve:  $2(5x - 3) + 3(3x - 5) = 93$

- Ans**
- ✓ A.  $x = 6$
  - ✗ B.  $x = -6$
  - ✗ C.  $x = 9$
  - ✗ D.  $x = -9$

**Q.9** The value of

$$(3^0 + 3^{-2} + 3^{-1}) \times 27 =$$

- Ans**
- ✗ A. 23
  - ✗ B. 32
  - ✓ C. 39
  - ✗ D. 3

**Q.10** In the year 2000, Monu was 3 times his sister's age. In 2010, he was 24 years older than her. Find Monu's age in 2010.

- Ans**
- ✗ A. 38 years
  - ✗ B. 62 years
  - ✗ C. 52 years
  - ✓ D. 46 years

**Q.11** There are three numbers which are co-prime to one other such that the product of the first two is 357 and that of the last two is 609. What is the sum of the three numbers?

- Ans**
- ✓ A. 67
  - ✗ B. 83
  - ✗ C. 75
  - ✗ D. 91

Q.12 Simplify  $\frac{\sin A}{1 + \cos A} + \frac{1 + \cos A}{\sin A}$ .

- Ans
- ☐ A.  $\sec A$
  - ☐ B.  $\operatorname{cosec} A$
  - ☐ C.  $2\sec A$
  - ☒ D.  $2\operatorname{cosec} A$

Q.13 Find the volume of a sphere whose diameter is 12 cm.

- Ans
- ☐ A.  $284\pi \text{ cm}^3$
  - ☒ B.  $288\pi \text{ cm}^3$
  - ☐ C.  $864\pi \text{ cm}^3$
  - ☐ D.  $248\pi \text{ cm}^3$

Q.14 The mean of the data 9, 3, 5, 4, 4, 5 and y is y. What is the mode of the data?

- Ans
- ☐ A. 4
  - ☒ B. 5
  - ☐ C. 9
  - ☐ D. 3

Q.15 The measure of each interior angle of a regular polygon is  $120^\circ$ . How many sides does this polygon have?

- Ans
- ☐ A. 5
  - ☒ B. 6
  - ☐ C. 7
  - ☐ D. 8

Q.16 A bike running at a speed of 50 km/h reaches its destination 10 minutes late. If it runs at 60 km/h it is late by 5 minutes. How many minutes should the bike take, travelling at usual speed to complete the journey on the same route to reach on time?

- Ans
- ☐ A. 25 minutes
  - ☒ B. 20 minutes
  - ☐ C. 15 minutes
  - ☐ D. 12 minutes

Q.17 The sum of three consecutive multiples of 9 is 2457, find the largest one.

- Ans
- ☐ A. 819
  - ☒ B. 828
  - ☐ C. 999
  - ☐ D. 990

**Q.18** If A bought an item for ₹384 and sold it for ₹576 and B bought another item for ₹1,254 and sold it for ₹1,672. What is the ratio of gain % of A to gain % of B?

**Ans**

☐ A.  $\frac{5}{2}$

☐ B.  $\frac{3}{4}$

☒ C.  $\frac{3}{2}$

☐ D.  $\frac{5}{3}$

**Q.19** The HCF of 45, 78 and 117 is:

**Ans**

☐ A. 7

☐ B. 9

☐ C. 5

☒ D. 3

**Q.20** The product of the roots of the quadratic equation  $6 - 5x^2 - 8x = 0$  is:

**Ans**

☐ A.  $\frac{8}{5}$

☐ B.  $-\frac{8}{5}$

☒ C.  $-\frac{6}{5}$

☐ D.  $\frac{6}{5}$

**Q.21** A dealer allows 30% discount on the marked price of an item and still makes a profit of 10%. By how much percentage is the marked price more than the cost price (rounded off to two places of decimal)?

**Ans**

☐ A. 26.67%

☐ B. 33.33%

☐ C. 45.45%

☒ D. 57.14%

**Q.22** The cost incurred by Mahesh to produce an item in the factory was ₹2,000. He had to spend 10% of the production cost incurred on the item in the factory to transport it to the showroom. He sold the item from the showroom at a price that was 15% above the total cost incurred by Mahesh in the production and transportation of the item. What was the price at which Mahesh sold the item from the showroom?

**Ans**

☐ A. ₹2,500

☐ B. ₹2,300

☒ C. ₹2,530

☐ D. ₹2,250

**Q.23** A sum of money is to be distributed among four members A, B, C, and D in the ratio 4: 7: 9: 3. If C gets ₹720 more than D, find D's share.

- Ans**
- ☒ A. ₹160
  - ☒ B. ₹240
  - ☒ C. ₹360
  - ☒ D. ₹480

**Q.24** Find the area of a rhombus whose diagonals are 12 cm and 15 cm long.

- Ans**
- ☒ A.  $60 \text{ cm}^2$
  - ☒ B.  $45 \text{ cm}^2$
  - ☒ C.  $80 \text{ cm}^2$
  - ☒ D.  $90 \text{ cm}^2$

**Q.25** The value of  $12 \div 3 \times (7 + 8 - 3)$  is:

- Ans**
- ☒ A. 48
  - ☒ B.  $\frac{6}{13}$
  - ☒ C.  $\frac{1}{13}$
  - ☒ D. 24

#### Section : General Intelligence and Reasoning

**Q.26** Study the given table and answer the question that follows.

The table shows value of Indian exports across different goods for different years.

| Year             | 2021                 | 2020 | 2019 | 2018 | 2017 | 2016 |
|------------------|----------------------|------|------|------|------|------|
| Items            | (Amount in ₹ Crores) |      |      |      |      |      |
| Fruits           | 85                   | 75   | 70   | 61   | 35   | 30   |
| Pulses           | 35                   | 20   | 35   | 60   | 70   | 40   |
| IT products      | 200                  | 160  | 100  | 120  | 90   | 85   |
| Defence products | 120                  | 80   | 110  | 85   | 60   | 40   |
| Dairy products   | 60                   | 62   | 68   | 72   | 40   | 30   |

What is the yearly average exports(combined) of fruits, IT products and defence products for 2018 to 2020?

- Ans**
- ☒ A. ₹280 crores
  - ☒ B. ₹282 crores
  - ☒ C. ₹165 crores
  - ☒ D. ₹287 crores

**Q.27** In a certain code language, TOUGH is written as 20152178 and PLEAD is written as 1612514. How will CLOVE be written in the same language?

- Ans**
- ✓ A. 31215225
  - ✗ B. 31315235
  - ✗ C. 31215324
  - ✗ D. 31115215

**Q.28** Select the option that represents the letters that, when placed from left to right in the same sequence in the blanks below, will complete the letter series.

C \_ P R \_ D T \_ R N \_ T \_ R N \_ T P \_ N

- Ans**
- ✗ A. P N P E R F P
  - ✗ B. T P N D P F R
  - ✗ C. T N T E P F P
  - ✓ D. T N P E P F R

**Q.29** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

TOP : VRU

XOR : ZRW

- Ans**
- ✗ A. NET : PGY
  - ✗ B. QIP : SLV
  - ✗ C. TOM : VRQ
  - ✓ D. NOR : PRW

**Q.30** 4 people A, B, C and D are sitting in a straight line, facing north. A and C are not sitting adjacent to each other, while C and B are sitting adjacent to each other. Which of the following sitting arrangements is NOT possible?

- Ans**
- ✗ A. DABC
  - ✗ B. ABCD
  - ✗ C. CBAD
  - ✓ D. BCAD

**Q.31** Three statements are given, followed by two conclusions numbered I and II. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

All sketches are cards.

All cards are posters.

Some sketches are folders.

**Conclusions:**

I. Some folders are posters.

II. Some cards are folders.

- Ans**
- ✗ A. Only conclusion I follows
  - ✗ B. Only conclusion II follows
  - ✓ C. Both conclusions I and II follow
  - ✗ D. Either conclusion I or II follows

**Q.32** Which of the following numbers will replace the question mark (?) in the given series?

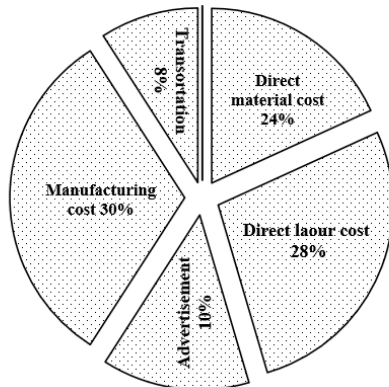
13, 27, 56, 115, 234, ?

- Ans**
- ☒ A. 332
  - ☒ B. 346
  - ☒ C. 473
  - ☒ D. 482

**Q.33** Four houses, A, B, C and D, are located in the same colony. House A is 300 m to the north of House D. House C is 400 m to the east of House B. House A is 300 m to the south of House B. In which direction is House D with reference to House B?

- Ans**
- ☒ A. East
  - ☒ B. West
  - ☒ C. North
  - ☒ D. South

**Q.34** The following pie chart shows the percentage distribution of the expenditure incurred in manufacturing a power bank. Study the pie chart and answer the question.



If 100 power banks are manufactured and the manufacturing cost on them amounts to ₹50,000, then what should be the selling price of the power banks so that the manufacturer can earn a profit of 50%?

- Ans**
- ☒ A. ₹3000
  - ☒ B. ₹2400
  - ☒ C. ₹2200
  - ☒ D. ₹2500

**Q.35** In this question, a statement is followed by two conclusions. Which of the two conclusions is/are true with respect to the statement?

Statement:  $C \leq F < E = D > G \geq H < I$

Conclusions:

I.  $D > C$

II.  $E < H$

- Ans**
- ☒ A. Only conclusion I is true
  - ☒ B. Only conclusion II is true
  - ☒ C. Both conclusions I and II are true
  - ☒ D. Neither conclusion I nor II is true

**Q.36** Each of A, B, C, D, E and F has an exam on a different day of a week starting from Monday and ending on Sunday of the same week. Thursday is the only gap day on which no exam is held. E's exam is on Saturday. The exams of A and F are separated by one day that is the gap day. D's exam is immediately before F but is immediately after C. B's exam is on Sunday. On which day is D's exam held?

- Ans**
- ☒ A. Monday
  - ☒ B. Tuesday
  - ☒ C. Wednesday
  - ☒ D. Friday

**Q.37** Which of the following numbers will replace the question mark (?) in the given series?

25, 36, 49, 66, 85, ?

- Ans**
- ☒ A. 105
  - ☒ B. 103
  - ☒ C. 108
  - ☒ D. 110

**Q.38** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(4, 3, 16)

(3, 5, 19)

- Ans**
- ☒ A. (8, 2, 20)
  - ☒ B. (3, 2, 12)
  - ☒ C. (5, 2, 49)
  - ☒ D. (8, 1, 18)

**Q.39** In a certain code language, ROUTINE is written as UORTENI and PLAYERS is written as ALPYSRE. How will BANKING be written in the same language?

- Ans**
- ☒ A. NABKGNI
  - ☒ B. NABGNIK
  - ☒ C. BNAKIGN
  - ☒ D. NBAIGKN

**Q.40** Study the given letter, number, symbol series and answer the question that follows.

7 T % N 9 \* M \$ 3 U = L 8 Y @ G & 3 E > 5 & R 3 ! K # 7 % H = Y 6

Find out the total number of letters that are immediately followed by a number and immediately preceded by a symbol.

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.42** What is the angular distance covered by the second hand of a correct clock in 12 minutes?

- Ans**
- ☒ A. 4320°
  - ☒ B. 4762°
  - ☒ C. 5120°
  - ☒ D. 5611°

**Q.43** V, W, X, Y, Z, A and B are seven boxes kept one over the other but not necessarily in the same order. A is kept immediately above W. Only four boxes are kept between B and W. Only one box is kept between V and X. X is kept immediately above A. B is kept at the topmost position. How many boxes are kept between Z and Y?

- Ans**
- ☒ A. One
  - ☒ B. Two
  - ☒ C. Three
  - ☒ D. Four

**Q.44** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 are not allowed.)

(7, 175, 5)

(6, 294, 7)

- Ans**
- ☒ A. (3, 192, 8)
  - ☒ B. (5, 140, 7)
  - ☒ C. (6, 216, 5)
  - ☒ D. (8, 412, 9)

**Q.45** Three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

Statements:

1. All blazers are dungarees.
2. No dungaree is scarf.
3. All pyjamas are dungarees.

Conclusions:

- I. No blazer is scarf.
- II. No blazer is pyjama.
- III. Some blazers are pyjamas.

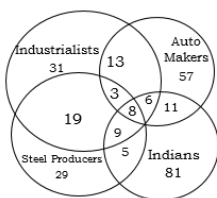
- Ans**
- ☒ A. Only conclusion I and II follow
  - ☒ B. Only conclusion I and III follow
  - ☒ C. Only conclusion I follows
  - ☒ D. None of the conclusions follow

**Q.46** Four friends Himani, Shalaka, Mitali and Brinda are sitting around a square table facing the centre of the table. All four of them are sitting at the corners of the table. Himani is to the immediate right of Brinda. Mitali is to the immediate left of Shalaka. Himani is second to the left of Shalaka. After some time, Himani leaves her place and is replaced by Kamini. Similarly, Brinda is also replaced by Tara. Now who is sitting to the immediate left of Tara?

- Ans**
- ☒ A. Shalaka
  - ☒ B. Mitali
  - ☒ C. Kamini
  - ☒ D. Brinda



- Q.47** Study the diagram and answer the question that follows. The numbers in different sections indicate the number of persons. How many Indian industrialists make autos but are NOT steel producers?



**Ans** ☒ A. 13

☒ B. 3

☒ C. 8

☒ D. 6

- Q.48** Which of the following options is the closest approximate value which will come in place of question mark(?) in the following equation?

$$125.99 - 35.92 + 3.89 \times 16.11 = ?$$

**Ans** ☒ A. 150

☒ B. 158

☒ C. 154

☒ D. 166

- Q.49** Which two signs should be interchanged to make the given equation correct?

$$24 \times 6 - 12 + 18 \div 3 = 46$$

**Ans** ☒ A.  $\times$  and  $+$

☒ B.  $\times$  and  $\div$

☒ C.  $+$  and  $\div$

☒ D.  $+$  and  $-$

- Q.50** In a class of 21 students, each scored differently. P's rank from the bottom is 9<sup>th</sup>, while Q's rank from the top is also 9<sup>th</sup>. How many students are ranked between Q and P?

**Ans** ☒ A. 4

☒ B. 2

☒ C. 5

☒ D. 3

- Q.51** Each of the digits in the number 813924765 is arranged in ascending order from left to right. The position of how many digits will remain unchanged as compared to that in the original number?

**Ans** ☒ A. None

☒ B. One

☒ C. Two

☒ D. Three

- Q.52** Refer to the given letter and symbol series and answer the question that follows.

(Left) U # S & S F o G ^ & J % Z K \* D X ¥ T X € @ Y S (Right)

How many such letters are there in the series each of which is immediately preceded by a symbol and also immediately followed by a symbol?

**Ans** ☒ A. 2

☒ B. 4

☒ C. 6

☒ D. 5

**Q.53** Each vowel in the word 'DESTROY' is changed to the letter following it in the English alphabetical order and each consonant is changed to the letter preceding it in the English alphabetical order. If each letter, thus formed, is arranged in alphabetical order, which letter will be fifth from the right end?

- Ans**
- ☒ A. F
  - ☒ B. P
  - ☒ C. Q
  - ☒ D. R

**Q.54** Starting from point L, a person walks 125 m towards the south. He then takes a left turn and walks 70 m. From there, he takes a left turn and walks 80 m. After that, he takes a left turn and walks 115 m. Finally, he takes a right turn and walks 45 m to reach point M. How far and in which direction is point M from point L ? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 45 m, East
  - ☒ B. 45 m, West
  - ☒ C. 90 m, East
  - ☒ D. 90 m, North

**Q.55** In this question, a statement is followed by two conclusions. Which of the two conclusions is/are true with respect to the statement?

Statement:  $N > M < K = L \geq I > J$

Conclusions:

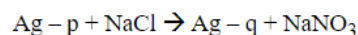
I.  $L > J$

II.  $N > L$

- Ans**
- ☒ A. Only conclusion I is true
  - ☒ B. Only conclusion II is true
  - ☒ C. Both conclusions I and II are true
  - ☒ D. Neither conclusion I nor II is true

#### Section : General Science

**Q.56** What will come in place of p and q, respectively, in the given double displacement reaction?



- Ans**
- ☒ A.  $\text{NO}_3$  and  $\text{NO}_3$
  - ☒ B. Cl and  $\text{NO}_3$
  - ☒ C. Cl and Cl
  - ☒ D.  $\text{NO}_3$  and Cl

**Q.57** Which of the following materials is preferably used in making heating elements of electrical heating devices?

- Ans**
- ☒ A. Nichrome
  - ☒ B. Constantan
  - ☒ C. Tin-lead alloy
  - ☒ D. Tungsten

**Q.58** Which of the following home appliances does NOT use an electric motor?

- Ans**
- ☐ A. Electric fan
  - ☐ B. Electric mixer
  - ☐ C. Electric washing machine
  - ☒ D. Electric iron

**Q.59** Two resistors of  $4\ \Omega$  each are connected in parallel to a 5 V battery source. The total current in the circuit is:

- Ans**
- ☒ A. 2.5 A
  - ☐ B. 5 A
  - ☐ C. 10 A
  - ☐ D. 20 A

**Q.60** Consider the statements below and identify the correct answer.

Statement-I: Modern periodic table has 18 vertical columns known as groups.

Statement-II: Modern periodic table has 7 horizontal rows known as periods.

- Ans**
- ☐ A. Statement I is correct, Statement II is incorrect.
  - ☐ B. Statement II is correct, Statement I is incorrect.
  - ☒ C. Both statements are correct.
  - ☐ D. Both statements are incorrect.

**Q.61** Given below are some conclusions of Mendel's work on pea plants. All of them are correct except one. Select the INCORRECT conclusion.

- Ans**
- ☐ A. Genes come in pairs.
  - ☐ B. Genes are inherited as distinct units.
  - ☐ C. Segregation of genes takes place during formation of gametes.
  - ☒ D. Each gamete has two copies of the same gene.

**Q.62** What is the main reason for the pollution of River Ganga by coliform bacteria?

- Ans**
- ☐ A. Washing of clothes
  - ☐ B. Chemical effluents from industries
  - ☐ C. Immersion of unburnt corpses
  - ☒ D. Untreated sewage dumped in it

**Q.63** Oral pills used for birth control change the hormonal balance of the body. How do these prevent pregnancy? Select the correct option.

- Ans**
- ☒ A. Eggs are not released and no fertilisation
  - ☐ B. No formation of eggs
  - ☐ C. Lining of uterus breaks off
  - ☐ D. Eggs are released but no fertilisation

**Q.64** A compound X is transparent crystalline solid. It has cleansing properties and used in manufacture of glass. Compound X is:

- Ans**
- ☒ A. baking soda
  - ☒ B. washing soda
  - ☒ C. sodium hydroxide
  - ☒ D. bleaching powder

**Q.65** In a dynamo, electric current is produced using the principle of:

- Ans**
- ☒ A. electric conduction
  - ☒ B. electromagnetism
  - ☒ C. electromagnetic radiation
  - ☒ D. electromagnetic induction

**Q.66** Selectively permeable membranes are those that allow penetration of \_\_\_\_\_.

- Ans**
- ☒ A. neither solvent nor solute molecules
  - ☒ B. only solute molecules but not solvent molecules
  - ☒ C. both solvent and solute molecules
  - ☒ D. only solvent molecules but not solute molecules

**Note:** For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

**Q.67** The insoluble substance formed in a solution during a chemical reaction is known as \_\_\_\_\_.

- Ans**
- ☒ A. residue
  - ☒ B. soluble salt
  - ☒ C. aqueous solution
  - ☒ D. precipitate

**Q.68** Consider the below statements and identify the correct answer.

Statement-I: Most carbon compounds are poor conductors of electricity.

Statement-II: Carbon compounds have low melting and boiling points.

- Ans**
- ☒ A. Both the statements are true
  - ☒ B. Both the statements are false
  - ☒ C. Statement-I is true, and Statement-II is false
  - ☒ D. Statement-II is true, and Statement-I is false

**Q.69** Which of the following is NOT a result of the ozone layer depletion?

- Ans**
- ☒ A. Tsunami
  - ☒ B. The Earth getting more UV rays from the Sun
  - ☒ C. Skin cancer
  - ☒ D. Immune deficiency disorders

**Q.70** Some features of transportation in plants are mentioned below. Which option shows the INCORRECT feature?

- Ans**
- ☒ A. Xylem transports water and Phloem transports food
  - ☒ B. Movement of both water and food is bidirectional
  - ☒ C. Vessels and Tracheids are dead cells and Sieve tubes are living
  - ☒ D. Water movement is by simple physical forces; food movement requires energy

**Q.71** Kidney is an organ of excretion and osmoregulation in humans. Regulation of which two substances is done by the kidneys?

- Ans**
- ☒ A.  $\text{CO}_2$  and proteins
  - ☒ B. Sugar and salts
  - ☒ C. Water and salts
  - ☒ D. Water and  $\text{O}_2$

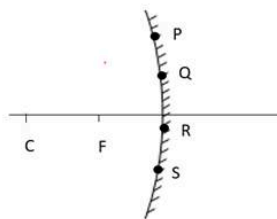
**Q.72** Which of the following is a protein-splitting enzyme?

- Ans**
- ☒ A. Pepsin
  - ☒ B. Amylase
  - ☒ C. Ptyalin
  - ☒ D. Lipase

**Q.73** An object placed 30 cm from a concave lens forms a virtual erect image at a distance of 10 cm from the lens. The magnification produced by the lens is:

- Ans**
- ☒ A. 3
  - ☒ B. -3
  - ☒ C.  $1/3$
  - ☒ D.  $-1/3$

**Q.74** P, Q, R and S are four points on the surface of a concave mirror as shown in the figure. If  $r_1$ ,  $r_2$ ,  $r_3$  and  $r_4$  are the distance of centre of curvature from points P, Q, R and S, respectively, then the correct relation between  $r_1$ ,  $r_2$ ,  $r_3$  and  $r_4$  is:



- Ans**
- ☒ A.  $r_1 = r_2 = r_3 = r_4$
  - ☒ B.  $r_1 > r_2 > r_3 > r_4$
  - ☒ C.  $r_1 < r_2 < r_3 < r_4$
  - ☒ D.  $r_1 = r_2, r_3 = r_4, r_2 \neq r_3$

**Q.75** A wire of a given material has length 'l' and resistance 'R'. Another wire of the same material having nine times the length and the same area of cross section will have a resistance equal to:

- Ans**
- ☒ A.  $9R$
  - ☐ B.  $1/9R$
  - ☐ C.  $3R$
  - ☐ D.  $1/3R$

**Q.76** At which position on principal axis does a concave mirror forms a highly diminished, real and inverted image of an object?

- Ans**
- ☒ A.  $F$
  - ☐ B.  $2F$
  - ☐ C. between  $F$  and  $2F$
  - ☐ D. beyond  $2F$

**Q.77** Lemons placed inside a beaker filled with water appear relatively larger in size due to:

- Ans**
- ☒ A. refraction of light
  - ☐ B. reflection of light
  - ☐ C. scattering of light
  - ☐ D. dispersion of light

**Q.78** Which of the following group of hydrocarbons follows the general formula of  $C_nH_{2n}$ ?

- Ans**
- ☐ A. Alkane
  - ☒ B. Alkene
  - ☐ C. Alkyne
  - ☐ D. Alkyl

**Q.79** Consider the statements below and identify the correct answer.

Statement I: Among chemical properties, Mendeleev concentrated on the compounds formed by elements with carbon and hydrogen.

Statement II: He selected these elements as they are less reactive and formed compounds with few elements.

- Ans**
- ☐ A. Statement I is correct, Statement II is incorrect.
  - ☐ B. Statement II is correct, Statement I is incorrect.
  - ☐ C. Both statements are correct.
  - ☒ D. Both statements are incorrect.

**Q.80** In chlor-alkali process, chlor represents chlorine gas and alkali represents:

- Ans**
- ☐ A.  $ZnO$
  - ☐ B.  $CaCO_3$
  - ☒ C.  $NaOH$
  - ☐ D.  $Ca(OH)_2$

Section : General Awareness and Current Affairs

**Q.81** In February 2022, India became the first country in the world to play \_\_\_\_\_ One Day International cricket matches.

- Ans**
- ☐ A. 1100
  - ☒ B. 1000
  - ☐ C. 900
  - ☐ D. 800

**Q.82** The Union Budget 2022-23 has proposed to reduce the surcharge of cooperative societies from \_\_\_\_\_ to 7% for those whose income is between ₹1 crore and ₹10 crore.

- Ans**
- ☐ A. 9%
  - ☐ B. 10%
  - ☐ C. 11%
  - ☒ D. 12%

**Q.83** From which state of India did ISRO successfully test fire the Vikas engine, that would power India's first human-carrying rocket Gaganyaan?

- Ans**
- ☒ A. Tamil Nadu
  - ☐ B. Punjab
  - ☐ C. Haryana
  - ☐ D. Rajasthan

**Q.84** Which of the following is the world's largest food security programme extended till September 2022 by the Union Cabinet, Government of India in March 2022?

- Ans**
- ☐ A. Annapurna Scheme
  - ☐ B. Swaranjayanti Gram Swarozgar Yojana
  - ☐ C. Mahatma Gandhi National Rural Employment Guarantee Act
  - ☒ D. Pradhan Mantri Garib Kalyan Anna Yojana

**Q.85** Which of the following languages is NOT a classical language in India as on June 2022?

- Ans**
- ☐ A. Sanskrit
  - ☒ B. Bengali
  - ☐ C. Tamil
  - ☐ D. Odia



**Q.86** As per Annual Status of Education Report (rural) – 2021, what was the enrolment rate of children enrolled in government schools in the year 2021?

- Ans**
- ☐ A. 65.3%
  - ☐ B. 67.5%
  - ☒ C. 70.3%
  - ☐ D. 72.5%

**Q.87** Which Indian Cricketer played his 100th test match against Sri Lanka in Mohali in March 2022?

- Ans**
- ☒ A. Virat Kohli
  - ☐ B. Rohit Sharma
  - ☐ C. Ravichandran Ashwin
  - ☐ D. Ishant Sharma

**Q.88** Which of the following is NOT a tributary of the Yamuna river system?

- Ans**
- ☐ A. Hindon
  - ☐ B. Chambal
  - ☐ C. Sind
  - ☒ D. Chenab

**Q.89** Which of the following is NOT a part of the Panchayati Raj system in India as per the Constitution?

- Ans**
- ☐ A. Gram Panchayat
  - ☒ B. Gram Corporation
  - ☐ C. Panchayat Samiti
  - ☐ D. Zila Panchayat

**Q.90** The Largest brackish water Lake of India is present in which state?

- Ans**
- ☒ A. Odisha
  - ☐ B. Gujarat
  - ☐ C. Assam
  - ☐ D. Maharashtra



**Q.91** The Missionaries of Charity is a Catholic religious congregation established in \_\_\_\_\_ by Mother Teresa.

- Ans**
- ☐ A. 1947
  - ☒ B. 1950
  - ☐ C. 1952
  - ☐ D. 1954

**Q.92** Which Article of the Indian Constitution states that 'The Council of Ministers shall be collectively responsible to the House of the People'?

- Ans**
- ☒ A. Article 75 (3)
  - ☐ B. Article 75 (1)
  - ☐ C. Article 75 (2)
  - ☐ D. Article 80 (4)

**Q.93** In which of the following states is 'Nishagandhi Nritya Utsav' celebrated?

- Ans**
- ☐ A. Tamil Nadu
  - ☐ B. Karnataka
  - ☒ C. Kerala
  - ☐ D. Uttar Pradesh

**Q.94** N.K.Singh became the Chairman of which Finance Commission of India?

- Ans**
- ☐ A. 13<sup>th</sup>
  - ☒ B. 15<sup>th</sup>
  - ☐ C. 17<sup>th</sup>
  - ☐ D. 19<sup>th</sup>

**Q.95** Workers who own and operate an enterprise to earn their livelihood are known as:

- Ans**
- ☐ A. hired workers
  - ☐ B. government employed workers
  - ☒ C. self-employed workers
  - ☐ D. regular salaried employed workers

**Q.96** Fiscal policy is the policy of:

- Ans**
- ☐ A. NABARD
  - ☒ B. the Government
  - ☐ C. RBI
  - ☐ D. Both the Government and RBI

**Q.97** Which of the following Acts was passed by the British Parliament, defining the powers and responsibilities of the various organs of the East India Company?

- Ans**
- ✓ **A. Regulating Act of 1773**
  - ✗ **B. Pitt's India Act of 1784**
  - ✗ **C. Government of India Act of 1858**
  - ✗ **D. Indian Councils Act of 1892**

**Q.98** Which physiographic division covers a distance of 2500 km from Indus to Brahmaputra in west-east direction?

- Ans**
- ✗ **A. Northern plains**
  - ✓ **B. Himalayan mountains**
  - ✗ **C. Peninsular plateau**
  - ✗ **D. Coastal plains**

**Q.99** The Twenty Point Programme (TPP) was launched by the Government of India in \_\_\_\_\_.

- Ans**
- ✓ **A. 1975**
  - ✗ **B. 1980**
  - ✗ **C. 1985**
  - ✗ **D. 1990**

**Q.100** Who has launched the first Indian Virtual Science Lab for children under the CSIR Jigyasa programme?

- Ans**
- ✓ **A. Dr. Jitendra Singh**
  - ✗ **B. Dharmendra Pradhan**
  - ✗ **C. Amit Shah**
  - ✗ **D. Dr. Virendra Kumar**



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 23/08/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

Q.1 The value of  $4^2 + \sqrt{8^2} - 4\sqrt{25} - 10 =$

- Ans ☒ A. -6  
☒ B. -25  
☒ C. -32  
☒ D. 12

Q.2 If  $a$  and  $b$  are the roots of the equation  $x^2 - 7x + 12 = 0$ , then the value of  $\frac{a^3 + b^3}{a^2 + b^2 + 1}$  is:

- Ans ☒ A. 3.5  
☒ B. 4.4  
☒ C. 5.2  
☒ D. 2.6

Q.3 If the simple interest on a certain sum for 18 months at 5.5% per annum exceeds the simple interest on the same sum for 14 months at 6% per annum by ₹62.50, then the sum is:

- Ans ☒ A. ₹8,200  
☒ B. ₹7,000  
☒ C. ₹6,500  
☒ D. ₹5,000

Q.4 Rani's sister's age is 4 years more than her age. If her sister's age is 28 years, then find Rani's age.

- Ans ☒ A. 32 years  
☒ B. 26 years  
☒ C. 24 years  
☒ D. 22 years

**Q.5** A and B undertake to complete a piece of work for ₹600. A alone can complete it in 4 days while B alone can complete it in 6 days. With the help of C, they finish the work in 2 days. Find the share of C in the payment received.

- Ans** ☒ A. ₹100  
☐ B. ₹200  
☐ C. ₹300  
☐ D. ₹78

**Q.6** P, Q and R jointly start a business. It was agreed that P would invest ₹25,000 for 6 months, Q ₹44,000 for 5 months and R ₹50,000 for 3 months. Out of total profit of ₹1,04,000, the amount received by P will be:

- Ans** ☐ A. ₹40,920  
☐ B. ₹27,900  
☐ C. ₹33,780  
☒ D. ₹30,000

**Q.7** The sum of the ages of a mother, son and daughter is 70 years. If the mother is thrice as old as her son, and the daughter is 5 years older than her brother, how old is the mother?

- Ans** ☐ A. 35 years  
☒ B. 39 years  
☐ C. 42 years  
☐ D. 45 years

**Q.8** If the average of 5 consecutive even numbers is 10, then find the number at the centre when these five numbers are arranged in ascending order.

- Ans** ☐ A. 20  
☐ B. 14  
☒ C. 10  
☐ D. 12

**Q.9** If  $48 : x :: x : 75$ , and  $x > 0$ , then what is the value of x?

- Ans** ☒ A. 60  
☐ B. 51  
☐ C. 63  
☐ D. 57

**Q.10** If the area of an equilateral triangle is  $25\sqrt{3} \text{ cm}^2$ , then the length of each side of the triangle is:

- Ans** ☐ A. 5 cm  
☐ B. 8 cm  
☒ C. 10 cm  
☐ D. 12 cm

**Q.11** If the perimeter of a circle is  $\frac{88}{7} \text{ cm}$ , then find the perimeter (in cm) of the square the length of each of whose sides is equal to the radius of the given circle. [Use  $\pi = \frac{22}{7}$ ]

- Ans** ☐ A. 6  
☐ B. 7  
☒ C. 8  
☐ D. 9

Q.12 If  $\tan \theta = 4$ , then the value of  $\frac{4 \cos \theta + 2 \sin \theta}{2 \sin \theta - \cos \theta}$  is:

- Ans
- ☐ A.  $\frac{12}{8}$
  - ☒ B.  $\frac{12}{7}$
  - ☐ C.  $\frac{12}{5}$
  - ☐ D.  $\frac{12}{10}$

Q.13 A trader marked the price of an article at  $1\frac{2}{5}$  times of its cost price and he sold it at  $\frac{17}{20}$  of the marked price. What is his gain percentage on that article?

- Ans
- ☐ A. 17%
  - ☐ B. 20%
  - ☒ C. 19%
  - ☐ D. 23%

Q.14 Find the roots of  $\sqrt{2x+9} + x = 13$ .

- Ans
- ☐ A. 2 and 8
  - ☐ B. 8 and 6
  - ☐ C. 4 and 20
  - ☒ D. 20 and 8

Q.15 If the surface area of a sphere is  $36\pi \text{ cm}^2$ , then the radius of the sphere is:

- Ans
- ☐ A. 2 cm
  - ☒ B. 3 cm
  - ☐ C. 4 cm
  - ☐ D. 5 cm

Q.16 The value of  $\sqrt{29\frac{4}{25}}$  is:

- Ans
- ☐ A. 5.5
  - ☐ B. 5.6
  - ☐ C. 5.2
  - ☒ D. 5.4

Q.17 If  $a^4 + \frac{1}{a^4} = 34$ , then the value of  $a^6 + \frac{1}{a^6}$  is:

- Ans
- ☐ A. 243
  - ☐ B. 216
  - ☒ C. 198
  - ☐ D. 185

**Q.18** Find the curved surface area of a cylinder whose diameter of base is 14 m and height is 24 m. [Use  $\pi = \frac{22}{7}$ ]

- Ans**
- ☐ A.  $1506 \text{ cm}^2$
  - ☐ B.  $1065 \text{ cm}^2$
  - ☒ C.  $1056 \text{ cm}^2$
  - ☐ D.  $1560 \text{ cm}^2$

**Q.19** A dishonest dealer professes to sell his goods at the cost price but uses a false weight and thus gains 25%. How much quantity of grains does he give for a kilogram?

- Ans**
- ☐ A. 900 grams
  - ☐ B. 750 grams
  - ☐ C. 975 grams
  - ☒ D. 800 grams

**Q.20** If the mean of 22, 25, 27, 24 and x is 26, then the value of x is:

- Ans**
- ☐ A. 41
  - ☐ B. 35
  - ☐ C. 28
  - ☒ D. 32

**Q.21** If two parallel lines are intersected by a transversal, then which of the options below is necessarily true?

- Ans**
- ☐ A. The sum of the measures of a pair of alternate interior angles is  $180^\circ$
  - ☐ B. The sum of the measures of a pair of vertically opposite angles is  $180^\circ$
  - ☒ C. The sum of the measures of a pair of interior angles on the same side of the transversal is  $180^\circ$
  - ☐ D. The sum of the measures of a pair of corresponding angles is  $180^\circ$

**Q.22** The value of  $\sqrt{729} + \sqrt{1681} + \sqrt{576} - \sqrt{1849}$  is:

- Ans**
- ☐ A. 37
  - ☐ B. 64
  - ☒ C. 49
  - ☐ D. 55

**Q.23** Which of the following numbers is divisible by both, 7 and 11?

- Ans**
- ☒ A. 1771
  - ☐ B. 2684
  - ☐ C. 2534
  - ☐ D. 3014

**Q.24** A person has to cover a distance of 8 km in 1 hour. If he covers one-fourth of the distance in one-third of the total time, then what should his speed (in km/h) be to cover the remaining distance in the remaining time so that the person reaches the destination exactly on time?

- Ans**
- ☒ A. 9
  - ☐ B. 8
  - ☐ C. 7
  - ☐ D. 6

**Q.25** The total number of three-digit numbers divisible by 2 or 5 is

- Ans**
- ☒ A. 400
  - ☒ B. 540
  - ☒ C. 245
  - ☒ D. 270

Section : General Intelligence and Reasoning

**Q.26** Refer to the given letter and symbol series and answer the question that follows.

(Left) K € T X @ \* D X % & J % Z Y \$ & # S & \$ F o G ^ (Right)

How many such symbols are there in the series each of which is immediately preceded by a letter and also immediately followed by a letter?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.27** Read the given statement and conclusions carefully. Assuming that the information given in the statements is true, decide which of the given conclusions logically follow(s) from the statement.

**Statement:**

In a recent survey on choice of drink, 65 percent of the people preferred tea, 28 percent preferred coffee, 5 percent preferred milk, while 2 percent were neutral.

**Conclusions:**

- I. Tea is a better drink than coffee.
- II. More people prefer to drink coffee as compared to milk.

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Neither conclusion I nor II follows
  - ☒ D. Both conclusions I and II follow

**Q.28** KIT 20 is related to PRG 50 in a certain way. In the same way, ENT 16 is related to VMG 40. To which of the following is MFG 18 related following the same logic?

- Ans**
- ☒ A. NUT 40
  - ☒ B. QUT 45
  - ☒ C. NVT 45
  - ☒ D. NUT 45

**Q.29** In a certain code language, MONDAY is written as ZBEOPN and MARCH is written as IDSNB. How will APRIL be written in the same language?

- Ans**
- ☒ A. ZKSWC
  - ☒ B. MKSVB
  - ☒ C. MJSQB
  - ☒ D. MJSWB

**Q.30** Three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

1. Some hills are plateaus.
2. Some plateaus are deserts.
3. All deserts are plains

**Conclusions:**

- I. Some plains are plateaus.
- II. Some plains are hills.
- III. All deserts are hills.

**Ans** ☒ A. Only conclusion I follows  
☐ B. Only conclusion II follows  
☐ C. Only conclusions I and II follow  
☐ D. Only conclusions II and III follow

**Q.31** Which of the following number will replace the question mark (?) and complete the given number series?

3, 6, 8, 16, 18, 36, ?

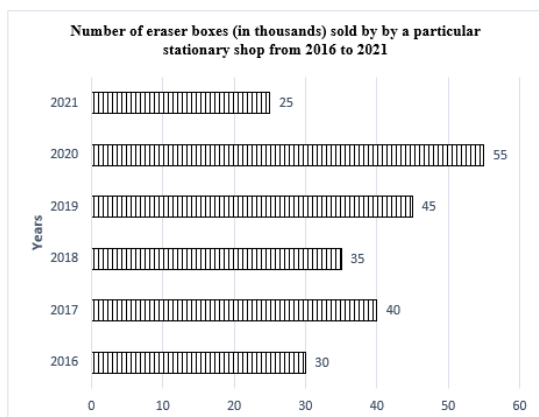
**Ans** ☐ A. 72  
☐ B. 45  
☒ C. 38  
☐ D. 42

**Q.32** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

20 : 42 :: 25 : 52 :: 18 : ?

**Ans** ☐ A. 34  
☒ B. 38  
☐ C. 54  
☐ D. 60

**Q.33** Study the following bar graph carefully and answer the question.



What is the approximate percentage increase in the number of the eraser boxes sold from 2018 to 2020?

**Ans** ☐ A. 50%  
☒ B. 57%  
☐ C. 45%  
☐ D. 60%



**Q.34** Select the correct combination of mathematical signs that can sequentially replace Y to balance the following equation.

$$32 Y 8 Y 16 Y 8 Y 8$$

- Ans**
- ☒ A.  $\times, =, -, +$
  - ☒ B.  $+, \times, =, -$
  - ☒ C.  $+, \times, =, \times$
  - ☒ D.  $\times, +, =, -$

**Q.35** B was standing at a point, facing north. B turned and ran towards the east for 50 m, then turned towards the south and walked for 30 m. He then turned left and ran for 40 m, then turned right and ran for 50 m, turned right again and walked for 10 m and at last, turned right and walked for 20 m. How much distance did B cover only by walk and in which direction is he facing now?

(All turns are 90 degree turns only)

- Ans**
- ☒ A. 150 m, South
  - ☒ B. 60 m, South
  - ☒ C. 60 m, North
  - ☒ D. 150 m, North

**Q.36** Which of the following terms will replace the question mark (?) in the given series to make it logically complete?

GRM-2, EPK-6, CNI-14, ALG-30, ?

- Ans**
- ☒ A. XJE-60
  - ☒ B. YKE-62
  - ☒ C. YJE-62
  - ☒ D. YJF-64

**Q.37** Sheela was standing facing the morning sun. She started walking towards the morning sun and turned to her right side, where she walked for few minutes and then turned left and walked for 3 m and stopped. In which direction is Sheela facing right now?

(All turns are 90 degree turns only)

- Ans**
- ☒ A. East
  - ☒ B. West
  - ☒ C. North
  - ☒ D. South

**Q.38** Six students, F, E, D, C, B and A, were studying around a square table in a college library, facing the centre. Four of them were sitting at the corners while two others were sitting at the exact centre of the sides. C and E were diagonally opposite to each other. A was not at any of the corner positions and was an immediate neighbour of both E and D. D was diagonally opposite to F. B was at the immediate right of F. No student sat between C and D as well as between E and F. Which student sat third to the left of B?

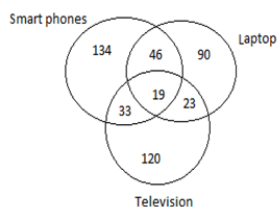
- Ans**
- ☒ A. A
  - ☒ B. E
  - ☒ C. C
  - ☒ D. D

**Q.39** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

$$14 : 203 :: 16 : 264 :: 18 : ?$$

- Ans**
- ☒ A. 333
  - ☒ B. 423
  - ☒ C. 353
  - ☒ D. 347

- Q.40** Study the given diagram carefully and answer the following question. The numbers in different sections indicate the number of persons who use the electronic item.



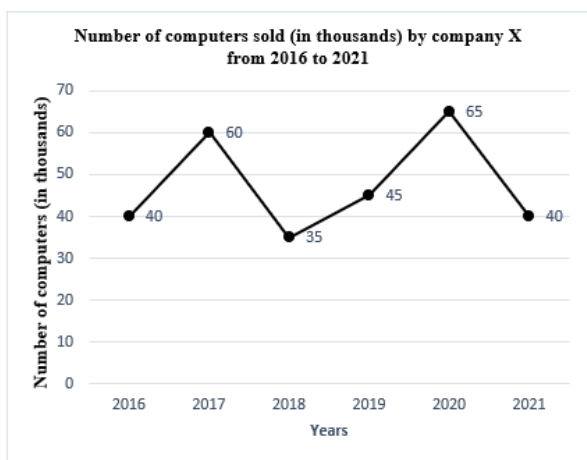
How many people use both Laptop and Television?

- Ans** ☒ A. 23  
☒ B. 42  
☒ C. 19  
☒ D. 56

- Q.41** 7 friends decided not to eat sweets on one day of their choice in the same week starting on Sunday and ending on Saturday. No one selected the same day of the week. P selected Saturday. Q selected Wednesday. R said that he will select the day immediately before P. S decided to select any available day between P's and Q's selection. T selected Sunday. U said that he will select the day immediately before Q. Which day is left for V to select?

- Ans** ☒ A. Monday  
☒ B. Tuesday  
☒ C. Wednesday  
☒ D. Thursday

- Q.42** Study the following line graph carefully and answer the given question.



Find the difference between the number of computers sold for the year 2017 and 2021.

- Ans** ☒ A. 20000  
☒ B. 15000  
☒ C. 10000  
☒ D. 25000

- Q.43** A statement is given, followed by four conclusions given in the options. Find out which conclusion is true based on the given statement.

Statement:  $V > R > N = U = H > C < G$

- Ans** ☒ A.  $U > G$   
☒ B.  $N > V$   
☒ C.  $N = H$   
☒ D.  $R = H$

**Q.44** If each of the letters in the word 'ANOTHER' is arranged in alphabetical order, then how many letters will be there in the English alphabetical series between the letter that is fourth from the left end and the one that is second from the right end?

- Ans**
- ☐ A. 2
  - ☒ B. 3
  - ☐ C. 4
  - ☐ D. 5

**Q.45** What day of the week was 10 January 2006?

- Ans**
- ☐ A. Monday
  - ☒ B. Tuesday
  - ☐ C. Wednesday
  - ☐ D. Thursday

**Q.46** Seven boxes, P, Q, R, S, T, U and V, are kept one over the other but not necessarily in the same order. Only three boxes are kept below R. S is immediately below Q. V is immediately below T. P is immediately above Q. S is third box from top. T is not immediately below R. Which is the third box from the bottom?

- Ans**
- ☐ A. T
  - ☒ B. U
  - ☐ C. R
  - ☐ D. S

**Q.47** Which of the following numbers will replace the question mark (?) in the given series?

7, 56, 28, 224, 112, ?

- Ans**
- ☐ A. 846
  - ☒ B. 896
  - ☐ C. 920
  - ☐ D. 900

**Q.48** This question is based on the five, three-digit numbers given below:

(Left) 815 458 512 630 235 (Right)

What will be the resultant if third digit of the second largest number is added to the second digit of smallest number?

- Ans**
- ☐ A. 2
  - ☒ B. 3
  - ☐ C. 5
  - ☐ D. 6

**Q.49** Five persons, K, L, M, N and P, receive their salaries on five different dates of the same month, viz. 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup>. L receives salary on the date immediately after M. N receives salary on the date immediately before K. P receives salary on the date immediately after K. P receives salary on the 3<sup>rd</sup> of the month. On which date does M receive salary?

- Ans**
- ☐ A. 1<sup>st</sup>
  - ☐ B. 2<sup>nd</sup>
  - ☒ C. 4<sup>th</sup>
  - ☐ D. 5<sup>th</sup>

- Q.50** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/Symbol | & | 5 | 9 | # | 6 | % | 8 |
|---------------|---|---|---|---|---|---|---|
| Codes         | S | D | M | U | T | L | A |

Conditions:

- (i) If the first element is an even number and the last element is also an even number, the codes for these two (the first and the last elements) are to be interchanged.
- (ii) If the second element is an even number and the fifth element is a symbol, the codes for these two (the second and the fifth elements) are to be interchanged.
- (iii) If the fourth element is a symbol and the sixth element is also a symbol, both these elements (the fourth and the sixth elements) are to be coded as N.

Question: 8 5 & % 9 # 6 9

- Ans**
- ☒ A. AMSNDNTM
  - ☒ B. MDSNMNTA
  - ☒ C. ADSLMUTM
  - ☒ D. ADSNMNTM

- Q.51** A statement is given, followed by four conclusions given in the options. Find out which conclusion is true based on the given statement.

Statement:  $R > G > A > B = D = F > S$

- Ans**
- ☒ A.  $A > R$
  - ☒ B.  $A > F$
  - ☒ C.  $S > D$
  - ☒ D.  $F > R$

- Q.52** Eight friends, P, Q, R, S, T, U, V and W, are sitting around a square table facing the centre of the table. Four of them are sitting at the corners while the other four are sitting at the exact centre of the sides of the table. T is sitting at one of the corners. U is third to the right of T. S is to the immediate left of V. T is second to the right of V. Only U is between R and P. Only W is between T and R. Who is sitting to the immediate left of T?

- Ans**
- ☒ A. P
  - ☒ B. Q
  - ☒ C. W
  - ☒ D. R

**Q.53** Three statements are followed by four conclusions numbered I, II, III and IV. You have to consider these statements to be true, even if they seem at variance from commonly known facts. Decide which of the given conclusions logically follow/s from the given statement.

**Statements:**

1. No paint is fresco.
2. No fresco is lacquer.
3. Some paints are lacquers.

**Conclusions:**

- I. No lacquer is paint.
- II. No lacquer is fresco.
- III. Some frescos are paints.
- IV. All lacquers are paints.

**Ans** ☒ A. Only conclusions I and II follow  
☒ B. Only conclusion II follows.  
☒ C. Only conclusions I and IV follow  
☒ D. Only conclusion IV follows.

**Q.54** What will come in place of the question mark (?) in the following equation, if '+' is interchanged with '×', and '÷' is interchanged with '-'?

$$6 + 16 \times 4 \div 8 - 8 + 2 \times 7 = ?$$

**Ans** ☒ A. 0  
☒ B. 1  
☒ C. -1  
☒ D. 23

**Q.55** Which of the following options is the closest approximate value which will come in place of question mark (?) in the following equation?

$$11.998 \div 2.008 \times 3.991 + 14.9929 - 10.002 = ?$$

**Ans** ☒ A. 21  
☒ B. 24  
☒ C. 29  
☒ D. 34

#### Section : General Science

**Q.56** Which of the following is the common product produced during aerobic and anaerobic respiration initially in the first step?

**Ans** ☒ A. Lactic acid  
☒ B. Ethanol  
☒ C. Water  
☒ D. Pyruvate

**Q.57** The leaves of the \_\_\_\_\_ plant contain methanoic acid.

**Ans** ☒ A. orange  
☒ B. tamarind  
☒ C. tomato  
☒ D. nettle

**Q.58** Identify the INCORRECT relation between power (P), Current(I) , Resistance (R) and potential difference (V).

- Ans
- ☒ A.  $P = VI$
  - ☒ B.  $P = V^2/R$
  - ☒ C.  $P = IR^2$
  - ☒ D.  $P = I^2R$

**Q.59** In which direction does a freely suspended bar magnet point?

- Ans
- ☒ A. Geographical South- Geographical East
  - ☒ B. Geographical North- Geographical West
  - ☒ C. Geographical South- Geographical West
  - ☒ D. Geographical North- Geographical South

**Q.60** What is the distance between the pole and focus of a spherical mirror?

- Ans
- ☒ A. R
  - ☒ B.  $R/2$
  - ☒ C.  $2R$
  - ☒ D.  $R/4$

**Q.61** A convex lens forms a real and inverted image twice the size of the object. The magnification produced by the lens is equal to:

- Ans
- ☒ A.  $1/2$
  - ☒ B.  $-1/2$
  - ☒ C. 2
  - ☒ D. -2

**Q.62** The splitting up of white light into seven components as it enters a glass prism is called:

- Ans
- ☒ A. dispersion of light
  - ☒ B. reflection of light
  - ☒ C. refraction of light
  - ☒ D. scattering of light

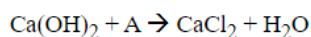
**Q.63** \_\_\_\_\_ are used to make bidis.

- Ans
- ☒ A. Tamarind leaves
  - ☒ B. Tendu leaves
  - ☒ C. Coconut leaves
  - ☒ D. Oak leaves

**Q.64** The normal systolic and diastolic pressure in humans is \_\_\_\_\_, respectively.

- Ans
- ☒ A. 140 and 90 mm of Hg
  - ☒ B. 120 and 80 mm of Hg
  - ☒ C. 100 and 60 mm of Hg
  - ☒ D. 150 and 75 mm of Hg

**Q.65** Which of the following reactants will come in place of A and give a neutralisation reaction?



**Ans** ✓ **A. Hydrochloric acid**

✗ **B. Sulphuric acid**

✗ **C. Acetic acid**

✗ **D. Nitric acid**

**Q.66** Bhupesh suffered crop failure for few years. When he got the pH of the soil examined, it was about 11.6. Which of the following compounds can he use to treat the soil of his agricultural field?

**Ans** ✗ **A.  $\text{Ca(OH)}_2$**

✗ **B. NaCl**

✓ **C.  $\text{Al}_2(\text{SO}_4)_3$**

✗ **D.  $\text{Zn(OH)}_2$**

**Q.67** Write a balanced chemical equation with state symbols for the following reaction.

Potassium hydroxide solution (in water) reacts with nitric acid solution (in water) to produce sodium nitrate solution and water.

**Ans** ✗ **A.  $2 \text{KOH} + 2 \text{HNO}_3 \rightarrow 2 \text{KNO}_3 + 2 \text{H}_2\text{O}$**

✗ **B.  $2 \text{KOH (aq)} + 2 \text{HNO}_3 \text{ (l)} \rightarrow 2 \text{KNO}_3 \text{ (aq)} + 2 \text{H}_2\text{O (aq)}$**

✗ **C.  $2 \text{KOH (l)} + 2 \text{HNO}_3 \text{ (l)} \rightarrow 2 \text{KNO}_3 \text{ (l)} + 2 \text{H}_2\text{O (l)}$**

✓ **D.  $2 \text{KOH (aq)} + 2 \text{HNO}_3 \text{ (aq)} \rightarrow 2 \text{KNO}_3 \text{ (aq)} + 2 \text{H}_2\text{O (l)}$**

**Q.68** Which of the following statements is/are true for a number of resistors connected in parallel combination?

(i) All the resistors are connected between two given points.

(ii) The equivalent resistance of the circuit is more than the individual resistance.

(iii) The potential difference across each resistor is same.

**Ans** ✗ **A. Only (i)**

✗ **B. Only (iii)**

✓ **C. Both (i) and (iii)**

✗ **D. Both (i) and (ii)**

**Q.69** Three bulbs A, B and C rated 40 W, 60 W and 100 W, respectively, are connected in parallel to a voltage source of 220 V. The bulb that glows with maximum brightness is:

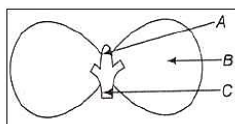
**Ans** ✗ **A. bulb A**

✗ **B. bulb B**

✓ **C. bulb C**

✗ **D. all bulbs will glow with equal brightness**

**Q.70** Study the diagram of a dicot seed given below. Select the correct option regarding the functions of the parts labelled A, B and C



- Ans**
- ☒ A. A - Future root, B - Stores food, C - Future shoot
  - ☒ B. A - Future shoot, B - Future root, C - Stores food
  - ☒ C. A - Future shoot, B - Stores food, C - Future root
  - ☒ D. A - Stores food, B - Stores food, C - Future root

**Q.71**  $\text{HNO}_3 (\text{aq}) + \text{KOH} (\text{aq}) \rightarrow \text{KNO}_3 (\text{aq}) + \text{H}_2\text{O} (\text{l})$

The above reaction is an example of:

- Ans**
- ☒ A. decomposition reaction
  - ☒ B. neutralisation reaction
  - ☒ C. redox reaction
  - ☒ D. combination reaction

**Q.72** Which of the following statements is/are true for a current carrying straight conductor?

- (i) The magnetic field lines are concentric circles with conductor at the centre.
- (ii) The strength of the magnetic field increases as we move away from the conductor.
- (iii) The direction of magnetic field can be determined using right hand thumb rule.

- Ans**
- ☒ A. Only (i)
  - ☒ B. Only (ii)
  - ☒ C. Both (i) and (ii)
  - ☒ D. Both (i) and (iii)

**Q.73** Consider the below statements and identify the correct answer.

Statement I: Carbon has the unique ability to form bonds with other atoms of carbon, giving rise to large molecules.

Statement II: This property is called catenation.

- Ans**
- ☒ A. Statement I is correct, and Statement II is incorrect.
  - ☒ B. Statement II is correct, and Statement I is incorrect.
  - ☒ C. Both the statements are correct.
  - ☒ D. Both the statements are incorrect.

**Q.74** Which tissue in the coconut husk makes it hard and stiff?

- Ans**
- ☒ A. Sclerenchyma
  - ☒ B. Parenchyma
  - ☒ C. Collenchyma
  - ☒ D. Guard cells



**Q.75** At present, \_\_\_\_\_ elements are known, of which \_\_\_\_\_ are naturally occurring elements.

- Ans**
- ☐ A. 114, 92
  - ☐ B. 118, 92
  - ☐ C. 114, 94
  - ☒ D. 118, 94

**Q.76** Which of the following is a naturally occurring source of air pollution?

- Ans**
- ☐ A. Power plants
  - ☒ B. Volcanic eruptions
  - ☐ C. Burning firewood
  - ☐ D. Automobile exhausts

**Q.77** Which of the following organisms has a longer small intestine?

- Ans**
- ☐ A. Human
  - ☐ B. Tiger
  - ☒ C. Cow
  - ☐ D. Lion

**Q.78** Which of the following is an example of a virus?

- Ans**
- ☐ A. Elephantiasis
  - ☐ B. Anthrax
  - ☒ C. HIV
  - ☐ D. AIDS

**Q.79** The magnification produced by a lens is  $1/2$ . The nature and the relative size of the image formed by the lens in the respective order is:

- Ans**
- ☐ A. real, inverted and diminished
  - ☐ B. real, inverted and enlarged
  - ☒ C. virtual, erect and diminished
  - ☐ D. virtual, erect and enlarged

**Q.80** Consider the below statements and identify the correct answer.

Statement I: Law of Octaves was applicable only up to calcium.

Statement II: After calcium, every eighth element did not possess properties similar to that of the first.

- Ans**
- ☒ A. Both statements are correct. Statement II is correct explanation of Statement I.
  - ☐ B. Both Statements are correct. Statement I is correct explanation of Statement II.
  - ☐ C. Only Statement I is correct.
  - ☐ D. Only Statement II is correct.

Section : General Awareness and Current Affairs

**Q.81**

Who bagged the women's singles title at Syed Modi International Badminton Tournament, 2022?

**Ans**

- ✓ A. PV Sindhu
- ✗ B. Saina Nehwal
- ✗ C. Jwala Gutta
- ✗ D. Ameeta Singh

**Q.82**

In February 2022, where was India's first Biosafety Level-3 Mobile Laboratory inaugurated?

**Ans**

- ✗ A. Gujarat
- ✓ B. Maharashtra
- ✗ C. Rajasthan
- ✗ D. Jharkhand

**Q.83**

With which of the following has the Government of India signed a 115 million dollar Rejuvenating Watersheds for Agricultural Resilience through Innovative Development (REWARD) Programme?

**Ans**

- ✗ A. UNDP
- ✗ B. World Health Organization
- ✓ C. World Bank
- ✗ D. Reserve Bank of India

Q.84

The Easter basket is related to which of the following religions?

Ans

☒ A. Hinduism

☒ B. Islam

☒ C. Sikhism

☒ D. Christianity

Q.85

On 20 January 2022, which court of India in Neil Aurelio Nunes and Ors vs. Union of India and Ors, upheld the constitutional validity of 27 per cent reservation for the Other Backward Classes (OBCs) in the All India Quota (AIQ) for undergraduate and postgraduate medical and dental courses?

Ans

☒ A. Madras High Court

☒ B. Karnataka High Court

☒ C. Supreme Court

☒ D. Bombay High Court

Q.86

What is the ranking of India in wind power as on March 2021?

Ans

☒ A. 8<sup>th</sup>

☒ B. 7<sup>th</sup>

☒ C. 10<sup>th</sup>

☒ D. 4<sup>th</sup>

Q.87

Where is the National War Memorial located?

Ans

☒ A. Mumbai

☒ B. Kolkata

☒ C. Delhi

☒ D. Agra

**Q.88** How many physical regions are there in India?

- Ans**
- ☐ A. 3
  - ☐ B. 5
  - ☒ C. 6
  - ☐ D. 8

**Q.89** The first Municipal Corporation was set up during the British era in the former Presidency Town of \_\_\_\_\_ in 1688.

- Ans**
- ☒ A. Madras
  - ☐ B. Bombay
  - ☐ C. Calcutta
  - ☐ D. Nagpur

**Q.90** Which of following is NOT a part of the Dravidian language family's four largest languages?

- Ans**
- ☐ A. Kannada
  - ☐ B. Tamil
  - ☒ C. Sanskrit
  - ☐ D. Malayalam

**Q.91** In October 2021, which portal was been launched by the Ministry of Social Justice and Empowerment to provide a platform for senior citizens in India seeking employment opportunities?

- Ans**
- ☐ A. SAMADHAN
  - ☒ B. SACRED
  - ☐ C. SANCHAY
  - ☐ D. SANNIDHI

**Q.92** The Indian Constitution includes borrowed features from how many countries?

- Ans**
- ☐ A. 13
  - ☐ B. 07
  - ☒ C. 10
  - ☐ D. 06

Q.93

Who was the Chairman of Union Carbide during The Bhopal Gas Tragedy in Bhopal?

Ans

✓ A. Warren Anderson

✗ B. J R Shah

✗ C. Michal Bellay

✗ D. John Ervin

Q.94

The Aitareya Upanishad belongs to fourth, fifth and sixth chapters of the second book of Aitareya Aranyaka of the \_\_\_\_\_ and considered as the oldest Upanishads.

Ans

✗ A. Yajur Veda

✓ B. Rig Veda

✗ C. Atharva Veda

✗ D. Sama Veda

Q.95

In February 2022, Patanjali launched a co-branded contactless credit card with which bank?

Ans

✗ A. State Bank of India

✓ B. Punjab National Bank

✗ C. Axis Bank

✗ D. HDFC Bank

Q.96

Which of the following features is correct regarding the federal system of the Indian Constitution?

Ans

✓ A. Dual government

✗ B. Dual citizenship

✗ C. Equal representation of all states in the lower house of parliament

✗ D. Equal representation of all states in the upper house of parliament

Q.97

Which one of the following river marks the eastern-most boundary of the Himalayas?

Ans

✓ A. Brahmaputra

✗ B. Ganga

✗ C. Godavari

✗ D. Chambal

**Q.98** In the year 2021, Neeraj Chopra won India's first ever gold medal in athletics at the \_\_\_\_\_ Olympics.

- Ans**
- ☐ A. Sydney
  - ☐ B. London
  - ☒ C. Tokyo
  - ☐ D. Beijing

**Q.99** In December 2021, who launched India's Semiconductor Mission, which aims to manufacture a vibrant semiconductor and display ecosystem to enable India's emergence as a global hub for electronics manufacturing and design?

- Ans**
- ☐ A. Rajeew Chandrasekhar
  - ☐ B. Rajendra Kumar
  - ☒ C. Ashwini Vaishnaw
  - ☐ D. Anand Deshpande

**Q.100** In February 2022, who was appointed as Chairman of the Insolvency and Bankruptcy Board of India?

- Ans**
- ☐ A. Shashank Saksena
  - ☒ B. Ravi Mittal
  - ☐ C. Anuradha Guru
  - ☐ D. Krishnamurthy Subramanian



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 23/08/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** Madhu and Shiney together can complete a piece of work in 20 days, Shiney and Rosy together can complete the same work in 12 days, and Rosy and Madhu together can complete the work in 15 days. In how many days will three of them complete it together?

- Ans**
- ☒ A. 5 days
  - ☒ B. 10 days
  - ☐ C. 12 days
  - ☐ D. 15 days

**Q.2** In a parallelogram two adjacent sides are in the ratio 3 : 2 and the perimeter is 65 cm. The length of each of the two shorter sides of this parallelogram is:

- Ans**
- ☐ A. 18 cm
  - ☐ B. 19 cm
  - ☒ C. 13 cm
  - ☐ D. 21 cm

**Q.3**  $16x^2 - 8x + 1 = 0$ , then what is the value of  $(16x^2 + \frac{1}{4x^2})$ ?

- Ans**
- ☐ A. 4
  - ☒ B. 5
  - ☐ C. 6
  - ☐ D. 7

**Q.4** Find the selling price of an article (in ₹) if the cost price is ₹4,500 and gain is 5%.

- Ans**
- ☒ A. 4,725
  - ☐ B. 4,675
  - ☐ C. 4,527
  - ☐ D. 4,657

Q.5 Select the correct option with respect to the following.

Two triangles are similar if:

- a) Any two of their sides are equal
- b) their corresponding sides are proportional
- c) Any two of their angles are equal
- d) their corresponding angles are equal

Ans ☒ A. both a and b  
☒ B. both b and c  
☒ C. both a and d  
☒ D. both b and d

Q.6 If  $2^{3k-5} = 4096$ , then the value of k is:

Ans ☒ A. 7  
☒ B.  $\frac{17}{3}$   
☒ C.  $\frac{16}{3}$   
☒ D. 11

Q.7 Find the arithmetic mean of 5, 15, 23, 26, and 29.

Ans ☒ A. 20.6  
☒ B. 19.6  
☒ C. 18.6  
☒ D. 17.6

Q.8 If  $a + b + c = 6$  and  $ab + bc + ca = -2$ , then find the value of  $a^3 + b^3 + c^3 - 3abc$ .

Ans ☒ A. 240  
☒ B. 200  
☒ C. 252  
☒ D. 192

Q.9 If  $x + \frac{1}{x} = 4$ , then  $x^2 + \frac{1}{x^2} =$

Ans ☒ A. 18  
☒ B. 16  
☒ C. 14  
☒ D. 12



**Q.10** A tank is filled in 4 hours by three pipes A, B and C. Pipe C is twice as fast as pipe B and pipe B is twice as fast as pipe A. How much time will pipe A take to fill the tank?

- Ans**
- ☒ A. 20 hours
  - ☒ B. 25 hours
  - ☒ C. 26 hours
  - ☒ D. 28 hours

**Q.11** Find the roots of the equation  $x^2 + 11x - 26 = 0$ .

- Ans**
- ☒ A. 11 and 2
  - ☒ B. -2 and 11
  - ☒ C. -13 and 2
  - ☒ D. 13 and -2

**Q.12** If  $18 : 30 :: 30 : x$ , then find the value of x.

- Ans**
- ☒ A. 50
  - ☒ B. 40
  - ☒ C. 35
  - ☒ D. 45

**Q.13** Which of the following is a quadratic equation?

- A.  $x(x - 4) = 2x + x^2 - 7$
- B.  $5(2y + 3) - 6y = 5y(y^2 - 8y)$
- C.  $k(k + 1) - k(k - 2) 2k = 0$
- D.  $p(p^2 + 7) = p^2 + p^3 - 18$

- Ans**
- ☒ A. Only A
  - ☒ B. Only B
  - ☒ C. Only C
  - ☒ D. Only D

**Q.14** What is the least number added to 2488 so that it is completely divisible by 3,4,5 and 6?

- Ans**
- ☒ A. 42
  - ☒ B. 28
  - ☒ C. 34
  - ☒ D. 32

**Q.15** Simplify  $4\frac{7}{9} \times 7\frac{8}{9} \times 81 + 2\frac{3}{4}$ .

- Ans**
- ☒ A. 3055.25
  - ☒ B. 3053.25
  - ☒ C. 3053.75
  - ☒ D. 3055.75

**Q.16** Rajiv's salary was first decreased by 40% and subsequently increased by 50%. How much percent did he lose from his initial salary?

- Ans**
- ✓ A. 10%
  - ✗ B. 15%
  - ✗ C. 12%
  - ✗ D. 14%

**Q.17** Evaluate.  $\left(\frac{-2}{5}\right)^{-2} \times \left(\frac{-4}{5}\right)^4$

- Ans**
- ✓ A.  $\frac{64}{25}$
  - ✗ B.  $\frac{25}{64}$
  - ✗ C.  $\frac{25}{26}$
  - ✗ D.  $\frac{26}{25}$

**Q.18** Find the length of the side of an equilateral triangle, if its area is  $4\sqrt{3}$  sq. unit.

- Ans**
- ✗ A.  $\sqrt{3}$  unit
  - ✗ B. 16 unit
  - ✗ C. 2 unit
  - ✓ D. 4 unit

**Q.19** The value of the product

$\sin 90^\circ \cdot \sin 89^\circ \cdot \sin 88^\circ \cdot \sin 87^\circ \dots \sin 0^\circ$  is:

- Ans**
- ✗ A. 1
  - ✗ B.  $\pi$
  - ✗ C.  $\frac{\pi}{2}$
  - ✓ D. 0

**Q.20** The odometer of a car reads 12,000 km at the start of a trip and 12,800 km at its end. If the trip took 4 hours, then the average speed of car in m/sec is:

- Ans**
- ✗ A.  $\frac{430}{8}$  m/sec
  - ✗ B.  $\frac{188}{9}$  m/sec
  - ✗ C.  $\frac{270}{8}$  m/sec
  - ✓ D.  $\frac{500}{9}$  m/sec

**Q.21** A sum of money amounts to ₹13,380 after 3 years and to ₹20,070 after 6 years at compound interest compounded annually. Find the sum.

- Ans** ☒ A. ₹8,920  
☐ B. ₹7,020  
☐ C. ₹8,505  
☐ D. ₹7,007

**Q.22** A shopkeeper sells 35 kg sugar for every 40 kg using false weights. How much percentage profit does he make if sells sugar at cost price (rounded off to two places of decimal)?

- Ans** ☐ A. 17.66%  
☐ B. 15.33%  
☒ C. 14.28%  
☐ D. 12.50%

**Q.23** A cuboidal room is of length 15 m, breadth 17 m, and height 21 m. Find the cost of painting its walls and ceiling at the rate of ₹40/m<sup>2</sup>.

- Ans** ☐ A. ₹44,250  
☐ B. ₹85,126  
☐ C. ₹58,912  
☒ D. ₹63,960

**Q.24** What is the greatest number, by which when 8954, 9806 and 11297 are divided, the remainder in each case is the same?

- Ans** ☐ A. 230  
☐ B. 222  
☐ C. 125  
☒ D. 213

**Q.25** Simplify:  $x^2 + 5x - 12 - 3(x^2 - 2x + 9)$ .

- Ans** ☒ A.  $-2x^2 + 11x - 39$   
☐ B.  $2x^2 + 11x - 39$   
☐ C.  $-2x^2 + 11x + 39$   
☐ D.  $2x^2 - 11x - 39$

#### Section : General Intelligence and Reasoning

**Q.26** A statement is given, followed by four conclusions given in the options. Find out which conclusion is true based on the given statement.

Statement:  $X < Z = T > V > P < Y = O$

- Ans** ☐ A.  $T < X$   
☐ B.  $T > Y$   
☒ C.  $O > P$   
☐ D.  $V > Y$

**Q.27** Given below are three statements and three conclusions. Take the statements to be true even if they are at variance with commonly known facts, and decide whether the conclusion/s follow/s the given statements.

Statements:

- I. Some lions are cats.
- II. All cats are animals.
- III. Some animals are not lions.

Conclusions:

- I. Some animals are lions.
- II. All lions are animals.
- III. No animal is a lion.

- Ans**
- ☒ A. Only conclusion I follows
  - ☐ B. Conclusions II and III follow
  - ☐ C. Only conclusion III follows
  - ☐ D. None of the conclusions follow

**Q.28** G, H, I, J, K and L are the initials of six girls who were sitting around a circular table, discussing the venue of their picnic. They were all facing the table's centre. L was not immediately next to either G or H. I was second to the left of K. There were exactly two girls between J and G. I was to the immediate left of G. K was to the immediate left of H. Who was to the immediate right of L?

- Ans**
- ☐ A. J
  - ☐ B. K
  - ☒ C. I
  - ☐ D. G

**Q.29** Five houses, P, Q, R, S and T, are located in the same colony. T is 40 m to the east of Q. P is 30 m to the south of Q. R is 40 m to the west of Q. Q is 35 m to the south of S. In which direction is R with reference to T?

- Ans**
- ☐ A. East
  - ☒ B. West
  - ☐ C. North
  - ☐ D. South

**Q.30** In a class of 17 students, each scored differently. A's rank from the top is 9<sup>th</sup>, while B's rank from the bottom is 11<sup>th</sup>. C's rank from the top is better than A but worse than B. What is C's rank from the top?

- Ans**
- ☐ A. 7<sup>th</sup>
  - ☒ B. 8<sup>th</sup>
  - ☐ C. 9<sup>th</sup>
  - ☐ D. 6<sup>th</sup>

**Q.31** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

15 : 180 :: 17 : 204 :: 21 : ?

- Ans**
- ☐ A. 232
  - ☐ B. 240
  - ☐ C. 248
  - ☒ D. 252

**Q.32** Which of the following numbers will replace the question mark (?) in the given series?

12, 14, 31, 97, 393, ?

**Ans** ☒ A. 1972

☒ B. 1965

☒ C. 1971

☒ D. 1970

**Q.33** In a certain code language, 'FEELING' is written as 'VVUOTMR' and 'HEAVILY' is written as 'ZVSEBOR'. How will 'FORTUNE' be written in that language?

**Ans** ☒ A. ULIGFMV

☒ B. ILGUVMF

☒ C. ILUGVMF

☒ D. ILUGFMV

**Q.34** Among six girls, Natasha, Yuvika, Aditi, Tanya, Shahnaz and Daljeet, each one has a different height. Tanya is the shortest among all. Aditi is taller than only Natasha and one another girl. Shahnaz is shorter than Daljeet, who is shorter than Yuvika. Who is the third tallest among all six girls?

**Ans** ☒ A. Yuvika

☒ B. Daljeet

☒ C. Shahnaz

☒ D. Aditi

**Q.35** Study the given number, symbol series and answer the question that follows.

# 9 1 @ 4 \* 7 ^ 5 3 # 9 1 < 5 4 @ 3 S # 2 \* 6 ! 4 2 & 9 < 3 6

How many such numbers are there which are immediately preceded by a symbol and immediately followed by an even number?

**Ans** ☒ A. 4

☒ B. 3

☒ C. 6

☒ D. 5

**Q.36** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the condition is your answer.

| Number/Symbol | = | \$ | 6 | 8 | < | ? | / | 2 | 5 | ! | @ | 7 | 3 | ^ |
|---------------|---|----|---|---|---|---|---|---|---|---|---|---|---|---|
| Code          | G | L  | F | M | E | N | D | P | C | R | T | B | V | A |

Conditions:

(i) If the first element is a symbol and the last, a number, then the first and last elements are to be coded as © and ¥, respectively.

(ii) If the first element is an odd number and the last, an even number, the codes for these two are to be interchanged.

(iii) If both second and third elements are perfect squares, the third element is to be coded as the code for the second element.

How will '5 < = 2 @ 6' be coded?

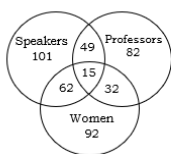
**Ans** ☒ A. CEGPTF

☒ B. FEGPTC

☒ C. FNGPTC

☒ D. BELDTC

- Q.37** Study the diagram and answer the questions that follow. The numbers in different sections indicate the number of persons. How many women are speakers and NOT professors and how many professors are speakers and NOT women?



- Ans**
- ☒ A. 47 and 49, respectively
  - ☒ B. 62 and 49, respectively
  - ☒ C. 62 and 32, respectively
  - ☒ D. 77 and 49, respectively

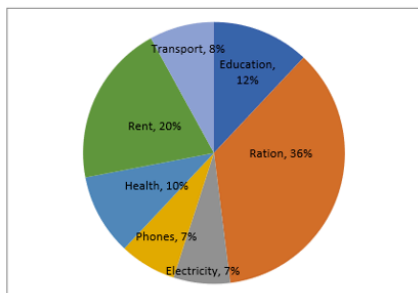
- Q.38** Which of the following terms will replace the question mark (?) in the given series to make it logically complete ?  
8G, 14C, 20Y, 26U, ?

- Ans**
- ☒ A. 30R
  - ☒ B. 30Q
  - ☒ C. 32P
  - ☒ D. 32Q

- Q.39** Four friends W, X, Y and Z are sitting at the corners of a square table facing towards the centre. W and Z are not at the opposite corners, but W is to the immediate right of Y. Who among the following is sitting opposite to X?

- Ans**
- ☒ A. W
  - ☒ B. X
  - ☒ C. Y
  - ☒ D. Z

- Q.40** The following chart shows the expenditure of a house on various heads. The total expenditure of the house is ₹85,200. Study the chart and answer the question.



How much more amount is spent on ration than on rent?

- Ans**
- ☒ A. ₹14,332
  - ☒ B. ₹13,512
  - ☒ C. ₹13,632
  - ☒ D. ₹13,852

- Q.41** The position of how many letters will remain unchanged if each of the letters in the word QUALITY is arranged in alphabetical order?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.42** The following question is based on the given seven, 3-digit numbers.

(Left) 347, 486, 627, 113, 721, 418, 779 (Right)

(For example, 456: 6 = digit in unit's place, 5 = digit in ten's place, 4 = digit in hundred's place)

NOTE - All operations to be done from left to right.

If 2 is added to the digit in hundred's place of each number given above, in how many numbers will be the modified digit in hundred's place be exactly divisible by the digit appearing in the ten's place?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.43** Three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

All gifts are letters.

All letters are chats.

All words are gifts.

**Conclusions:**

I. Some chats are words.

II. All gifts are chats.

III. Some words are not letters.

- Ans**
- ☒ A. Only conclusions I and III follow
  - ☒ B. Only conclusion II follows
  - ☒ C. Only conclusions I and II follow
  - ☒ D. All the conclusions, I, II and III, follow

**Q.44** How many times in 48 hours are the hour and the minute hands of a correct clock in a straight line but opposite directions?

- Ans**
- ☒ A. 102
  - ☒ B. 94
  - ☒ C. 76
  - ☒ D. 88

**Q.45** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

KDRB : PWTY

UNCG : FMTX

- Ans**
- ☒ A. TNDK : GMRP
  - ☒ B. DHEL : WSVO
  - ☒ C. VQCX : EPXZ
  - ☒ D. FTZN : UGVW

**Q.46** Each of the digits in the number 34135278 is arranged in ascending order from left to right. The position of how many digits will remain unchanged as compared to that in the original number?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.47** Kalpit is standing in a park facing the south direction. Then, he takes two consecutive clockwise turns of  $45^\circ$  each. Then, he takes a third turn of some degrees after which he is now facing the south-east direction. Of how many degrees and in which direction did he take the third turn?

- Ans**
- ☒ A.  $90^\circ$ , anticlockwise
  - ☒ B.  $90^\circ$ , clockwise
  - ☒ C.  $135^\circ$ , anticlockwise
  - ☒ D.  $135^\circ$ , clockwise

**Q.48** The following table shows the number of sofa sets sold by four salespersons in three different months. Study the table and answer the question.

| Salespersons | May | June | July |
|--------------|-----|------|------|
| Vishal       | 125 | 110  | 95   |
| Arunima      | 140 | 92   | 75   |
| Kartik       | 188 | 114  | 80   |
| Mitali       | 125 | 120  | 210  |

What is the percentage contribution of Vishal's May sale in the total sale of May?

- Ans**
- ☒ A. 18.5%
  - ☒ B. 21.6%
  - ☒ C. 23.4%
  - ☒ D. 25.6%

**Q.49** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.  
 $4 : 8 :: 8 : 32 :: 12 : ?$

- Ans**
- ☒ A. 24
  - ☒ B. 72
  - ☒ C. 36
  - ☒ D. 144

**Q.50** Which of the following options is the closest approximate value which will come in place of question mark (?) in the following equation?

$$12.999 - 3.998 + 14.002 \times 3.998 + 27.008 \div 3.001 + 35.999 \div 5.998 = ?$$

- Ans**
- ☒ A. 68
  - ☒ B. 72
  - ☒ C. 80
  - ☒ D. 89

**Q.51** If '+' means '-', '-' means '+', 'x' means 'x' and '÷' means '+', what will come in place of the question mark (?) in the following equation?

$$64 \div 32 - 8 \times 11 \div 3 = ?$$

- Ans**
- ☒ A. 90
  - ☒ B. 93
  - ☒ C. 39
  - ☒ D. 35



- Q.52** Six persons, L, M, N, O, P and Q, have cooking classes in different months of the same year, viz. February, March, June, August, September and December.
- P has the class immediately before Q. Only M has the class before O. L has the class immediately after N and before Q. Which of the following is correct?

**Ans**  **A.** M has the class in March.

 **B.** L has the class in June.

 **C.** Q has the class in February.

 **D.** P has the class in September.

- Q.53** Read the given statement and conclusions carefully. Assuming that the information given in the statements is true, decide which of the given conclusions logically follow(s) from the statement.

**Statement:**

Onion prices have skyrocketed due to shortage of onions and largescale hoarding by a few traders.

**Conclusions:**

- I. The government must crackdown on the hoarders and impose stringent penalties on hoarders.
- II. People must stop eating onions and switch to potatoes instead.

**Ans**  **A.** Only conclusion I follows

 **B.** Only conclusion II follows

 **C.** Neither conclusion I nor II follows

 **D.** Both conclusions I and II follow

- Q.54** Six boxes, A, B, C, D, E and F, are kept one over the other but not necessarily in the same order. Only one box is kept between B and D. Only two boxes are kept between B and E. E is kept just above A. F is kept just above B. Box A is not kept in the bottom most position. Which box is kept at the top?

**Ans**  **A.** E

 **B.** C

 **C.** D

 **D.** B

- Q.55** Which of the following numbers will replace the question mark (?) in the given series?

8, 18, 38, 78, 158, ?

**Ans**  **A.** 224

 **B.** 306

 **C.** 318

 **D.** 324

#### Section : General Science

- Q.56** An electric heater rated 1000 W is used for 5 hours daily. For cost per unit of ₹6.00, calculate the total cost for running the device for the month of September (in ₹).

**Ans**  **A.** 900

 **B.** 500

 **C.** 180

 **D.** 150

**Q.57** The component of white light that has maximum refractive index is:

- Ans**
- ☒ A. violet
  - ☐ B. red
  - ☐ C. yellow
  - ☐ D. green

**Q.58** What changes take place in the guard cells that cause the opening of stomata?

- Ans**
- ☐ A. Water enters the guard cells and they shrink
  - ☐ B. Water comes out of the guard cells and they shrink
  - ☒ C. Water enters the guard cells and they swell
  - ☐ D. Water comes out of the guard cells and they swell

**Q.59** The sign of the magnification produced by a concave mirror is:

- Ans**
- ☐ A. always positive
  - ☐ B. always negative
  - ☐ C. positive when the image is real and negative when the image is virtual
  - ☒ D. positive when the image is virtual and negative when the image is real

**Q.60** During neutralisation reaction  $H^+$  ion comes from \_\_\_\_\_ and  $OH^-$  ion comes from \_\_\_\_\_, respectively, to form a water molecule.

- Ans**
- ☐ A. acid; salts
  - ☐ B. salts; base
  - ☐ C. base; acid
  - ☒ D. acid; base

**Q.61** \_\_\_\_\_ determines the sex of fertilised eggs in a few reptiles.

- Ans**
- ☐ A. Autosome
  - ☐ B. Allosome
  - ☐ C. Moisture
  - ☒ D. Temperature

**Q.62** Consider the below statements and identify the correct answer.

Statement-I: Sodium hydroxide is prepared by chlor-alkali process.

Statement-II: Sodium hydroxide is used for making artificial textile fibres (such as rayon).

- Ans**
- ☒ A. Both the statements are true.
  - ☐ B. Both the statements are false.
  - ☐ C. Statement-I is true, and Statement-II is false.
  - ☐ D. Statement-II is true, and Statement-I is false.

Q.63 Forests can be conserved by which of the following factors?

- a) Regulated and planned cutting of trees
- b) Control over forest fire
- c) Construction of roads in the forest
- d) Monoculture planting
- e) Promotion of afforestation and reforestation
- f) Proper utilisation of forest and forests products
- g) Clearing land for cattle grazing

Ans ☒ A. a, c, d and e  
☒ B. b, c, e and g  
☒ C. d, e, f and g  
☒ D. a, b, e and f

Q.64 What part of the plant is used to store waste material?

Ans ☒ A. Nucleus  
☒ B. Plastids  
☒ C. Vacuoles  
☒ D. Lysosomes

Q.65 The term (aq) written after the symbol/formula of a substance in a chemical equation indicates that it is present in:

Ans ☒ A. solid state  
☒ B. gaseous state  
☒ C. a solution in water  
☒ D. liquid state

Q.66 Which of the following is an example of a thermal decomposition reaction?

Ans ☒ A.  $\text{ZnCO}_3 \rightarrow \text{ZnO} + \text{CO}_2$   
☒ B.  $2\text{AgCl} \rightarrow 2\text{Ag} + \text{Cl}_2$   
☒ C.  $2\text{H}_2\text{O} \rightarrow 2\text{H}_2 + \text{O}_2$   
☒ D.  $2\text{NaCl (molten)} \rightarrow 2\text{Na} + \text{Cl}_2$

Q.67 What was the main aim of the agreement made by UNEP in 1987?

Ans ☒ A. To stop emission of greenhouse gases  
☒ B. To freeze the production of CFCs at 1986 level  
☒ C. To use more CFCs in fire extinguishers  
☒ D. To stop water pollution

**Q.68** Seema squeezed a lemon and collected the juice in a glass. She realised that its sourness reduced when she added some water to it. What is the effect of addition of water on the concentration of hydroxide ions?

- Ans**
- ✓ **A. It increases**
  - ✗ **B. It reduces**
  - ✗ **C. It remains constant**
  - ✗ **D. It first increases and then decreases**

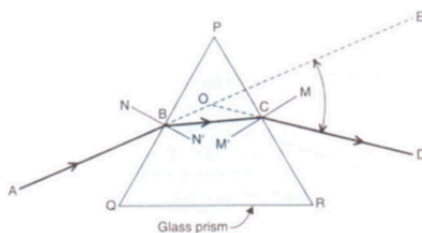
**Q.69** Which part of the human brain controls the involuntary action of vomiting?

- Ans**
- ✗ **A. Midbrain**
  - ✗ **B. Forebrain**
  - ✓ **C. Hindbrain**
  - ✗ **D. Spinal cord**

**Q.70** What branch of biology focuses on the study of inheritance patterns?

- Ans**
- ✓ **A. Genetics**
  - ✗ **B. Biotechnology**
  - ✗ **C. Anthropology**
  - ✗ **D. Evolution biology**

**Q.71** The figure below shows refraction of a ray of light AB through a triangular glass prism. Here,  $\angle EOD$  represents:



- Ans**
- ✗ **A. angle of incidence**
  - ✗ **B. angle of refraction**
  - ✗ **C. angle of emergence**
  - ✓ **D. angle of deviation**

**Q.72** The phenomenon due to which the relative motion between a conductor and a magnet produces a potential difference across the conductor is called:

- Ans**
- ✓ **A. electromagnetic induction**
  - ✗ **B. electromagnetism**
  - ✗ **C. electrostatic force**
  - ✗ **D. electromagnetic force**

**Q.73** Which of the following devices is based on the principle of electromagnetic induction?

- Ans**
- ✗ **A. Electric fan**
  - ✗ **B. Electric motor**
  - ✓ **C. Electric generator**
  - ✗ **D. Electric bulb**

**Q.74** Which of the following statements is/are correct?

(A) Resistance is independent of temperature.

(B) The more the voltage across a conductor, the more is the resistance.

(C) The S.I unit of resistance is ohm.

**Ans** ☒ A. Only A

☒ B. Only C

☒ C. Both A and B

☒ D. Both A and C

**Q.75** A  $2\ \Omega$  resistance is connected to a  $4\ \Omega$  resistance in series. Their equivalent resistance will be:

**Ans** ☒ A.  $6\ \Omega$

☒ B.  $3/4\ \Omega$

☒ C.  $4/3\ \Omega$

☒ D.  $1\ \Omega$

**Q.76** The elements which have 2 electrons in their outermost cell are generally:

**Ans** ☒ A. metals

☒ B. non-metals

☒ C. metalloids

☒ D. noble gases

**Q.77** There are four different elements along with their atomic numbers: A (9), B (11), C (19) and D (37). Find the odd element from these with respect to their positions in the periodic table?

**Ans** ☒ A. A

☒ B. B

☒ C. C

☒ D. D

**Q.78** Consider the below statements and identify the correct answer.

Statement I: Series of compounds in which the same functional group substitutes for hydrogen in a carbon chain is called a homologous series

Statement II: As the molecular mass increases in any homologous series, a gradation in physical properties is seen.

**Ans** ☒ A. Statement I is correct, and Statement II is incorrect.

☒ B. Statement II is correct, and Statement I is incorrect.

☒ C. Both the statements are correct.

☒ D. Both the statements are incorrect.

**Q.79** Which of the following blood components aid in the formation of clots?

**Ans** ☒ A. Red blood cells

☒ B. White blood cells

☒ C. Platelets

☒ D. Plasma proteins

**Q.80** A boy standing in front of a magic mirror combination finds his head enlarged, body of same size and legs smaller in size. The mirrors used in the top, middle and bottom of the magic mirror arrangement in the respective order are:

- Ans**
- ✓ A. concave, plane, convex
  - ✗ B. convex, plane, concave
  - ✗ C. concave, convex, plane
  - ✗ D. convex, concave, plane

Section : General Awareness and Current Affairs

**Q.81**

What was the profession of freedom fighter Deshbandhu Chittaranjan Das?

- Ans**
- ✗ A. Doctor
  - ✗ B. Teacher
  - ✓ C. Lawyer
  - ✗ D. Painter

**Q.82** Who among the following won the final of the men's singles at the India Open 2022?

- Ans**
- ✗ A. Kidambi Srikanth
  - ✓ B. Lakshya Sen
  - ✗ C. Chirag Shetty
  - ✗ D. Satwiksairaj Rankireddy

**Q.83** Who has won his eighth title at the 19th Asian 100 UP Billiards Championship, 2022?

- Ans**
- ✗ A. Dhruv Sitwala
  - ✓ B. Pankaj Advani
  - ✗ C. Geet Sethi
  - ✗ D. Aditya Mehta

**Q.84** Which of the following harvest festivals is mainly celebrated in South India?

- Ans**
- ✗ A. Maghi
  - ✗ B. Bihu
  - ✗ C. Uttarayan
  - ✓ D. Onam

**Q.85** Name the app released by the Indian Army for an in-house messaging application for the military sector.

- Ans**
- ✓ A. ASIGMA
  - ✗ B. SAI
  - ✗ C. DGNCC
  - ✗ D. MY IAF

Q.86

Who built the Jal Mandir related to Jainism?

Ans

✓ A. King Nandivardhan

✗ B. King Asoka

✗ C. Parshvanatha

✗ D. Rishabhadeva

Q.87 The economic reforms were initiated by Narasimha Rao government in:

Ans

✗ A. the 5<sup>th</sup> five-year plan

✗ B. the 7<sup>th</sup> five-year plan

✗ C. the 9<sup>th</sup> five-year plan

✓ D. the 8<sup>th</sup> five-year plan

Q.88 "Dare2eraD TB" by the Department of Biotechnology, Ministry of Science & Technology, was launched on the occasion of World TB Day by who among the following?

Ans

✓ A. Dr. Jitendra Singh

✗ B. Dr. VK Paul

✗ C. Dr. Mansukh Mandaviya

✗ D. Dr. Bharati Pravin Pawar

Q.89 Koraput, Rayagada, Kalahandi, Balangir districts of Odisha are famous for which mining mineral?

Ans

✗ A. Copper

✓ B. Bauxite

✗ C. Mica

✗ D. Limestone

Q.90 Which Article of the Indian Constitution specifically mentions, "The official language of the Union shall be Hindi in Devanagari script?"

Ans

✗ A. Article 80

✗ B. Article 51A

✓ C. Article 343(1)

✗ D. Article 395

Q.91 As per Article 80 of the Constitution of India, \_\_\_\_\_ is the maximum strength of Rajya Sabha in India.

Ans

✗ A. 122

✓ B. 250

✗ C. 475

✗ D. 542



**Q.92** Which of the following says, "The laws apply in the same manner to all, regardless of a person's status"?

- Ans**
- ✓ **A. Rule of Law**
  - ✗ **B. Rule of State**
  - ✗ **C. Rule of Power**
  - ✗ **D. Rule of Government**

**Q.93** On 16 March 2022, the Union Ministry for Road Transport and Highways inaugurated a pilot project for hydrogen-based advanced Fuel Cell Electric Vehicle (FCEV). This pilot project was initiated by:

- Ans**
- ✓ **A. Toyota Kirloskar Motor Pvt. Ltd.**
  - ✗ **B. Tata Motors Pvt. Ltd.**
  - ✗ **C. Maruti Suzuki India Limited**
  - ✗ **D. Kia India Pvt. Limited.**

**Q.94** Microfinance in India is a form of financial service which provides small loans and other financial services to poor and low-income households for \_\_\_\_\_.

- Ans**
- ✗ **A. medium term**
  - ✓ **B. short term**
  - ✗ **C. long term**
  - ✗ **D. medium and long term**

**Q.95** Which of the following regions is known to receive the maximum rainfall from the South-west Monsoon winds in India?

- Ans**
- ✓ **A. Western Ghats**
  - ✗ **B. Eastern Ghats**
  - ✗ **C. Gangetic Plains**
  - ✗ **D. Central Plateau Region**

**Q.96** In 1989 the \_\_\_\_\_ recommended constitutional recognition for the *local government bodies*.

- Ans**
- ✗ **A. Raja Chelliah Committee**
  - ✓ **B. PK Thungan Committee**
  - ✗ **C. Khusro Committee**
  - ✗ **D. Sarkaria Commission**

**Q.97** As of July 2022, under which of the Social Security Insurance schemes is insurance provided with a premium of ₹20 per annum that is to be deducted from the account holder's bank account through 'auto-debit' facility in one instalment?

- Ans**
- ✗ **A. Pradhan Mantri Vaya Vandana Yojana (PMVVY)**
  - ✗ **B. Varishtha Pension Bima Yojana**
  - ✓ **C. Pradhan Mantri Suraksha Bima Yojana (PMSBY)**
  - ✗ **D. Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY)**



**Q.98** Which of the following statement is CORRECT about the Law of Demand with regard to subject of Economics?

- a) The law of demand is a fundamental principle of economics that states that at a higher price consumer will demand a lower quantity of a good.
- b) Demand is derived from the law of diminishing marginal utility it is based on the fact that consumers use economic goods to satisfy their most urgent needs first.
- c) The shape and magnitude of demand shifts in response to changes in price.

**Ans** ☒ A. Only a

☒ B. Only b

☒ C. Only c

☒ D. Both a and b

**Q.99** Which of the following rivers is NOT a tributary of River Brahmaputra?

**Ans** ☒ A. Subansiri

☒ B. Gandak

☒ C. Manas

☒ D. Lohit

**Q.100** Telecom Company Bharti Airtel has signed an agreement to buy what percentage of Vodafone's stake in Indus Towers?

**Ans** ☒ A. 3.7

☒ B. 4.7

☒ C. 5.7

☒ D. 6.7



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

## सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 24/08/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** Chandrasekhar sold 12 identical articles for a total of ₹420, incurring a loss equal to the cost price of 7 such articles. The cost price of 1 such article is:

- Ans**
- ☒ A. ₹60
  - ☒ B. ₹48
  - ☒ C. ₹84
  - ☒ D. ₹35

**Q.2** Which of the following is the correct empirical formula?

- Ans**
- ☒ A.  $3(\text{mode} - \text{mean}) = \text{median} - \text{mean}$
  - ☒ B.  $\frac{2}{3}(\text{Mode} - \text{Mean}) = \text{Median} - \text{Mean}$
  - ☒ C.  $\frac{\text{Mode} - \text{Mean}}{3 \times 2} = \text{Median} - \text{Mean}$
  - ☒ D.  $\frac{\text{Mode} - \text{Mean}}{3} = \text{Median} - \text{Mean}$

**Q.3** The LCM of two numbers is 84. If the numbers are in the ratio 2: 3, then find the sum of the numbers.

- Ans**
- ☒ A. 25
  - ☒ B. 40
  - ☒ C. 60
  - ☒ D. 70

**Q.4** If the simple interest on a sum of money at 8% per annum for 2 years is ₹1,000, find the compound interest on the same sum for the same period at the same rate in case of annual compounding.

- Ans**
- ☒ A. ₹1,040
  - ☒ B. ₹1,140
  - ☒ C. ₹1,060
  - ☒ D. ₹1,260

Q.5 Simplify  $\frac{423 \times 423 - 325 \times 325}{423 - 325}$ .

- Ans
- ☐ A. 478
  - ☐ B. 874
  - ☒ C. 748
  - ☐ D. 487

Q.6 The value of

$$12 + 12 \times 12 - 12 \div 12 =$$

- Ans
- ☐ A. 23
  - ☐ B. 0
  - ☒ C. 155
  - ☐ D. 140

Q.7 Which of the following is RHS of the equation

$$\sqrt{\frac{1+\sin A}{1-\sin A}} =$$

- Ans
- ☐ A.  $\sec A + \cot A$
  - ☐ B.  $\sin A + \cos A$
  - ☒ C.  $\sec A + \tan A$
  - ☐ D.  $\frac{1}{\operatorname{cosec} A}$

Q.8 Find the greatest 5-digit number that can be divisible by 18, 15 and 21.

- Ans
- ☐ A. 99545
  - ☐ B. 99455
  - ☐ C. 99450
  - ☒ D. 99540

Q.9 When the selling price of a TV is ₹18,700, the shopkeeper incurred a loss of 15%. What should be the selling price of that TV to gain 15%?

- Ans
- ☐ A. ₹34,200
  - ☐ B. ₹19,800
  - ☐ C. ₹43,200
  - ☒ D. ₹25,300

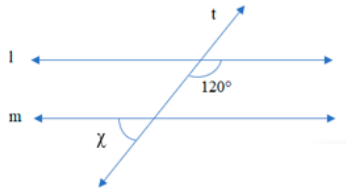
Q.10 6 men and 8 women could finish a work in 14 days. 8 men and 12 women could finish the same work in 10 days. How much time would be taken to finish the same work if one man worked alone?

- Ans
- ☒ A. 140 days
  - ☐ B. 175 days
  - ☐ C. 210 days
  - ☐ D. 280 days

**Q.11** Using  $\pi = \frac{22}{7}$ , find the perimeter of the semi-circle whose diameter is 21 cm long.

- Ans**
- ☒ A. 64.5 cm
  - ☒ B. 72.5 cm
  - ☒ C. 54.0 cm
  - ☒ D. 77.5 cm

**Q.12** If the given figure line  $l$  is parallel to  $m$  and  $t$  is the transversal. Find the measure of angle  $x$ .



- Ans**
- ☒ A.  $120^\circ$
  - ☒ B.  $60^\circ$
  - ☒ C.  $30^\circ$
  - ☒ D.  $40^\circ$

**Q.13** Simplify:

$$(x^2 + m^2 - z^2)^2 - (x^2 - m^2 + z^2)^2 =$$

- Ans**
- ☒ A.  $4x(m^2 - z^2)$
  - ☒ B.  $3x^2(m^2 - z^2)$
  - ☒ C.  $4x^2(m^2 - z^2)$
  - ☒ D.  $2x^2(m^2 - z^2)$

**Q.14** 1500 people visited an exhibition on Saturday, while 1680 visited on Sunday. The percentage increase in the number of people visiting the exhibition is \_\_\_\_\_.

- Ans**
- ☒ A. 10%
  - ☒ B. 12%
  - ☒ C. 13%
  - ☒ D. 18%

**Q.15** There are two consecutive natural numbers such that the sum of their squares is 313. Find the smaller of these two numbers.

- Ans**
- ☒ A. 12
  - ☒ B. 13
  - ☒ C. 14
  - ☒ D. 15

Q.16 Find the median of:

| CI | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 |
|----|------|-------|-------|-------|-------|-------|-------|
| F  | 2    | 4     | 7     | 9     | 10    | 12    | 6     |

- Ans
- ☐ A. 40
  - ☐ B. 41
  - ☐ C. 42
  - ☒ D. 43

Q.17 Find the area of the parallelogram whose base is 15 cm and the corresponding height is 6 cm.

- Ans
- ☐ A.  $60 \text{ cm}^2$
  - ☐ B.  $45 \text{ cm}^2$
  - ☒ C.  $90 \text{ cm}^2$
  - ☐ D.  $80 \text{ cm}^2$

Q.18 8 men and 12 women can build a wall in 10 days. 6 men and 8 women can build the same in 14 days. How long will take 1 woman to build it alone?

- Ans
- ☐ A. 350 days
  - ☐ B. 700 days
  - ☐ C. 140 days
  - ☒ D. 280 days

Q.19 A can complete a certain job in 32 days. B is 60% more efficient than A. In how many days can B alone complete the same job?

- Ans
- ☐ A. 10 days
  - ☐ B. 15 days
  - ☒ C. 20 days
  - ☐ D. 32 days

Q.20 If, in the quadrilateral ABCD, the measures of the angles A, B, C, and D are in the ratio 2 : 3 : 5 : 6, then the quadrilateral is a:

- Ans
- ☐ A. square
  - ☐ B. Kite
  - ☐ C. parallelogram
  - ☒ D. trapezium

Q.21 The third proportional of 10 and 50 is

- Ans
- ☒ A. 250
  - ☐ B. 125
  - ☐ C. 1250
  - ☐ D. 300

Q.22 Simplify:

$$\frac{4.32 \times 4.32 - 2.64 \times 2.64}{1.68}$$

- Ans
- ☒ A. 6.94
  - ☒ B. 6.96
  - ☒ C. 6.99
  - ☒ D. 6.56

Q.23 A, B and C can do a piece of work in 20, 30 and 60 days, respectively. In how many days can A complete the work if he is assisted by B and C on every third day?

- Ans
- ☒ A. 13 days
  - ☒ B. 24 days
  - ☒ C. 12 days
  - ☒ D. 15 days

Q.24 Express  $0.2\bar{7}$  in the form  $\frac{p}{q}$ , where p and q are integers and  $q \neq 0$ .

- Ans
- ☒ A.  $\frac{5}{18}$
  - ☒ B.  $\frac{18}{5}$
  - ☒ C.  $\frac{7}{18}$
  - ☒ D.  $\frac{18}{7}$

Q.25 Find the roots of  $3a^2x^2 + 8abx + 4b^2 = 0$

- Ans
- ☒ A.  $-\frac{2b}{a}$  and  $-\frac{2b}{a}$
  - ☒ B.  $-\frac{2b}{a}$  and  $-\frac{2b}{3a}$
  - ☒ C.  $-\frac{2b}{a}$  and  $-\frac{3b}{2a}$
  - ☒ D.  $-\frac{2b}{3a}$  and  $-2b$

#### Section : General Intelligence and Reasoning

Q.26 P, Q, R, S, T, U and V were seven kids sitting around a square table, facing the centre. Three of them were sitting at the corners while four others were sitting at the exact centre of the sides. One of the corners was empty. U, sitting at one of the centre of the sides, was second to the right of T. There was one empty chair between P and U. R and Q were diagonally opposite to each other. T was at the immediate left of Q. S was to the immediate left of V. Who among the following was the kid at a corner position?

- Ans
- ☒ A. V
  - ☒ B. S
  - ☒ C. T
  - ☒ D. U

**Q.27** Which of the following numbers will replace the question mark (?) in the given series?

13, 17, 19, 23, 29, ?

**Ans** ☒ A. 21

☒ B. 31

☒ C. 33

☒ D. 35

**Q.28** Refer to the following number and symbol series and answer the question.

(Left) 5 2 # 3 % 2 3 & 8 \$ 7 8 # 9 5 @ 6 & 4 9 \$ 3 6 # 7 5 \$ 8 % 6 2 & 8 2 % 3 8 @ 9 (Right)

If all the symbols are dropped from the series, which of the following will be seventh from the right?

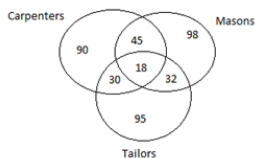
**Ans** ☒ A. 2

☒ B. 5

☒ C. 6

☒ D. 8

**Q.29** Study the given diagram carefully and answer the following question. The numbers in different sections indicate the number of persons in different professions.



How many Masons are Tailors as well?

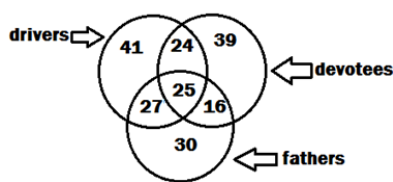
**Ans** ☒ A. 45

☒ B. 32

☒ C. 50

☒ D. 18

**Q.30** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



How many such fathers are there who are also devotees?

**Ans** ☒ A. 16

☒ B. 25

☒ C. 41

☒ D. 49

**Q.31** Which two numbers should be interchanged to make the given equation correct?

$$11 + 13 \times 3 - 14 \div 7 = 44$$

**Ans** ☒ A. 11 and 13

☒ B. 11 and 7

☒ C. 14 and 11

☒ D. 14 and 13

**Q.32** Select the option that represents the letters that, when placed from left to right in the same sequence in the blanks below, will complete the letter series.

B \_ G K M \_ T V \_ C E \_ L

- Ans**
- ☒ A. DPYI
  - ☒ B. DOYH
  - ☒ C. DPYH
  - ☒ D. DPZH

**Q.33** Five girls, Amita, Fauzia, Gargi, Ranjita and Sucheta, are sitting in a straight line. All are facing the north direction. Sucheta sits second to the left of Gargi. Fauzia sits third to the right of Sucheta. Only one girl is sitting between Amita and Ranjita. Amita is not sitting at any of the extreme ends. Which two girls are sitting at the extreme ends?

- Ans**
- ☒ A. Ranjita and Gargi
  - ☒ B. Gargi and Sucheta
  - ☒ C. Sucheta and Fauzia
  - ☒ D. Ranjita and Fauzia

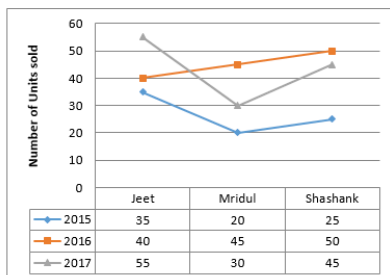
**Q.34** Refer to the following letter series and answer the question.

GYABBRIBRXMRAYEJSFUYHUYHNR PQSDAI

How many letters are there in the English alphabetical series between the letter that is seventh from the left end and the letter that is sixth from the left end of the given series?

- Ans**
- ☒ A. 5
  - ☒ B. 7
  - ☒ C. 6
  - ☒ D. 8

**Q.35** The graph and the table below show the total units sold by three salesmen named Jeet, Mridul and Shashank in three different years i.e. 2015, 2016 and 2017. Study the graph and the table and answer the question.



If Jeet has sold an average of 40 units in five years i.e. from 2015 to 2019, and if the number of units sold by Jeet in 2018 and 2019 is exactly same then how many units did he sell in the years 2018?

- Ans**
- ☒ A. 40
  - ☒ B. 35
  - ☒ C. 45
  - ☒ D. 30

**Q.36** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

15 : 24 :: 35 : 48 :: 63 : ?

- Ans**
- ☒ A. 75
  - ☒ B. 36
  - ☒ C. 42
  - ☒ D. 80



**Q.37** If 10 August 2021 was a Tuesday, then what day of the week was 18 September 2021?

- Ans**
- ✓ A. Saturday
  - ✗ B. Sunday
  - ✗ C. Monday
  - ✗ D. Tuesday

**Q.38** Q, W, E, R, T and Y live on seven different floors of the same building with one floor being vacant. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 7. T lives on the 7<sup>th</sup> floor, and W lives on the 1<sup>st</sup> floor. Q lives between E and R. One floor immediately above E is vacant. Only Y lives between R and W. The 5<sup>th</sup> floor is occupied by E. On which floor does Q live?

- Ans**
- ✗ A. 2<sup>nd</sup>
  - ✗ B. 3<sup>rd</sup>
  - ✓ C. 4<sup>th</sup>
  - ✗ D. 5<sup>th</sup>

**Q.39** What will come in place of the question mark (?) in the following equation if '+' and '-' are interchanged and also '×' and '÷' are interchanged?

$$15 - 8 \div 4 + 30 \times 5 = ?$$

- Ans**
- ✗ A. 39
  - ✗ B. 40
  - ✓ C. 41
  - ✗ D. 42

**Q.40** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the condition is your answer.

| Number/Symbol | 5 | 4 | + | @ | ? | 3 | < | # | 2 | % | ! | 9 | = | 6 |
|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code          | B | S | R | T | U | P | D | Y | A | V | C | X | E | H |

Conditions:

- (i) If the first element is a symbol and the last, a number, the codes for these two are to be interchanged.
- (ii) If the first element is an odd number and the last, an even number, the first and last elements are to be coded as O.
- (iii) If both second and third elements are either symbols or numbers, the third element is to be coded as the code for the second element.

How will '5 % = 3 ! 9' be coded?

- Ans**
- ✗ A. XVEPCB
  - ✗ B. OVEPCO
  - ✗ C. BVEPCX
  - ✓ D. BVVPCX

**Q.41** Which of the following numbers will replace the question mark (?) in the given series?

225, 221, 214, 201, 176, ?

- Ans**
- ✓ A. 127
  - ✗ B. 125
  - ✗ C. 129
  - ✗ D. 132

**Q.42** Each of K, L, M, N and P has an exam on a different day of a week starting from Monday and ending on Sunday of the same week. No exam is held on Friday and Saturday. Only two persons have exams between N and M. L's exam is held on Wednesday. Only one person has exam between N and L. P's exam is held on Sunday. Whose exam is held on Monday?

- Ans**
- ☐ A. K
  - ☐ B. L
  - ☐ C. M
  - ☒ D. N

**Q.43** Five persons, P, Q, R, S and T, got jobs in five different years, viz. 1991, 1992, 1993, 1994 and 1995. Q got the job immediately before T. R got the job immediately after P. S got the job immediately after R. T got the job in the year 1992. Who got the job in the year 1995?

- Ans**
- ☐ A. P
  - ☐ B. Q
  - ☐ C. R
  - ☒ D. S

**Q.44** A statement is given, followed by four conclusions given in the options. Find out which conclusion is true based on the given statement.

Statement:  $Z > M = A < U \geq G \geq L = D$

- Ans**
- ☐ A.  $A > Z$
  - ☐ B.  $A = G$
  - ☐ C.  $G < D$
  - ☒ D.  $U > M$

**Q.45** B was taking a morning walk. She started from a point and walked 50 m towards east. She then takes a right turn, walks 30 m, turns right again, and walks 50 m. She takes a final left turn, walks 10 m and stops. How far is she from the original starting point?

(All turns are 90 degree turns only)

- Ans**
- ☐ A. 20 m
  - ☐ B. 30 m
  - ☒ C. 40 m
  - ☐ D. 50 m

**Q.46** Shobha started from point A and walked 10 m towards the east. She then took a left turn and walked another 10 m. She then took a right turn and walked 30 m. She then took a right turn and walked 15 m. She then took a right turn and walked 40 m. She then took a left turn and walked 5 m to reach a shopping mall. How far and in which direction is point A from the shopping mall? (All turns are 90 degree turns only)

- Ans**
- ☐ A. 10 m, South
  - ☒ B. 10 m, North
  - ☐ C. 5 m, South
  - ☐ D. 5 m, North

**Q.47** Refer to the following number series and answer the question.

(Left) 2 5 4 3 7 8 6 7 9 4 3 7 8 6 2 3 4 8 9 4 8 7 6 4 3 7 2 8 9 7 5 3 2 4 5 9 (Right)

How many such odd numbers are there which are immediately preceded by an even number and also immediately followed by an even number? (Consider counting from left to right only)

- Ans**
- ☒ A. Four
  - ☐ B. Five
  - ☐ C. Six
  - ☐ D. Seven

**Q.48** Given below are three statements and three conclusions. Take the statements to be true even if they are at variance with commonly known facts, and decide whether the conclusion/s follow/s the given statements.

Statements:

- I. All candies are melons.
- II. All biscuits are melons.
- III. All cakes are biscuits.

Conclusions:

- I. All cakes are melons.
- II. Some candies are biscuits.
- III. Some candies are not biscuits.

- Ans** ☒ A. Only conclusion I follows  
☒ B. Conclusions I and either conclusion II or III follow  
☒ C. Only conclusion III follows  
☒ D. None of the conclusions follow

**Q.49** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

18 : 96 :: 22 : 116 :: 23 : ?

- Ans** ☒ A. 121  
☒ B. 132  
☒ C. 146  
☒ D. 164

**Q.50** In a certain code language, MARKS is written as QEVOW and CLOSE is written as GPSWI. How will DRIVE be written in the same language?

- Ans** ☒ A. HVMZK  
☒ B. HVMZI  
☒ C. GVNZI  
☒ D. HVMAJ

**Q.51** The table given below shows the production of different types of household items (in lakhs) by a certain company over the years. Study the table and the answer the question.

| Items \ Years | Production of different household items |     |     |     |    |     |
|---------------|-----------------------------------------|-----|-----|-----|----|-----|
|               | P                                       | Q   | R   | S   | T  | U   |
| 2016          | 70                                      | 80  | 75  | 90  | 50 | 80  |
| 2017          | 72                                      | 90  | 70  | 100 | 52 | 85  |
| 2018          | 75                                      | 95  | 80  | 100 | 58 | 90  |
| 2019          | 80                                      | 100 | 90  | 110 | 60 | 110 |
| 2020          | 85                                      | 90  | 95  | 118 | 64 | 120 |
| 2021          | 88                                      | 110 | 100 | 120 | 70 | 148 |

Which of the following type of household item was recorded as having the highest annual growth rate over one year in terms of production and in which year?

- Ans** ☒ A. Items P in 2017  
☒ B. Items Q in 2018  
☒ C. Items R in 2018  
☒ D. Items S in 2017

**Q.52** Among six friends, Pulkit, Aryan, Mahi, Somi, Vinay and Zeenat, each person scores different marks in an examination. Aryan scores less marks than only four other persons. Somi scores less marks than Mahi. Zeenat scores less marks than Vinay. Pulkit scores less marks than Aryan. Mahi scores less marks than Zeenat. Who scores the highest marks among all six friends?

- Ans**
- ✓ A. Vinay
  - ✗ B. Zeenat
  - ✗ C. Mahi
  - ✗ D. Pulkit

**Q.53** BTE 11 is related to DVG120 in a certain way. In the same way, PAN 9 is related to RCP 80. To which of the following is GMT 12 related following the same logic?

- Ans**
- ✗ A. IOV 119
  - ✗ B. IOV 120
  - ✓ C. IOV 143
  - ✗ D. IOW 143

**Q.54** Which of the following options is the closest approximate value which will come in place of question mark (?) in the following equation?

$$68.27 - 140.1 + 9.99 \times 7.7 = ?$$

- Ans**
- ✗ A. 35
  - ✗ B. 25
  - ✓ C. 8
  - ✗ D. 16

**Q.55** A statement is given followed by two arguments I and II. Read the statement and the arguments carefully and select the appropriate answer from the given options.

**Statement:**

The government is proposing a ban on the export of wheat for the next 4 weeks in order to contain the rising prices in domestic markets.

**Arguments:**

- I. Floods in various parts of the country has resulted in a steep drop in the output of wheat crop this season.
- II. Ban on export of wheat will result in significant penalties in the international markets on non-fulfilment of existing contracts.

- Ans**
- ✗ A. Argument I weakens, while argument II strengthens the statement
  - ✓ B. Argument II weakens, while argument I strengthens the statement
  - ✗ C. Both arguments I and II weaken the statement
  - ✗ D. Both arguments I and II strengthen the statement

#### Section : General Science

**Q.56** Electromagnetic induction was discovered by:

- Ans**
- ✓ A. Michael Faraday
  - ✗ B. Isaac Newton
  - ✗ C. Albert Einstein
  - ✗ D. Alessandro Volta

Q.57 One of the goals of the Namami Gange Programme is to:

- Ans
- ☐ A. perform religious rituals with water from the Ganga River
  - ☒ B. revitalise the Ganga River
  - ☐ C. start river cruises on the Ganga River to boost tourism
  - ☐ D. increase the supply of the Ganga River water for drinking purposes

Q.58 Why are mitochondria considered as a 'weird' organelle?

- Ans
- ☐ A. Because they are the store of cellular contents
  - ☐ B. Because they can digest microorganisms
  - ☒ C. Because they are the power-house of the cell
  - ☐ D. Because they contain ribosomes and DNA

Q.59 Which of the following reactions will be possible?

- Ans
- ☐ A.  $\text{MgCl}_2 + \text{Cu} \rightarrow \text{CuCl}_2 + \text{Mg}$
  - ☐ B.  $\text{ZnSO}_4 + \text{Fe} \rightarrow \text{FeSO}_4 + \text{Zn}$
  - ☒ C.  $\text{CuSO}_4 + \text{Ca} \rightarrow \text{CaSO}_4 + \text{Cu}$
  - ☐ D.  $\text{Al}_2(\text{SO}_4)_3 + \text{Pb} \rightarrow \text{PbSO}_4 + \text{Al}$

Q.60 A current of 2.5 mA flows through a conductor having resistance  $2\ \Omega$ . The potential difference across the ends of the conductor is:

- Ans
- ☐ A. 1.25 V
  - ☐ B. 1.25 mV
  - ☐ C. 5 V
  - ☒ D. 5 mV

Q.61 When coal and petroleum are burnt in insufficient air (oxygen), which harmful gas is produced, causing pollution?

- Ans
- ☐ A. Oxides of nitrogen
  - ☐ B. Carbon dioxide
  - ☒ C. Carbon monoxide
  - ☐ D. Sulphur dioxide

Q.62 Which of the following is NOT a unit of power?

- Ans
- ☐ A. watt
  - ☐ B. joule/second
  - ☒ C. kilowatt hour
  - ☐ D. horsepower

**Q.63** A ray of light travelling in air enters a glass slab. Which of the following statements is/are correct?

- (i) Angle of incidence is greater than the angle of refraction.
- (ii) Angle of incidence is equal to angle of emergence.
- (iii) The emergent ray is parallel to the incident ray.

**Ans** ☒ A. Both (i) and (ii)  
☒ B. Both (ii) and (iii)  
☒ C. Both (i) and (iii)  
☒ D. (i), (ii) and (iii)

**Q.64** In which of the following case(s) will a current be registered by the galvanometer connected to a circular coil?

- (i) When a magnet is held stationary near the coil.
- (ii) When a magnet is moved towards the coil.
- (iii) When a magnet is moved away from the coil.

**Ans** ☒ A. Only (i)  
☒ B. Only (iii)  
☒ C. Both (i) and (ii)  
☒ D. Both (ii) and (iii)

**Q.65** Systolic blood pressure is exerted by the blood against the walls of the artery during which of the following phases?

**Ans** ☒ A. Ventricular contraction  
☒ B. Auricular contraction  
☒ C. Ventricular relaxation  
☒ D. Auricular relaxation

**Q.66** In which different parts do the plants store their waste products?

**Ans** ☒ A. Leaves, lysosomes and leucoplast  
☒ B. Vacuoles, bark and lysosomes  
☒ C. Leaves, vacuoles and Old xylem  
☒ D. Lysosomes, fruits and leucoplasts

**Q.67** Which of the following are neutralisation reactions?

- (i)  $\text{NaOH (aq)} + \text{HCl (aq)} \rightarrow \text{NaCl (aq)} + \text{H}_2\text{O (l)}$
- (ii)  $\text{HNO}_3 \text{ (aq)} + \text{KOH (aq)} \rightarrow \text{KNO}_3 \text{ (aq)} + \text{H}_2\text{O (l)}$
- (iii)  $\text{HCl (aq)} + \text{NaOH (aq)} \rightarrow \text{NaCl (aq)} + \text{H}_2\text{O (l)}$

**Ans** ☒ A. i, ii and iii  
☒ B. i and ii  
☒ C. i and iii  
☒ D. ii and iii

**Q.68** Select the option that shows the correct matching of Column I with Column II regarding Asexual Reproduction.

| Column I      | Column II             |
|---------------|-----------------------|
| A. Leishmania | i) Regeneration       |
| B. Yeast      | ii) Binary fission    |
| C. Plasmodium | iii) Multiple fission |
| D. Hydra      | iv) Budding           |

- Ans**
- ☒ A. A-i, B-ii, C-iii, D-iv
  - ☒ B. A-ii, B-iv, C-iii, D-i
  - ☒ C. A-iv, B-ii, C-i, D-iii
  - ☒ D. A-ii, B-i, C-iii, D-iv

**Q.69** What will be the angle of incidence for a ray of light incident along the principal axis of a convex mirror?

- Ans**
- ☒ A.  $0^\circ$
  - ☒ B.  $30^\circ$
  - ☒ C.  $60^\circ$
  - ☒ D.  $90^\circ$

**Q.70** Which of the following relations correctly represents magnification  $m$  produced by a convex mirror?

- Ans**
- ☒ A.  $0 < m < 1$
  - ☒ B.  $m = 1$
  - ☒ C.  $m < 0$
  - ☒ D.  $m > 1$

**Q.71** Predict the reactants for neutralisation reaction where the products are lithium sulphate and water.

- Ans**
- ☒ A. Hydrochloric acid and lithium nitrate
  - ☒ B. Sulphuric acid and lithium carbonate
  - ☒ C. Hydrochloric acid and lithium carbonate
  - ☒ D. Sulphuric acid and lithium hydroxide

**Q.72** To study chemical properties of elements, Mendeleev concentrated on their compounds formed by which two elements?

- Ans**
- ☒ A. O and S
  - ☒ B. C and H
  - ☒ C. N and Cl
  - ☒ D. H and O

**Q.73** A convex lens forms a real, inverted and diminished image. The position of the object is:

- Ans**
- ☒ A. beyond  $2F$
  - ☒ B. between  $F$  and  $2F$
  - ☒ C. at infinity
  - ☒ D. between  $O$  and  $F$



**Q.74** Which of the following DOES NOT constitute a part of pubertal development?

- Ans**
- ☐ A. Voice change
  - ☐ B. Getting pimples
  - ☐ C. Menstruation
  - ☒ D. Obesity

**Q.75** A, which has an anomalous position in the Modern Periodic Table, depends on its properties. It has electronic configuration of alkali metals, but exists as diatomic molecules. B is the element that comes immediately after sodium in the third period and belongs to group C in the modern periodic table.

Identify A, B and C.

- Ans**
- ☒ A. A = Hydrogen, B = Mg, C = 2
  - ☐ B. A = Helium, B = Al, C = 13
  - ☐ C. A = Lanthanoids, B = Ne, C = 3
  - ☐ D. A = Lithium, B = K, C = 1

**Q.76** Two bulbs A and B are connected in parallel to a 3 V source. If the ratio of resistance of bulb A to that of bulb B is 1 : 3. The ratio of the heat produced by bulb A to that of bulb B in a given time is:

- Ans**
- ☐ A. 1 : 3
  - ☒ B. 3 : 1
  - ☐ C. 1 : 9
  - ☐ D. 9 : 1

**Q.77** How many total electrons are shared by three carbon atoms with all the hydrogen atoms in a propane molecule?

- Ans**
- ☐ A. 2
  - ☐ B. 4
  - ☐ C. 6
  - ☒ D. 8

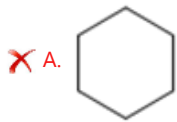
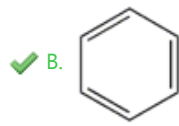
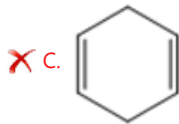
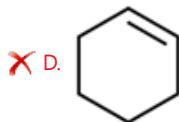
**Q.78** Why do plants have low energy needs?

- Ans**
- ☐ A. Because they only increase in height
  - ☐ B. Because they produce oxygen
  - ☐ C. Because they are self-sufficient in terms of food
  - ☒ D. Because they have a lot of dead cells



**Q.79** Which of the following is the correct structure of benzene molecule?

**Ans**



**Q.80** Which gas is utilised during the preparation of bleaching powder?

**Ans**

☐ A. Hydrogen

☐ B. Oxygen

☒ C. Chlorine

☐ D. Carbon dioxide

Section : General Awareness and Current Affairs

**Q.81** In which state was the National senior women's football championship held from 28 November to 9 December 2021?

**Ans**

☐ A. Tamil Nadu

☐ B. Andhra Pradesh

☒ C. Kerala

☐ D. Odisha

**Q.82** Who among the following is the Minister of Rural Development & Panchayati Raj as on 15<sup>th</sup> June 2022?

**Ans**

☐ A. Amit Shah

☐ B. Piyush Goyal

☐ C. Dharmendra Pradhan

☒ D. Giriraj Singh

**Q.83** Zydus Cadila has received the approval for Emergency Use Authorization (EUA) from the Drug Controller General of India (DCGI) for which vaccine, in August 2021?

**Ans**

☒ A. ZyCoV-D

☐ B. ZyCovid

☐ C. ZyCorbeVax

☐ D. ZyCovdila

**Q.84** In November 2021, which state government released State Policy for Children 2021 to ensure prevention and protection of children from all forms of violence, abuse, and exploitation?

- Ans**
- ☐ A. Kerala
  - ☐ B. Rajasthan
  - ☒ C. Tamil Nadu
  - ☐ D. Punjab

**Q.85** In January 2022, the Punjab and Maharashtra Co-operative bank has been merged with which bank?

- Ans**
- ☐ A. Capital Small Finance Bank
  - ☒ B. Unity Small Finance Bank
  - ☐ C. AU Small Finance Bank
  - ☐ D. Ujjivan Small Finance Bank

**Q.86** The Indian Men's Cricket Team played their thousandth ODI match against which team?

- Ans**
- ☐ A. Sri Lanka
  - ☐ B. Australia
  - ☐ C. South Africa
  - ☒ D. West Indies

**Q.87** Which of the following scriptures is NOT a part of Vedic literature?

- Ans**
- ☐ A. Upanishads
  - ☐ B. Brahmanas
  - ☒ C. Pitakas
  - ☐ D. Aranyakas

**Q.88** The East India Company Act, 1813, is also known as the \_\_\_\_\_.

- Ans**
- ☐ A. India Independence Act
  - ☐ B. British Parliament Act
  - ☐ C. Indian Council Act
  - ☒ D. Charter Act

**Q.89** The production function of a firm is a relationship between:

- Ans**
- ☒ A. inputs used and output produced
  - ☐ B. inputs used and waste produced
  - ☐ C. waste and output produced
  - ☐ D. input used, and output and waste produced

**Q.90** According to the regulation of the Indus Water Treaty signed in 1960, India can use only \_\_\_\_\_ of the total water carried by the Indus River system.

- Ans**
- ☐ A. 10%
  - ☒ B. 20%
  - ☐ C. 40%
  - ☐ D. 50%

Q.91

License Raj was started during which of the following Five Year Plans?

Ans

- ☒ A. Fifth Five Year Plan
- ☒ B. Fourth Five Year Plan
- ☒ C. Second Five Year Plan
- ☒ D. Sixth Five Year Plan

Note: For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

Q.92

The famous festival of India, Makar Sankranti is celebrated in which month?

Ans

- ☒ A. January
- ☒ B. March
- ☒ C. May
- ☒ D. July

Q.93

The 'Stree Manoraksha Project' was launched by the Union Minister for Women and Child Development, Smriti Zubin Irani in collaboration with:

Ans

- ☒ A. NIMHANS
- ☒ B. NCW
- ☒ C. Ministry of Health
- ☒ D. SBI

Q.94

Which of the following is an ore of aluminium?

Ans

- ☒ A. Hematite
- ☒ B. Siderite
- ☒ C. Monazite
- ☒ D. Bauxite

Q.95

As per Article 53 of the Constitution of India, with whom are all the executive powers of the Union vested?

Ans

- ☒ A. Prime Minister
- ☒ B. President
- ☒ C. Governor
- ☒ D. Chief Justice

Q.96

By which of the following amendments was the Right to Education included in the Indian Constitution?

Ans

- ☒ A. 86
- ☒ B. 87
- ☒ C. 83
- ☒ D. 85

**Q.97**

As per a brand valuation report released by Brand Finance in February 2022, what is the rank of Life Insurance Corporation of India (LIC) in the list of insurance brands globally?

**Ans**

- ☐ A. 7<sup>th</sup>
- ☐ B. 8<sup>th</sup>
- ☐ C. 9<sup>th</sup>
- ☒ D. 10<sup>th</sup>

**Q.98**

What is the rank of Bengali language in the world among the most spoken languages as per Forbes ?

**Ans**

- ☐ A. 17<sup>th</sup>
- ☐ B. 27<sup>th</sup>
- ☐ C. 10<sup>th</sup>
- ☒ D. 6<sup>th</sup>

**Q.99**

Red Sanders, an endemic tree species, is restricted to which of the following Indian physical divisions?

**Ans**

- ☒ A. Eastern Ghats
- ☐ B. Western Ghats
- ☐ C. Himalayan Mountain Region
- ☐ D. Gangetic Plains

**Q.100**

Who among the following became the first film star of India to roll out his NFT (Non-Fungible tokens) collection in 2021?

**Ans**

- ☐ A. Salman Khan
- ☐ B. Shah Rukh Khan
- ☒ C. Amitabh Bachchan
- ☐ D. Rajnikanth



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 24/08/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

Q.1 Arrange the given fractions in ascending order:  $\frac{1}{3}, \frac{4}{7}, \frac{2}{5}, \frac{5}{6}, \frac{3}{5}$

Ans ☐ A.  $\frac{2}{5}, \frac{1}{3}, \frac{3}{5}, \frac{4}{7}, \frac{5}{6}$

☐ B.  $\frac{5}{6}, \frac{1}{3}, \frac{4}{7}, \frac{2}{5}, \frac{3}{5}$

☒ C.  $\frac{1}{3}, \frac{2}{5}, \frac{4}{7}, \frac{3}{5}, \frac{5}{6}$

☐ D.  $\frac{1}{3}, \frac{2}{5}, \frac{3}{5}, \frac{4}{7}, \frac{5}{6}$

Q.2 The traffic lights at three different crossings turn red after every 30 sec, 45 sec, and 60 sec, respectively. If they all turn red simultaneously at 8.30 a.m., then at what time will they again turn red simultaneously?

Ans ☒ A. 8.33 a.m.

☐ B. 8.34 a.m.

☐ C. 8.35 a.m.

☐ D. 8.38 a.m.

Q.3 A fraction becomes  $\frac{1}{2}$  if 2 is added to the numerator and 5 is added to the denominator. It also becomes  $\frac{1}{3}$  if 2 is subtracted from both the numerator and denominator. Then the fraction is

Ans ☐ A.  $\frac{8}{15}$

☒ B.  $\frac{3}{5}$

☐ C.  $\frac{1}{7}$

☐ D.  $\frac{4}{17}$

Q.4 A parallelogram having all sides equal and diagonals unequal is called a:

Ans ☐ A. square

☐ B. rectangle

☒ C. rhombus

☐ D. kite

**Q.5** Find the cost of fencing of a rectangular land, if it has an area of  $100 \text{ m}^2$  and one side of length  $20 \text{ m}$  at a rate of ₹30 per meter.

- Ans**
- ☒ A. ₹2,400
  - ☒ B. ₹1,500
  - ☒ C. ₹3,000
  - ☒ D. ₹1,200

**Q.6** If  $\frac{a+1}{a} = k$ , what is the value of  $\frac{a^2-1}{a^2}$ ?

- Ans**
- ☒ A.  $k^2 + 2$
  - ☒ B.  $k - 2k^2$
  - ☒ C.  $2k - k^2$
  - ☒ D.  $k + 2$

**Q.7** The LCM of  $2^3 \times 3^2 \times 5$ ,  $2^2 \times 5^2 \times 7$  and  $3^3 \times 5^2 \times 7^2$  is:

- Ans**
- ☒ A.  $2^3 \times 3^2 \times 5^3 \times 7^2$
  - ☒ B.  $2^3 \times 3^2 \times 5 \times 7^3$
  - ☒ C.  $2^3 \times 3^3 \times 5^2 \times 7^2$
  - ☒ D.  $2^3 \times 3^4 \times 5^2 \times 7$

**Q.8** If  $\Delta ABC$  is similar to  $\Delta DEF$  such that  $2AB = DE$  and  $BC = 8 \text{ cm}$ , then  $EF$  is equal to:

- Ans**
- ☒ A. 12 cm
  - ☒ B. 4 cm
  - ☒ C. 16 cm
  - ☒ D. 8 cm

**Q.9** The ratio of the present ages of a man and his wife is  $7 : 6$ . After 6 years, this ratio will be  $8 : 7$ . If, at the time of marriage, the ratio of their ages was  $4 : 3$ , then how many years ago from now did they get married?

- Ans**
- ☒ A. 13 years
  - ☒ B. 15 years
  - ☒ C. 16 years
  - ☒ D. 18 years

**Q.10** A batsman scored the following runs in the last 5 innings. Find his score in the 4<sup>th</sup> innings if the average score is 43.

| 1 <sup>st</sup> | 2 <sup>nd</sup> | 3 <sup>rd</sup> | 4 <sup>th</sup> | 5 <sup>th</sup> |
|-----------------|-----------------|-----------------|-----------------|-----------------|
| 92              | 53              | 35              | x               | 27              |

- Ans**
- ☒ A. 8
  - ☒ B. 12
  - ☒ C. 10
  - ☒ D. 4

**Q.11** Find the fourth proportional of  $x + 7$ ,  $x + 5$  and  $x + 6$  if  $x = 3$ .

- Ans**
- ☐ A. 24
  - ☐ B. 8
  - ☐ C. 9
  - ☒ D. 3

**Q.12** Twelve years ago, Rekha's age was  $\frac{2}{5}$  of that of her sister. The ratio of Rekha's and her sister's present age is 3: 4. What is the total of their present ages?

- Ans**
- ☒ A. 36 years
  - ☐ B. 28 years
  - ☐ C. 48 years
  - ☐ D. 42 years

**Q.13** Two trains start at the same time from Stations A and B respectively and travel towards each other at a speed of 60 km/h and 40 km/h, respectively. At the time they meet, the faster train has travelled 60 km more than the slower train. What is the distance between the two stations?

- Ans**
- ☒ A. 300 km
  - ☐ B. 360 km
  - ☐ C. 420 km
  - ☐ D. 450 km

**Q.14** Two express trains of length 320 m and 380 m started moving from Ahmedabad to Delhi at the same time. Their speeds are 84 km/h and 42 km/h, respectively. In how many seconds will the faster train cross the slower train?

- Ans**
- ☐ A. 45 sec
  - ☐ B. 50 sec
  - ☐ C. 120 sec
  - ☒ D. 60 sec

**Q.15** Mr. Saxena bought some pens at ₹150 a dozen. He sold them for ₹15 each. What is his profit/loss per cent?

- Ans**
- ☒ A. 20% profit
  - ☐ B. 37.5% loss
  - ☐ C. 28.6% loss
  - ☐ D. 18.5% profit

**Q.16** If  $1 + \sqrt{3}$  and  $1 - \sqrt{3}$  are the roots of a quadratic equation, then the quadratic equation is:

- Ans**
- ☒ A.  $x^2 - 2x - 2 = 0$
  - ☐ B.  $x^2 - 2x + 2 = 0$
  - ☐ C.  $x^2 - 2x + 3 = 0$
  - ☐ D.  $x^2 - 2x - 3 = 0$

Q.17 The sum of roots of the equation  $5x^2 - 11x + 6 = 0$  is:

Ans

☐ A.  $\frac{6}{5}$

☐ B.  $-\frac{6}{5}$

☐ C.  $-\frac{11}{5}$

☒ D.  $\frac{11}{5}$

Q.18 Simplify:  $\left(\frac{2}{3} + \frac{1}{3}\right) \times 23 - 13 + 6$ .

Ans

☒ A. 16

☐ B. 10

☐ C. 23

☐ D. 29

Q.19 Find the area of a regular hexagon (in  $\text{cm}^2$ ) with sides of length 6 cm.

Ans

☐ A.  $5\sqrt{2}$

☐ B. 18

☒ C.  $54\sqrt{3}$

☐ D. 36

Q.20 The fourth proportion of 12, 24 and 45 is:

Ans

☐ A. 25

☐ B. 30

☒ C. 90

☐ D. 60

Q.21 If  $\frac{a}{b} = \frac{4}{3}$  and  $3a + 2b = 24$ , then find the value of a.

Ans

☐ A. 4

☐ B. 5

☐ C.  $\frac{13}{3}$

☒ D.  $\frac{16}{3}$

Q.22 The simple interest on a sum of money is  $\frac{3}{5}$  of the principal in 12 years. What is the rate of interest per annum?

Ans

☒ A. 5%

☐ B. 6%

☐ C. 7%

☐ D. 8%



**Q.23** The cost price of an article is 64% of the marked price. Calculate the gain percent after allowing a discount of 4%.

- Ans** ☒ A. 50%  
☐ B. 60%  
☐ C. 40%  
☐ D. 45%

**Q.24** If mean of the data 11, 17,  $x + 1$ ,  $3x$ , 19,  $2x - 4$ ,  $x + 5$  is 21, then find the mode of the data.

- Ans** ☐ A. 11  
☐ B. 15  
☐ C. 17  
☒ D. 19

**Q.25** Simplify:  $\sqrt{\frac{1+\sin \theta}{1-\sin \theta}}$ .

- Ans** ☐ A.  $\sec \theta - \tan \theta$   
☐ B.  $\operatorname{cosec} \theta + \tan \theta$   
☐ C.  $\operatorname{cosec} \theta - \tan \theta$   
☒ D.  $\sec \theta + \tan \theta$

#### Section : General Intelligence and Reasoning

**Q.26** Which of the following numbers will replace the question mark (?) in the given series?

6, 8, 13, 23, 40, ?

- Ans** ☐ A. 52  
☒ B. 66  
☐ C. 75  
☐ D. 86

**Q.27** Which of the following numbers will replace the question mark (?) in the given series?

24, 28, 35, 48, 73, ?

- Ans** ☐ A. 123  
☐ B. 121  
☒ C. 122  
☐ D. 120

**Q.28** A statement is given followed by two arguments I and II. Read the statement and the arguments carefully and select the appropriate answer from the given options.

**Statement:**

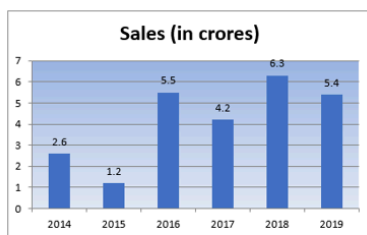
Private schools have increased their fees by 20 per cent for this academic year citing rising costs.

**Arguments:**

- I. The government has lowered the taxes levied on private schools by 8 percent this year.  
II. The Teacher's Union is protesting against the decision of private schools to cut salaries by 15 percent.

- Ans** ☐ A. Argument I weakens, while argument II strengthens the statement  
☐ B. Argument II weakens, while argument I strengthens the statement  
☒ C. Both arguments I and II weaken the statement  
☐ D. Both arguments I and II strengthen the statement

- Q.29** The following chart shows the sales of Company-A in various years from 2014 to 2019. Study the chart and answer the question.



In which years was the sale below the average sale of all the six years?

- Ans**
- ☒ A. 2014, 2015 and 2016
  - ☒ B. Only 2014 and 2015
  - ☒ C. Only 2014 and 2017
  - ☒ D. Only 2014

- Q.30** In a row of students facing north, Krish is 19th from the extreme left end while Maya is 30th from the extreme right end. When both of them interchange their positions, Krish becomes 36th from the extreme left end. How many students are there in the row?

- Ans**
- ☒ A. 66
  - ☒ B. 62
  - ☒ C. 65
  - ☒ D. 63

- Q.31** Six teams named P, Q, R, S, T and U won tournaments in different months of the same year, viz. January, February, March, April, May and June. R won the tournament in January. Q won in the month immediately before U. P won the tournament in the month immediately before S. Exactly two teams won the tournaments between the months of R and S. In which month did T win the tournament?

- Ans**
- ☒ A. February
  - ☒ B. March
  - ☒ C. April
  - ☒ D. May

- Q.32** Three statements are followed by four conclusions numbered I, II, III and IV. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

1. All parrots are doves.
2. No dove is canary.
3. All flamingoes are canaries.

**Conclusions:**

- I. Some flamingoes are parrots.
- II. No canary is parrot.
- III. No parrot is flamingo.
- IV. Some canaries are parrots.

- Ans**
- ☒ A. Only conclusions I follows
  - ☒ B. Only conclusions II and III follow.
  - ☒ C. Only conclusions I and IV follow.
  - ☒ D. Only conclusion IV follows.

**Q.33** This question is based on the following three-letter words:  
(Left) CAR HAT FED EYE (Right)

How many letters are there between the second letter of the first word from the left and the first letter of the first word from the right?

- Ans**
- ☒ A. 6
  - ☒ B. 7
  - ☒ C. 8
  - ☒ D. 9

**Q.34** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.  
3 : 25 :: 7 : 81 :: 11 : ?

- Ans**
- ☒ A. 121
  - ☒ B. 144
  - ☒ C. 169
  - ☒ D. 196

**Q.35** If '+' means '÷', '-' means '+', '×' means '-' and '÷' means '×', then what will be the value of the following expression?

$$[(36 \times 16) - (5 \div 3)] + (2 - 5)$$

- Ans**
- ☒ A. 1
  - ☒ B. 5
  - ☒ C. 10
  - ☒ D. 15

**Q.36** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the condition is your answer.

| Number/Symbol | @ | % | ! | 4 | 2 | 5 | # | ? | + | = | 3 | & | 7 | < |
|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code          | C | L | N | D | M | B | R | A | P | J | X | W | E | H |

Conditions:

- (i) If the first element is a symbol and the last, a number, the codes for these two are to be interchanged.
- (ii) If the first element is an odd number and the last, an even number, the first and last elements are to be coded as O.
- (iii) If both second and third elements are either numbers or symbols, the third element is to be coded as the code for the second element.

How will '% + < 2 5 =' be coded?

- Ans**
- ☒ A. L P P M B J
  - ☒ B. L P H M B J
  - ☒ C. L H H M B J
  - ☒ D. J H P M B L

**Q.37** In a certain code language, 'DOVE' is written as 'PEFW' and 'CROW' is written as 'SDXP'. How will 'MYNA' be written in that language?

- Ans**
- ☒ A. NZOB
  - ☒ B. ZNBO
  - ☒ C. ZMBO
  - ☒ D. ZNOB

**Q.38** Each of P, Q, R, S, T, U and V has an exam on a different day of a week starting from Monday and ending on Sunday of the same week. Only three persons have exams between R and V. Only two persons have exams between Q and P. V's exam is on Saturday. Q's exam is immediately before R. Only U's exam is between P and V. T's exam is not held on Wednesday. Q's exam is on Monday. On which day is S's exam held?

- Ans**
- ☐ A. Monday
  - ☐ B. Tuesday
  - ☒ C. Wednesday
  - ☐ D. Sunday

**Q.39** Six frogs, P, Q, R, S, T and U, were sitting around a circular pond, facing the centre. T was second to the left of S. P was second to the right of U. P is not seated three places to the right of Q. There are exactly two frogs between Q and S. Which frog was sitting to the immediate right of P?

- Ans**
- ☐ A. T
  - ☐ B. U
  - ☐ C. S
  - ☒ D. R

**Q.40** Based on the given statement, four conclusions are drawn. Find out which conclusion is true based on the statement.

Statement:  $P = L \geq K > J < F < N$

- Ans**
- ☐ A.  $K = F$
  - ☐ B.  $J = L$
  - ☒ C.  $P > J$
  - ☐ D.  $N > K$

**Q.41** Based on the given statement, two conclusions are drawn. Find out which conclusion is true based on the statement.

Statement:  $A < Q, Q \leq X, E = A < T$

Conclusions:

1.  $T < E$
2.  $A = X$

- Ans**
- ☐ A. Only conclusion 1 is true
  - ☐ B. Only conclusion 2 is true
  - ☐ C. Both conclusions 1 and 2 are true
  - ☒ D. Neither conclusion 1 nor 2 is true

**Q.42** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

$8 : 67 :: 10 : 103 :: 17 : ?$

- Ans**
- ☐ A. 145
  - ☐ B. 192
  - ☒ C. 292
  - ☐ D. 312

**Q.43** Six teachers, C, D, E, F, G and H, are sitting around a circular table. They were facing the centre of the table. Exactly two people sit between H and D, while F is sitting to the immediate left of C. E is sitting to the immediate right of H. D is an immediate neighbour of both G and F. Who is the third person to the left of C?

- Ans**
- ☐ A. D
  - ☒ B. G
  - ☐ C. H
  - ☐ D. C

**Q.44** Select the option that is related to the fifth letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster and the fourth letter-cluster is related to the third letter-cluster.

NECTAR : TCVEGP :: POCKET : VGMEQR :: MONKEY : ?

- Ans**
- ✓ A. AGMPQO
  - ✗ B. AGMRSO
  - ✗ C. BHMPQP
  - ✗ D. AFMPQN

**Q.45** Six houses, K, L, M, N, O and P, are located in the same colony. L is 50 m to the south of K. P is 250 m to the west of K. O is 200 m to the north of K. N is 190 m to the south of L. M is 150 m to the east of L. In which direction is House O with reference to House L?

- Ans**
- ✗ A. East
  - ✗ B. West
  - ✓ C. North
  - ✗ D. South

**Q.46** The following question is based on the given five, 3-digit numbers.

(Left) 721, 463, 227, 316, 627 (Right)

(For example, 456: 6 = digit in unit's place, 5 = digit in ten's place, 4 = digit in hundred's place)

NOTE - All operations to be done from left to right.

If the digit in unit's place of each number is interchanged with the digit in hundred's place of the same number, which original number will become the largest number?

- Ans**
- ✗ A. 721
  - ✓ B. 627
  - ✗ C. 227
  - ✗ D. 316

**Q.47** Anuj started to walk from a point A and goes 10 m towards North and then turned left and walked 5 m. He then turned right and walked a distance of 5 m and then again turned right and walked a distance of 5 m before stopping at point P. How far and towards which direction should he walk in order to reach Point A starting from Point P?

(All turns are 90 degree turns only)

- Ans**
- ✗ A. 5m towards East
  - ✗ B. 10m towards West
  - ✗ C. 15m towards North
  - ✓ D. 15m towards South

**Q.48** If '+' means '-', '-' means '+', '÷' means '×' and '×' means '÷', what will come in place of the question mark (?) in the following equation?

$$24 - 3 \times 12 + 4 \div 3 = ?$$

- Ans**
- ✓ A. 8
  - ✗ B. 10
  - ✗ C. 11
  - ✗ D. 12

**Q.49** If '+' means '-', '-' means '+', '÷' means '×' and '×' means '÷', what will come in place of the question mark (?) in the following equation?

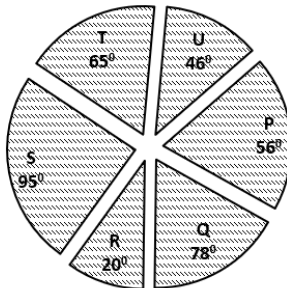
$$21 + 48 - 8 \times 6 + 4 = ?$$

- Ans**
- ✗ A. 37
  - ✗ B. 38
  - ✓ C. 39
  - ✗ D. 40

**Q.50** Today is a Wednesday. What day of the week will it be after 75 days?

- Ans**
- ☒ A. Tuesday
  - ☒ B. Monday
  - ☒ C. Wednesday
  - ☒ D. Friday

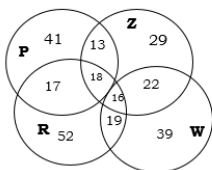
**Q.51** The pie chart given below shows the expenditure of a certain company across various sectors – P, Q, R, S, T and U – during a particular year. Study the graph and answer the question.



What approximate percentage of the total spending is spent on sector S?

- Ans**
- ☒ A. 26.4%
  - ☒ B. 28.3%
  - ☒ C. 24%
  - ☒ D. 20.05%

**Q.52** In the following diagram, R = Students, P = Boys, W = Girls, and Z = Psychology. The numbers in different sections indicate the number of persons. How many girls are psychology students?



- Ans**
- ☒ A. 19
  - ☒ B. 18
  - ☒ C. 17
  - ☒ D. 16

**Q.53** How many such pairs of letters are there in the word 'PARTICLE' (in both forward and backward directions) which have as many letters between them in the word as there are in the English alphabetical order?

- Ans**
- ☒ A. None
  - ☒ B. One
  - ☒ C. Two
  - ☒ D. Three

**Q.54** Select the option that represents the letters that, when placed from left to right in the same sequence in the blanks below, will complete the letter series.

G \_ Q \_ A \_ T \_ N \_ G T Q N \_ G \_ Q N D

- Ans**
- ☒ A. TNGQBCT
  - ☒ B. TGGQBCQ
  - ☒ C. TNGQBQC
  - ☒ D. TAGNBCT

**Q.55** Given below are three statements and three conclusions. Take the statements to be true even if they are at variance with commonly known facts, and decide whether the conclusion/s follow/s the given statements.

Statements:

I. Some monkeys are pandas.

II. Some pandas are giraffes.

III. All giraffes are lions.

Conclusions:

I. Some lions are pandas.

II. Some lions are monkeys.

III. Some giraffes are monkeys.

- Ans**
- ☒ A. Only conclusion I follows
  - ☐ B. Conclusions I and III follow
  - ☐ C. Only conclusion III follows
  - ☐ D. All the conclusions follow

Section : General Science

**Q.56** In chemical reaction  $\text{N}_2 + x\text{H}_2 \rightarrow 2\text{NH}_3$ , what is the value of x?

- Ans**
- ☐ A. 1
  - ☐ B. 2
  - ☒ C. 3
  - ☐ D. 4

**Q.57** Which of the following metals can displace aluminium from an aluminium sulphate solution?

- Ans**
- ☐ A. Fe
  - ☐ B. Cu
  - ☒ C. Mg
  - ☐ D. Hg

**Q.58** When is carbon dioxide produced as a waste product in plants?

- Ans**
- ☒ A. During respiration
  - ☐ B. During photosynthesis
  - ☐ C. During transpiration
  - ☐ D. During both respiration and photosynthesis

**Q.59** What temperature will be required for the preparation of Plaster of Paris from gypsum?

- Ans**
- ☒ A.  $100^\circ\text{C}$
  - ☐ B.  $0^\circ\text{C}$
  - ☐ C.  $373^\circ\text{C}$
  - ☐ D.  $173^\circ\text{C}$

**Q.60** A beam of white light undergoes dispersion through a triangular glass prism forming a band of seven colours. Which of the statements is/are correct?

- (a) The red-coloured component has minimum refractive index.
- (b) The violet-coloured component deviates the least.
- (c) All components of white light have same speed in glass.

**Ans** ✓ **A. Only (a)**

✗ **B. Only (b)**

✗ **C. Both (a) and (b)**

✗ **D. Both (b) and (c)**

**Q.61** If a coil of a conductor with  $50\ \Omega$  resistance is subjected to time varying magnetic field such that the EMF induced is  $5\text{ V}$ , then the induced current in the coil is:

**Ans** ✗ **A. zero**

✗ **B. infinite**

✓ **C.  $0.01\text{ A}$**

✗ **D.  $0.1\text{ A}$**

**Q.62** The Bishnoi community contributes to forest and animal conservation in \_\_\_\_\_.

**Ans** ✓ **A. Rajasthan**

✗ **B. Gujarat**

✗ **C. Madhya Pradesh**

✗ **D. Haryana**

**Q.63** Which of the following salts will give an aqueous solution having pH of almost 7?

(i)  $\text{NH}_4\text{Cl}$

(ii)  $\text{Na}_2\text{CO}_3$

(iii)  $\text{K}_2\text{SO}_4$

**Ans** ✗ **A. Only (i)**

✗ **B. Only (ii)**

✗ **C. Both (i) and (ii)**

✓ **D. Only (iii)**

**Q.64** Which of the following materials is preferably used for electrical transmission lines?

**Ans** ✗ **A. Nichrome**

✓ **B. Copper**

✗ **C. Tungsten**

✗ **D. Tin-lead alloy**





Q.70  $2\text{AgCl} \rightarrow 2\text{Ag (s)} + \text{Cl}_2\text{ (g)}$

What is the suitable condition for the above reaction to take place?

- Ans
- ☐ A. Sunlight + Pressure
  - ☐ B. Heat
  - ☐ C. Heat + Pressure
  - ☒ D. Sunlight

Q.71 An electric oven is rated 2500 W. The energy used by it in 5 hours will be:

- Ans
- ☐ A. 12.5 J
  - ☒ B. 12.5 kWh
  - ☐ C. 12500 J
  - ☐ D. 12500 kWh

Q.72 The value of absolute refractive index of a medium is always:

- Ans
- ☐ A. less than 1
  - ☒ B. more than 1
  - ☐ C. equal to 1
  - ☐ D. equal to 0

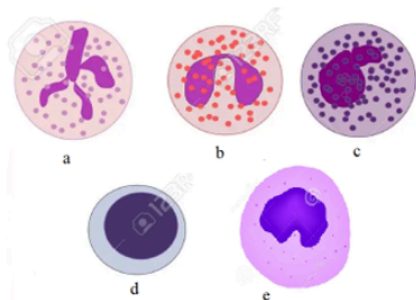
Q.73 A current of 5 A flows through an electrical appliance when the potential difference of 50 V is applied across its terminals. What will be the current drawn by the appliance if the potential difference is increased to 110 V?

- Ans
- ☐ A. 5 A
  - ☐ B. 10 A
  - ☒ C. 11 A
  - ☐ D. 25 A

Q.74 Aerenchyma cells are present in \_\_\_\_\_.

- Ans
- ☐ A. pea
  - ☐ B. neem
  - ☐ C. cactus
  - ☒ D. common water hyacinth

**Q.75** The diagram below shows the different types of white blood cells. Identify the option with correct labelling.



- Ans**
- ✓ **A.** a - Neutrophil, b - Eosinophil, c - Basophil, d - Lymphocyte, e - Monocyte
  - ✗ **B.** a - Neutrophil, b - Basophil, c - Lymphocyte, d - Eosinophil, e - Monocyte
  - ✗ **C.** a - Eosinophil, b - Neutrophil, c - Basophil, d - Monocyte, e - Lymphocyte
  - ✗ **D.** a - Neutrophil, b - Monocyte, c - Eosinophil, d - Basophil, e - Lymphocyte

**Q.76** A ray of light is incident on the pole of a concave mirror. The acute angle between the incident ray and the principal axis will be called:

- Ans**
- ✗ **A.** angle of reflection
  - ✓ **B.** angle of incidence
  - ✗ **C.** angle of deviation
  - ✗ **D.** angle of emergence

**Q.77** In human males, the sex chromosomes present are XY. What is the difference between them?

- Ans**
- ✓ **A.** X-chromosome is bigger, whereas Y is smaller.
  - ✗ **B.** Y chromosome is bigger, whereas X is smaller.
  - ✗ **C.** There is no difference in size.
  - ✗ **D.** Y chromosome has more genes than X chromosome.

**Q.78** Which among the following mirror(s) always forms virtual and erect image?

- (A) Convex mirror
- (B) Plane mirror
- (C) Concave mirror

- Ans**
- ✗ **A.** Only A
  - ✗ **B.** Only B
  - ✓ **C.** Both A and B
  - ✗ **D.** Both B and C

**Q.79** Select the option that has only biodegradable substances.

- Ans**
- ✗ **A.** Glass, Metals, Egg shells, Paper, Tetra packs
  - ✗ **B.** Batteries, Vegetable peelings, Stale bread, Glass, Metals
  - ✓ **C.** Eggshells, Paper, Stale biscuits, Fruits, Vegetable peels
  - ✗ **D.** Tetra packs, Metals, Leather, Stale biscuits, Fruits

**Q.80** According to Fleming's right-hand rule, the index finger and the central finger of the right hand represent directions of \_\_\_\_\_ and \_\_\_\_\_, respectively.

- Ans**
- ☒ A. induced current, magnetic field
  - ☒ B. magnetic field, induced current
  - ☒ C. motion of the conductor, magnetic field
  - ☒ D. motion of the conductor, induced current

Section : General Awareness and Current Affairs

**Q.81** Which regulatory body is the only note issuing authority in India?

- Ans**
- ☒ A. Reserve Bank of India
  - ☒ B. Securities and Exchange Board of India
  - ☒ C. Insurance Regulatory and Development Authority of India
  - ☒ D. Small Industries Development Bank of India.

**Q.82** Which microfinance institution of India provides loans only against gold jewellery and provides foreign exchange services, money transfer, wealth management services, travel and tourism services?

- Ans**
- ☒ A. Mahindra & Mahindra Financial Services Ltd
  - ☒ B. Muthoot Finance Ltd
  - ☒ C. Aditya Birla Finance Ltd
  - ☒ D. Power Finance Corporation Ltd

**Q.83** Which new mission has been announced in the Union Budget of India, 2021, for exceptional opportunities in mapping, exploring and utilising the oceanic resources?

- Ans**
- ☒ A. Deep Ocean Mission
  - ☒ B. Blue Economy Mission
  - ☒ C. Samundra Setu Mission
  - ☒ D. Maritime Exercise Mission

**Q.84** The term 'Panthalassa' is related to which of the following?

- Ans**
- ☒ A. Oceans
  - ☒ B. Soil
  - ☒ C. Atmosphere
  - ☒ D. Mountains

**Q.85**

Name India's lone participant in the winter Olympics, who finished 45<sup>th</sup> in the giant slalom event.

**Ans**

- ☐ A. Aanchal Thakur
- ☐ B. Shailaja Kumar
- ☐ C. Himanshu Thakur
- ☒ D. Arif Khan

**Q.86**

Atal Innovation Mission (AIM) and NITI Aayog in collaboration with \_\_\_\_\_ launched the community Innovators Fellowship (CIF) marking the 'International Day of Women and Girls in Science'.

**Ans**

- ☐ A. Ministry of Women and Child Development
- ☒ B. United Nations Development Programme (UNDP)
- ☐ C. Department of Science and Technology
- ☐ D. Indian Institute of Science

**Q.87**

In which year did the Indira Gandhi Government devalue the India Rupee?

**Ans**

- ☐ A. 1978
- ☐ B. 1956
- ☒ C. 1966
- ☐ D. 1970

**Q.88**

Who is the highest executive of the country in India?

**Ans**

- ☒ A. The President
- ☐ B. The Prime Minister
- ☐ C. The Vice President
- ☐ D. The Speaker of the Lok Sabha

**Q.89** Against which of the following Acts did Mahatma Gandhi decide to launch nationwide Satyagraha in 1919?

- Ans**
- ☒ A. Inland Emigration Act
  - ☒ B. Rowlatt Act
  - ☒ C. Pitt's India Act
  - ☒ D. Regulating Act

**Q.90** From which year onwards is the Union of India Budget presented on 1 February instead of the last working day of February?

- Ans**
- ☒ A. 2015
  - ☒ B. 2017
  - ☒ C. 2019
  - ☒ D. 2021

**Q.91** In which year was the 11<sup>th</sup> Fundamental Duty added in the Indian Constitution?

- Ans**
- ☒ A. 2002
  - ☒ B. 2012
  - ☒ C. 1998
  - ☒ D. 2004

**Q.92** In which of the following cities did Gautam Buddha get enlightenment?

- Ans**
- ☒ A. Kaushambi
  - ☒ B. Lumbini
  - ☒ C. Bodh Gaya
  - ☒ D. Sanchi

**Q.93** Which among the following States topped the 4<sup>th</sup> Khelo India Youth Games 2021 medals tally?

- Ans**
- ☒ A. Karnataka
  - ☒ B. Manipur
  - ☒ C. Rajasthan
  - ☒ D. Haryana

Q.94

On which of the following occasions is 'Natyanjali Utsav' celebrated in Tamil Nadu every year?

Ans

- ☐ A. Janmashtami
- ☒ B. Mahashivratri
- ☐ C. Diwali
- ☐ D. Pongal

Q.95

World Wetland Day was celebrated on 2 February 2022. What was theme of this year?

Ans

- ☐ A. Wetlands and water
- ☒ B. Wetland's action for people and nature
- ☐ C. Wetlands and Biodiversity
- ☐ D. Wetlands and climate change

Q.96

How many language universities are located in India as on June 2022?

Ans

- ☒ A. 6
- ☐ B. 16
- ☐ C. 26
- ☐ D. 20

Q.97

As of July 2022, students from how many minority communities under the Maulana Azad Fellowship Scheme (MANF) get five year fellowships in the form of financial assistance notified by the Central Government, to pursue M. Phil and Ph.D?

Ans

- ☐ A. Two
- ☐ B. Four
- ☒ C. Six
- ☐ D. Eight

**Q.98**

On 14 February 2022, ISRO successfully launched its first earth observation satellite of 2022, EOS-04. It was launched by which rocket?

**Ans**

☐ A. PSLV-C51

☒ B. PSLV-C52

☐ C. PSLV-C53

☐ D. PSLV-C54

**Q.99** In which state will you find the Mahendragiri Hills?

**Ans**

☐ A. Jharkhand

☐ B. Chhattisgarh

☐ C. West Bengal

☒ D. Odisha

**Q.100**

In which year was The Municipal Corporation in Calcutta set up by a royal charter?

**Ans**

☐ A. 1688

☐ B. 1687

☒ C. 1726

☐ D. 1736





# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 24/08/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** Rachna can eat 21 oranges in 60 minutes. She wants to know how many minutes it would take her to eat 35 oranges at the same pace?

- Ans**
- ☒ A. 80 min
  - ☒ B. 90 min
  - ☒ C. 100 min
  - ☒ D. 120 min

**Q.2** Two pipes, A and B, can fill a tank of 1000 litres in 5 hours and 6 hours, respectively. If they are opened together, how many hours will they take to fill an empty tank of 1800 litres?

- Ans**
- ☒ A.  $\frac{54}{11}$
  - ☒ B.  $\frac{52}{11}$
  - ☒ C.  $\frac{25}{11}$
  - ☒ D.  $\frac{45}{11}$

**Q.3** Simplify  $\sqrt{625} - \sqrt{324} + 33^2$ .

- Ans**
- ☒ A. 1069
  - ☒ B. 1609
  - ☒ C. 1906
  - ☒ D. 1096

**Q.4** The value of  $\sqrt{1234321} =$

- Ans**
- ☒ A. 121
  - ☒ B. 139
  - ☒ C. 1111
  - ☒ D. 1219

Q.5 What is the measure of each exterior angle of a regular hexagon?

- Ans ☒ A.  $60^\circ$   
☒ B.  $30^\circ$   
☒ C.  $45^\circ$   
☒ D.  $120^\circ$

Q.6 The coefficient of  $x^4y^3$  in the expansion of  $(3x - 2y)^2(x^2 + y^3)^2$  is:

- Ans ☒ A. 18  
☒ B. 15  
☒ C. 12  
☒ D. 14

Q.8 If  $x : 6 :: 6 : y$ , and  $x : y :: y : 6$ , then which of the options below gives the correct values of x and y, in that order?

- Ans ☒ A. 6 and 6  
☒ B. 6 and 12  
☒ C. 12 and 6  
☒ D. 12 and 12

Q.9 If the mean of the following data is 4, find the missing frequency.

|   |   |   |   |   |
|---|---|---|---|---|
| x | 3 | 5 | 9 | 2 |
| f | 3 | 4 | - | 8 |

- Ans ☒ A. 4  
☒ B. 5  
☒ C. 3  
☒ D. 7

Q.10 The value of  $156.025 + 251.216 - 52.156$  is:

- Ans ☒ A. 355.085  
☒ B. 302.152  
☒ C. 326.327  
☒ D. 332.074

Q.11 If the average of two numbers is 26 and one of them is 12, then find the other number.

- Ans ☒ A. 14  
☒ B. 20  
☒ C. 40  
☒ D. 52

Q.13 The floor of an office has dimensions  $5\text{ m} \times 3\text{ m}$ . The cost of painting the walls and ceiling is ₹7,440 at the rate of ₹60/m<sup>2</sup>. Find the height of the room (in m).(rounded off to one decimal place)

- Ans ☒ A. 6.8  
☒ B. 4.5  
☒ C. 5.6  
☒ D. 3.5

Q.14 8118 is divisible by:

- Ans ☒ A. 5  
☒ B. 6  
☒ C. 7  
☒ D. 8

Q.15 A dealer sold three-fifth of his goods at a gain of 25% and the remaining at cost price. What is his loss or gain percent in the whole transaction?

- Ans ☒ A. 18% loss  
☒ B. 18% gain  
☒ C. 15% loss  
☒ D. 15% gain

Q.16 Find the arithmetic mean of the given data.

|     |    |    |    |    |    |
|-----|----|----|----|----|----|
| $x$ | 10 | 20 | 30 | 40 | 50 |
| $f$ | 5  | 5  | 4  | 6  | 5  |

- Ans ☒ A. 30.4  
☒ B. 30.6  
☒ C. 26.4  
☒ D. 16.4

Q.17 The number of solutions to the pair of linear equations  $5x - 3y = 7$  and  $7x + 4y = 18$  is:

- Ans ☒ A. one  
☒ B. none  
☒ C. infinite  
☒ D. three

Q.18 If one root of the equation  $(a + 3)x^2 - 13ax + 7 - a = 0$  is the reciprocal of the other, then the value of  $a$  is:

- Ans ☒ A. -2  
☒ B. -3  
☒ C. 2  
☒ D. 3

Q.20 Find the least six-digit number that is exactly divisible by 8, 10, 12 and 16.

- Ans ☒ A. 100020  
☒ B. 100040  
☒ C. 100060  
☒ D. 100080

Q.21 Find the total surface area of a cylinder whose radius of base is 7 cm and height is 15 cm.

- Ans ☒ A.  $308\pi \text{ cm}^2$   
☒ B.  $380\pi \text{ cm}^2$   
☒ C.  $803\pi \text{ cm}^2$   
☒ D.  $830\pi \text{ cm}^2$

Q.22 Which of the following is NOT a quadrilateral?

- Ans
- ☒ A. Parallelogram
  - ☒ B. Rhombus
  - ☒ C. Circle
  - ☒ D. Trapezium

Q.23 Find the value of  $\frac{\sin^2 \theta - \sin^4 \theta + 1}{1 - \sin^2 \theta} + \frac{1 - \tan^2 \theta - \tan^4 \theta}{1 + \tan^2 \theta}$ .

- Ans
- ☒ A. -1
  - ☒ B. 0
  - ☒ C. 1
  - ☒ D. 2

Q.24 For what values of  $z$  will the following equation have equal roots?

$$(z + 4)x^2 + (z + 1)x + 1 = 0$$

- Ans
- ☒ A. 4, 3
  - ☒ B. 2, -5
  - ☒ C. 5, -3
  - ☒ D. 2, -3

Q.25 Two pipes A and B can fill a tank in 15 hours and 20 hours, respectively, while a third pipe C can empty the full tank in 30 hours. If all the three pipes operate simultaneously, in how much time will the tank, initially empty, be filled?

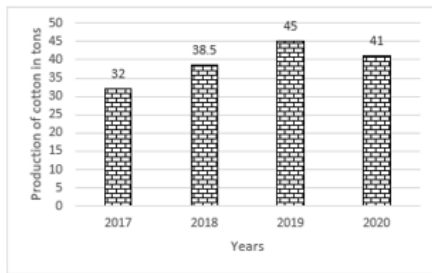
- Ans
- ☒ A. 12 hours
  - ☒ B. 13 hours
  - ☒ C. 15 hours
  - ☒ D. 18 hours

#### Section : General Intelligence and Reasoning

Q.26 Six girls named P, Q, R, S, T and U are sitting in a straight line. All are facing the north direction. U sits third to the left of R. S sits third to the right of Q. U sits second to the left of Q. T is not the immediate neighbour of U. What is P's position in the line?

- Ans
- ☒ A. Second from the extreme left end
  - ☒ B. At the extreme left end
  - ☒ C. Third from the extreme left end
  - ☒ D. Third from the extreme right end

- Q.27** The following bar graph shows the production of cotton (in tons) over the years. Study the graph and answer the question.



What is the approximate percentage increase in the production of cotton in 2020 as compared to 2017?

- Ans**
- ☒ A. 26%
  - ☒ B. 25.05%
  - ☒ C. 28.12%
  - ☒ D. 30.50%

- Q.28** The table given below shows the number of students who were interviewed and who got selected by the universities A, B, C and D over the years. Study the table and answer the question.

| Students<br>Years | A           |          | B           |          | C           |          | D           |          |
|-------------------|-------------|----------|-------------|----------|-------------|----------|-------------|----------|
|                   | Interviewed | Selected | Interviewed | Selected | Interviewed | Selected | Interviewed | Selected |
| 2017              | 1500        | 700      | 1200        | 800      | 1800        | 1000     | 1200        | 750      |
| 2018              | 1600        | 800      | 1500        | 600      | 2000        | 1120     | 1400        | 460      |
| 2019              | 2200        | 900      | 2000        | 680      | 1800        | 1100     | 2000        | 500      |
| 2020              | 1500        | 950      | 1600        | 700      | 1800        | 1200     | 1500        | 450      |
| 2021              | 1100        | 400      | 1500        | 490      | 1300        | 800      | 1300        | 350      |

In university C, the total number of students selected over the years was approximately what percentage of the total number of students who were interviewed over the years?

- Ans**
- ☒ A. 40%
  - ☒ B. 50%
  - ☒ C. 60%
  - ☒ D. 65%

- Q.29** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(2, 4, 18)

(4, 6, 50)

- Ans**
- ☒ A. (3, 5, 32)
  - ☒ B. (2, 5, 49)
  - ☒ C. (6, 7, 65)
  - ☒ D. (5, 4, 18)

- Q.30** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the condition is your answer.

| Number/Symbol | 8 | = | 4 | 7 | @ | % | > | 2 | ! | ? | 5 | 3 | < | 9 |
|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code          | Z | F | T | J | D | H | E | X | V | W | K | U | P | A |

Conditions:

- If the first element is a symbol and the last, a number, the codes for these two are to be interchanged.
- If the first element is an odd number and the last, an even number, the first and last elements are to be coded as Ø.
- If both second and third elements are perfect squares, the third element is to be coded as the code for the second element.

How will '3 = < 2 @ 8' be coded?

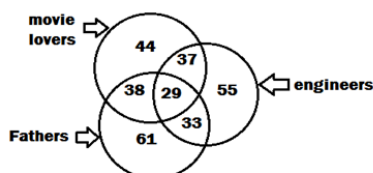
- Ans**
- ☒ A. Ø F E X D Ø
  - ☒ B. Ø F P X D Ø
  - ☒ C. Ø P F X D Ø
  - ☒ D. Ø F E D X Ø

- Q.31** If '+' means '÷', '-' means '+', '×' means '-' and '÷' means '×', then, what will be the value of the following expression?

$$[(12 \times 3) - (2 \div 3)] + (1 - 4) \div 4$$

- Ans**
- ☒ A. 9
  - ☒ B. 16
  - ☒ C. 12
  - ☒ D. 8

- Q.32** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



How many such fathers are there who are also movie lovers but NOT engineers?

- Ans**
- ☒ A. 29
  - ☒ B. 44
  - ☒ C. 38
  - ☒ D. 61

**Q.33** Three statements are followed by three conclusions numbered I, II and III. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts, and decide which of the given conclusions logically follow/s from the given statements.

Statements:

Some hotels are dormitories.

Some gates are shelters.

All shelters are fences.

Conclusions:

(I) Some gates are dormitories.

(II) Some fences are gates.

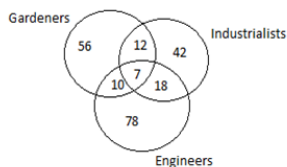
(III) Some hotels are shelters.

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Either conclusion I or conclusion III follows
  - ☒ D. None of the conclusions follow

**Q.34** Six doctors, K, L, M, N, O and P, are sitting in a straight line. All are facing the north direction. Only O is sitting between N and L. Only P is sitting between L and K. K sits fifth to the right of M. Who is sitting to the immediate right of M?

- Ans**
- ☒ A. N
  - ☒ B. P
  - ☒ C. L
  - ☒ D. O

**Q.35** Study the given diagram carefully and answer the following question. The numbers in different sections indicate the number of persons with different professions.



How many people are Gardeners but NOT Engineers?

- Ans**
- ☒ A. 56
  - ☒ B. 68
  - ☒ C. 75
  - ☒ D. 80

**Q.36** Janhvi and Pranitha are standing at the extreme ends of a row in which all the students are facing the north. Only 26 students are standing between Janhvi and Ravi. Only 14 students are standing between Ravi and Pranitha. Total how many students are standing in the line?

- Ans**
- ☒ A. 42
  - ☒ B. 43
  - ☒ C. 44
  - ☒ D. 45

**Q.37** Refer to the following number series and answer the question.

2 5 2 6 5 2 2 6 3 8 9 5 6 3 6 2 2 5 5 3

How many such numbers are there in the series each of which is immediately preceded by an odd number and also immediately followed by an odd number?

- Ans**
- ☐ A. 1
  - ☐ B. 2
  - ☒ C. 3
  - ☐ D. 4

**Q.38** Each of the digits in the number 318924765 is arranged in descending order from left to right. The position of how many digits will remain unchanged as compared to that in the original number?

- Ans**
- ☐ A. None
  - ☒ B. One
  - ☐ C. Two
  - ☐ D. Three

**Q.39** In this question, a statement is followed by two conclusions. Which of the two conclusions is/are true with respect to the statement?

Statement:  $F = E \geq D = A > Z < S = O$

Conclusions:

I.  $F \geq D$

II.  $D < O$

- Ans**
- ☒ A. Only conclusion I is true
  - ☐ B. Only conclusion II is true
  - ☐ C. Both conclusions I and II are true
  - ☐ D. Neither conclusion I nor II is true

**Q.40** This question is based on the five, three-digit numbers given below:

(Left) 448 455 275 563 215 (Right)

What will be the resultant if the third digit of the largest number is added to the second digit of the smallest number?

- Ans**
- ☐ A. 3
  - ☒ B. 4
  - ☐ C. 5
  - ☐ D. 6

**Q.41** Six friends, Arun, Suresh, Rahul, Priyanka, Dilan and Hiba, took a test online. All of them scored different marks in the test. Suresh scored more than Priyanka but less than Arun. Hiba scored the least. Dilan scored less than Rahul. Arun scored more than Priyanka and Rahul. Who among the six scored the most?

- Ans**
- ☐ A. Suresh
  - ☒ B. Arun
  - ☐ C. Rahul
  - ☐ D. Priyanka



**Q.42** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

STM : RUL

PJR : OKQ

- Ans**
- ☒ A. MTL : LUM
  - ☒ B. TCS : SDR
  - ☒ C. BUP : AVQ
  - ☒ D. VEW : UDV

**Q.44** Select the option that represents the letters that, when placed from left to right in the same sequence in the blanks below, will complete the letter series.

Q W \_ R \_ X E \_ Q \_ E R Q Z E \_

- Ans**
- ☒ A. EQZYR
  - ☒ B. EQRYR
  - ☒ C. EQRYE
  - ☒ D. EQRER

**Q.45** Which of the following numbers will replace the question mark (?) in the given series?

5, 6, 10, 12, 15, ?, 20, 24

- Ans**
- ☒ A. 19
  - ☒ B. 21
  - ☒ C. 20
  - ☒ D. 18

**Q.46** If each of the digits in the number given below is arranged in the descending order from left to right, what will be the sum of the digits that are second from the left and third from the right in the new number thus formed?

(Left) 259812357 (Right)

- Ans**
- ☒ A. 8
  - ☒ B. 10
  - ☒ C. 11
  - ☒ D. 12

**Q.47** Refer to the following letter, number and symbol series and answer the question.

(Left) 4 T 6 S 2 A D & C E 2 4 + & 7 6 U 5 H U K 8 E W @ E A & P (Right)

How many such vowels are there in the series which are immediately preceded by a number and also immediately followed by a consonant?

- Ans**
- ☒ A. None
  - ☒ B. One
  - ☒ C. Two
  - ☒ D. Three

**Q.48** Which of the following numbers will replace the question mark (?) in the given series?

9, 10, 22, 69, 280, ?

- Ans**
- ☒ A. 560
  - ☒ B. 576
  - ☒ C. 1405
  - ☒ D. 1450

**Q.49** Vishal is standing in a park facing the south direction. He then turns  $90^\circ$  clockwise on the same point. After that, he turns  $45^\circ$  clockwise. In which direction is he facing now?

- Ans**
- ☒ A. South-west
  - ☒ B. North-east
  - ☒ C. North-west
  - ☒ D. South-east

**Q.50** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

27 : 140 :: 22 : 115 :: 32 : ?

- Ans**
- ☒ A. 140
  - ☒ B. 165
  - ☒ C. 130
  - ☒ D. 155

**Q.53** Which of the following years was a leap year?

- Ans**
- ☒ A. 2002
  - ☒ B. 2006
  - ☒ C. 2012
  - ☒ D. 2018

**Q.54** All 65 students of a class are standing in a row facing the north. Amrit is  $46^{\text{th}}$  from the extreme left end of the row, whereas Kashvi is  $14^{\text{th}}$  from the extreme right end. How many students are standing between Amrit and Kashvi?

- Ans**
- ☒ A. 4
  - ☒ B. 5
  - ☒ C. 6
  - ☒ D. 7

**Q.55** Sujata is standing in a park facing the east direction. She then turns  $135^\circ$  anticlockwise. After that, she turns  $90^\circ$  anticlockwise. Then, she turns  $45^\circ$  clockwise. In which direction is she facing now?

- Ans**
- ☒ A. East
  - ☒ B. North-west
  - ☒ C. West
  - ☒ D. South-west

#### Section : General Science

**Q.56** What is the basic event in reproduction?

- Ans**
- ☒ A. Replication of DNA
  - ☒ B. Replication of RNA
  - ☒ C. Making of proteins
  - ☒ D. Cell division

**Q.57** Which of the following is/are NOT true for ionic compounds?

- i. Ionic compounds have low melting and boiling points.
- ii. Ionic compounds are brittle and break into pieces when pressure is applied.
- iii. Ionic compounds are solids and are somewhat hard because of the strong force of attraction between the positive and negative ions.
- iv. Ionic compounds conduct electricity in the molten state.

**Ans** ☒ A. Only i

☒ B. i and ii

☒ C. i and iii

☒ D. i and iv

**Q.58** If a substance loses hydrogen during a reaction, it is said to be:

**Ans** ☒ A. reduced

☒ B. oxidised

☒ C. decomposed

☒ D. neutralised

**Q.59** A light ray is travelling from air medium to water medium (refractive index = 1.3) such that angle of incidence is x degree and angle of refraction is y degree. The value of ratio  $(\sin y)/(\sin x)$  is:

**Ans** ☒ A. 1/1.3

☒ B. 1.3

☒ C. 1

☒ D. 0.3

**Q.60** Identify the correct statement(s) from among the following.

(a) Resistivity of a material is dependent on the nature of the material.

(b) Resistivity of a material is independent of the area of cross section.

(c) Resistivity of a pure metal is more than its alloy.

**Ans** ☒ A. Only (a)

☒ B. Only (b)

☒ C. Both (a) and (b)

☒ D. Both (b) and (c)

**Q.61** The laws of reflection hold true for which of the following mirror(s)?

- (A) Concave mirror
- (B) Convex mirror
- (C) Plane mirror

**Ans** ☒ A. Only A and B  
☒ B. Only B and C  
☒ C. Only A and C  
☒ D. A, B and C

**Q.62** A ray of light is incident on an interface separating two media at an angle of incidence equal to  $45^\circ$ , for which the angle of refraction is  $30^\circ$ . The refractive index of the second medium with respect to first, is equal to:

**Ans** ☒ A.  $\sqrt{2}$   
☒ B.  $\frac{1}{\sqrt{2}}$   
☒ C.  $\frac{1}{2}$   
☒ D.  $\frac{\sqrt{3}}{2}$

**Q.63** The manufacturing of refrigerators that do not release chlorofluorocarbons has been made mandatory throughout the world. How will this help to prevent ozone depletion?

**Ans** ☒ A. It will help convert oxygen molecules into ozone.  
☒ B. CFCs will change into ozone molecules.  
☒ C. It will reduce the production of CFCs from oxygen molecules.  
☒ D. It will reduce the release of CFCs that react with ozone molecules.

**Q.64** Pyruvate is formed from glucose in the \_\_\_\_\_ of a cell.

**Ans** ☒ A. cytoplasm  
☒ B. nucleus  
☒ C. ribosome  
☒ D. mitochondria

**Q.65** The magnetic field lines inside a bar magnet are directed from:

**Ans** ☒ A. north pole to south pole  
☒ B. south pole to north pole  
☒ C. centre to north pole  
☒ D. centre to south pole

**Q.66** What aids in preventing the mixing of oxygen-rich and carbon dioxide-rich blood in the heart?

- Ans**
- ☐ A. Tricuspid valve
  - ☐ B. Pulmonary valve
  - ☐ C. Aortic valve
  - ☒ D. The wall between the chambers

**Q.67** Fleming's right-hand rule can be used to determine the direction of induced current when the angle between the magnetic field and the motion of the conductor is:

- Ans**
- ☐ A.  $0^\circ$
  - ☐ B.  $30^\circ$
  - ☒ C.  $90^\circ$
  - ☐ D.  $180^\circ$

**Q.69** Which of the following is the INCORRECT feature related to animal reproduction?

- Ans**
- ☐ A. Regeneration is not the same as reproduction
  - ☐ B. In Amoeba, splitting of two cells takes place in any plane
  - ☐ C. Seminal vesicle is a gland present in human males
  - ☒ D. Fertilisation of egg takes place in the uterus in human female

**Q.70** Which of the following compounds possesses the highest boiling point?

- Ans**
- ☐ A. Methane
  - ☒ B. Acetic acid
  - ☐ C. Chloroform
  - ☐ D. Ethanol

**Q.71** 5 ml of a solution of NaOH is found to be completely neutralised by 5 ml of a given solution of HCl. If we take 10 ml of the same solution of NaOH, the amount of HCl solution required to neutralise it will be:

- Ans**
- ☐ A. 15 ml
  - ☐ B. 2.5 ml
  - ☐ C. 5 ml
  - ☒ D. 10 ml

**Q.72** A current of 5 A flows through a conductor having resistance  $2\ \Omega$ . The potential difference (in volt) across the ends of the conductor is:

- Ans**
- ☐ A. 2.5
  - ☐ B. 3
  - ☐ C. 7
  - ☒ D. 10

**Q.73** What will be the next homologous series member of compound  $C_6H_{10}$ ?

- Ans**
- ☐ A.  $C_7H_{10}$
  - ☒ B.  $C_7H_{12}$
  - ☐ C.  $C_7H_{14}$
  - ☐ D.  $C_7H_{16}$

Q.74 Which of the following organisms have spiracles?

- Ans
- ☒ A. Earthworm
  - ☒ B. Human
  - ☒ C. Fish
  - ☒ D. Cockroach

Note: For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

Q.75 Identify the INCORRECT order for the number of valence shell electrons.

- Ans
- ☒ A.  $\text{Al} < \text{P} < \text{Si} < \text{S} < \text{Cl}$
  - ☒ B.  $\text{Li} < \text{Be} < \text{B} < \text{C} < \text{N}$
  - ☒ C.  $\text{Na} < \text{Mg} < \text{Al} < \text{P} < \text{Ar}$
  - ☒ D.  $\text{B} < \text{N} < \text{O} < \text{F} < \text{Ne}$

Q.76 From total \_\_\_\_\_ elements, \_\_\_\_\_ elements were discovered through laboratory processes.

- Ans
- ☒ A. 114, 22
  - ☒ B. 118, 24
  - ☒ C. 114, 20
  - ☒ D. 118, 26

Q.77 \_\_\_\_\_ is the chemical name of washing soda.

- Ans
- ☒ A. Sodium carbonate trihydrate
  - ☒ B. Sodium carbonate pentahydrate
  - ☒ C. Sodium carbonate tetrahydrate
  - ☒ D. Sodium carbonate decahydrate

Q.78 Identify the correct relation between radius of curvature 'R', object distance 'u' and image distance 'v' for a spherical mirror.

- Ans
- ☒ A.  $R = \frac{2uv}{u + v}$
  - ☒ B.  $R = \frac{uv}{2(u + v)}$
  - ☒ C.  $R = \frac{2(u + v)}{uv}$
  - ☒ D.  $R = \frac{(u + v)}{2uv}$

**Q.79** Two resistors  $R_1$  and  $R_2$  with resistances  $2\ \Omega$  and  $3\ \Omega$ , respectively, are connected in series to a 15V battery source. The current across  $R_2$  (in A) is:

- Ans**
- ✓ A. 3
  - ✗ B. 7.5
  - ✗ C. 5
  - ✗ D. 15

**Q.80** Cork is impermeable to water and gases because of \_\_\_\_\_ found within its cells.

- Ans**
- ✓ A. suberin
  - ✗ B. cellulose
  - ✗ C. cutin
  - ✗ D. lignin

Section : General Awareness and Current Affairs

**Q.81** Which ministry has launched the world's first multicentre phase III clinical trial to assess Ayurveda's efficacy in Rheumatoid Arthritis treatment?

- Ans**
- ✗ A. Ministry of Health and Family Welfare
  - ✓ B. Ministry of Ayush
  - ✗ C. Ministry of Chemicals and Fertilizers
  - ✗ D. Ministry of Science and Technology

**Q.82** Who became the youngest ever Indian to win a BWF Super 100 tournament, in 2022?

- Ans**
- ✗ A. Ashmita Chaliha
  - ✗ B. Malvika Bansod
  - ✓ C. Unnati Hooda
  - ✗ D. Mugdha Agrey

**Q.83** What is the name of the holy book of Muslims, which describes the relationship between an omnipotent and omniscient God and his creations?

- Ans**
- ✗ A. Injil
  - ✗ B. Sahih al-Bukhari
  - ✗ C. Torah
  - ✓ D. Quran

**Q.84** The Nubra, Shyok and Hunza are tributaries of the river \_\_\_\_\_.

- Ans**
- ✗ A. Ganga
  - ✓ B. Indus
  - ✗ C. Brahmaputra
  - ✗ D. Sutlej

**Q.85** In which year did the Indian government conduct its first nuclear test in the deserts of Pokhran?

- Ans**
- ☐ A. 1968
  - ☐ B. 1981
  - ☐ C. 1962
  - ☒ D. 1974

**Q.87** The First Finance Commission was constituted vide Presidential Order dated 22.11.1951 under the chairmanship of \_\_\_\_\_.

- Ans**
- ☐ A. Vijay Kelkar
  - ☐ B. YV Reddy
  - ☒ C. KC Neogy
  - ☐ D. C Rangarajan

**Q.88** In January 2022, which of these IITs launched the Global Center of Excellence in Affordable and Clean Energy (GCoE-ACE)?

- Ans**
- ☐ A. IIT Roorkee
  - ☐ B. IISc Bengaluru
  - ☒ C. IIT Dharwad
  - ☐ D. IIT Hyderabad

**Q.89** Which cultural festival of India is a ten-day festival of classical dance, folk art and light music, and is held every year between February and March at Shilpgram?

- Ans**
- ☐ A. Nishagandhi Festival
  - ☐ B. Natyanjali Utsav
  - ☒ C. Taj Mahotsav
  - ☐ D. Hampi Dance Utsav

**Q.90** In December 2021, who among the following won the Woman of the Year Award by World Athletics for grooming talent and encouraging young girls in India to take up sports and fight for gender equality?

- Ans**
- ☐ A. PT Usha
  - ☒ B. Anju Bobby George
  - ☐ C. PU Chitra
  - ☐ D. Shiny Kurisingal Wilson

**Q.91** The policy norms for Mission Vatsalya scheme implemented by the Ministry of Women and Child Development have been applicable from the 1<sup>st</sup> of which month in 2022:

- Ans**
- ☐ A. January
  - ☐ B. March
  - ☒ C. April
  - ☐ D. August



**Q.92** The 'Archaeological Survey of India' is headquartered in which of the following cities?

- Ans**
- ☐ A. Kolkata
  - ☒ B. New Delhi
  - ☐ C. Mumbai
  - ☐ D. Chandigarh

**Q.93** How many tiers of administration are there in the Panchayati Raj Institutions (in states having a population more than 2 million)?

- Ans**
- ☐ A. 1
  - ☒ B. 3
  - ☐ C. 5
  - ☐ D. 6

**Q.94** Which of the following in Indian Constitution has been taken from the Constitution of the United States?

- Ans**
- ☐ A. Parliamentary Government
  - ☐ B. Procedure Established by Law
  - ☐ C. Fundamental Duties
  - ☒ D. Fundamental Rights

**Q.95** How many Prime Ministers of India have been elected upto June 2022, who were also Chief Ministers of their respective states?

- Ans**
- ☐ A. 9
  - ☐ B. 8
  - ☒ C. 6
  - ☐ D. 10

**Q.96** The Central Government of India has reduced Agricultural Infrastructure Development Cess (AIDC) on Crude Palm Oil (CPO) from 7.5% to \_\_\_\_\_ with effect from 12<sup>th</sup> February 2022.

- Ans**
- ☐ A. 6%
  - ☒ B. 5%
  - ☐ C. 4%
  - ☐ D. 3%

**Q.97** As of July 2022, under the 'Nai Manzil' Scheme of the Ministry of Minority Affairs, the participant will get non-residential integrated education and skill training programme for 9 to 12 months of which a minimum \_\_\_\_\_ months should be devoted to skill training.

- Ans**
- ☐ A. two
  - ☒ B. three
  - ☐ C. four
  - ☐ D. five

**Q.98** In which year was the first Economic Survey presented as part of the Union Budget?

- Ans**
- ☐ A. 1947-48
  - ☒ B. 1950-51
  - ☐ C. 1953-54
  - ☐ D. 1960-61

**Q.99** On which river is India's smallest river island Umananda situated?

- Ans**
- ☐ A. Yamuna River
  - ☐ B. Ganga River
  - ☐ C. Saraswati River
  - ☒ D. Brahmaputra River

**Q.100** Which of the following is NOT true about the demand curve?

- Ans**
- ☐ A. It reflects the law of demand.
  - ☐ B. It is the plots of quantities demanded at various price.
  - ☐ C. It is negatively sloped.
  - ☒ D. It is the plots of quantities demanded at various time.



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 25/08/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** Ten years ago, a son was  $\frac{1}{8}$ th of his father's age. Now, he is  $\frac{9}{37}$ th of his father's present age. Find the present age of the father.

**Ans** ☒ A. 87 years

☒ B. 67 years

☒ C. 74 years

☒ D. 57 years

**Q.2** If p, q, r and s, the measures of the four angles of a quadrilateral, are in the ratio 3 : 5 : 4 : 6, then the value of 3p + 2r is:

**Ans** ☒ A. 340°

☒ B. 360°

☒ C. 330°

☒ D. 310°

**Q.3** A pair of parallel lines is intersected by a transversal such that  $\angle 1$  and  $\angle 2$  form a pair of interior angles on the same side of the transversal. If  $m\angle 1 = 35^\circ$ , what is the measure of  $\angle 2$ ?

**Ans** ☒ A. 145°

☒ B. 55°

☒ C. 35°

☒ D. 65°

**Q.4** If the mean of a data is 65 and its mode is 23 then the median using empirical formula is:

**Ans** ☒ A. 52

☒ B. 51

☒ C. 53

☒ D. 54

**Q.5** A tradesman marked his goods at 26% above its cost price and then allowed a discount of 13%. His gain (in %) is:

**Ans** ☒ A. 9.62

☒ B. 9.26

☒ C. 6.92

☒ D. 6.29

Q.6 Simplify:

$$a^2 + 9b^2 + c^2 - 6ab + 6bc - 2ac =$$

Ans

☐ A.  $(a - 3b + c)^2$

☐ B.  $(a + 3b + c)^2$

☒ C.  $(a - 3b - c)^2$

☐ D.  $(a - 3b - 2c)^2$

Q.7

Mohan gets 12% increase in his sale amount in the first year and 15% increase in the second year, with that his present sale is ₹1,28,800, what was his sale two years ago?

Ans

☒ A. ₹1,00,000

☐ B. ₹1,50,000

☐ C. ₹1,75,000

☐ D. ₹1,25,000

Q.8

A shopkeeper allows successive discount of 20% and 15% on an item of marked price ₹2,000. At what price did he sell the item?

Ans

☐ A. ₹1,300

☐ B. ₹1,200

☐ C. ₹1,240

☒ D. ₹1,360

Q.9

The value of  $1 + 3 + 5 + 7 + \dots + 21 =$

Ans

☐ A. 108

☐ B. 211

☒ C. 121

☐ D. 144

Q.10

The smallest whole number that must be multiplied to 1083 to make it a perfect square, is:

Ans

☐ A. 4

☒ B. 3

☐ C. 2

☐ D. 11

Q.11

One year ago, Krishna was four times as old as his daughter Kavitha. Six years hence, Krishna's age will be 12 years more than his daughter's age. Find the ratio of the present ages of Krishna and his daughter.

Ans

☐ A. 9:2

☐ B. 11:3

☐ C. 12:5

☒ D. 17:5

**Q.12** What is the least 5-digit number, which when divided by 15, 24, 35 and 42, the remainder in each case is 13?

- Ans**
- ☒ A. 10067
  - ☒ B. 10093
  - ☒ C. 10073
  - ☒ D. 10106

**Q.13** Two banks, A and B, offered loans at 4.5% and 5.5% per annum, respectively. Ramesh borrowed an amount of ₹2,00,000 from each bank. Find the positive difference in the amounts of simple interest paid to the two banks by Ramesh after 2 years.

- Ans**
- ☒ A. ₹ 8,000
  - ☒ B. ₹ 6,000
  - ☒ C. ₹ 2,000
  - ☒ D. ₹ 4,000

**Q.14** If  $x : y = 7 : 3$ , then  $(x^2 + y^2) : (x^2 - y^2) = ?$

- Ans**
- ☒ A. 5 : 2
  - ☒ B. 29 : 20
  - ☒ C. 5 : 1
  - ☒ D. 25 : 4

**Q.15** If A is an acute angle of triangle ABC, the  $\frac{\cos A - \sin A + 1}{\cos A + \sin A - 1}$  is equal to:

- Ans**
- ☒ A.  $\cot A + \operatorname{cosec} A$
  - ☒ B.  $\cos A + \operatorname{cosec} A$
  - ☒ C.  $\cot A + \sec A$
  - ☒ D.  $\tan A + \cos A$

**Q.16** A cube made of edge 18 m is completely filled with milk. The milk is transferred into a cuboid of length 27 m and height 7 m. The width of the cuboid is

- Ans**
- ☒ A. 72.5 m
  - ☒ B. 54.6 m
  - ☒ C. 12.7 m
  - ☒ D. 30.8 m

**Q.17** Two trains of same length are running on parallel tracks in the same direction at speeds of 56 m/s and 46 m/s. The faster train crosses the slower train in 26 sec. The length of each train is:

- Ans**
- ☒ A. 100 m
  - ☒ B. 120 m
  - ☒ C. 140 m
  - ☒ D. 130 m

**Q.18** Find the surface area of a sphere whose radius is 7 cm. [Use  $\pi = \frac{22}{7}$ ]

- Ans**
- ☒ A.  $166 \text{ cm}^2$
  - ☒ B.  $661 \text{ cm}^2$
  - ☒ C.  $666 \text{ cm}^2$
  - ☒ D.  $616 \text{ cm}^2$

Q.19 The value of  $\frac{2}{3} + \frac{1}{1+\frac{4}{5}} - \frac{5}{6}$  is:

- Ans
- ☒ A.  $\frac{13}{18}$
  - ☒ B.  $\frac{7}{18}$
  - ☒ C.  $\frac{11}{18}$
  - ☒ D.  $\frac{5}{18}$

Q.20 Five-fourths of a number is greater than three-fourths of the number by 6. Find the number.

- Ans
- ☒ A. 8
  - ☒ B. 10
  - ☒ C. 12
  - ☒ D. 14

Q.21 Pipe A is 3 times faster than pipe B. Both pipes together fill a tank in 36 min. How much time will pipe A alone take to fill the tank?

- Ans
- ☒ A. 80 min
  - ☒ B. 100 min
  - ☒ C. 48 min
  - ☒ D. 156 min

Q.22 The sum of two positive integers is 55. If their HCF and LCM are 5 and 120, respectively, then the sum of their reciprocals is \_\_\_\_\_.

- Ans
- ☒ A.  $\frac{12}{13}$
  - ☒ B.  $\frac{120}{13}$
  - ☒ C.  $\frac{11}{120}$
  - ☒ D.  $\frac{14}{6}$

Q.23 If one root of a quadratic equation,  $\alpha$ , is half of the other root of the same equation, then find the quadratic equation.

- Ans
- ☒ A.  $x^2 - 3\alpha x + 2\alpha^2 = 0$
  - ☒ B.  $x^2 + 3\alpha x + 2\alpha^2 = 0$
  - ☒ C.  $x^2 - 3\alpha x - 2\alpha^2 = 0$
  - ☒ D.  $x^2 + 3\alpha x - 2\alpha^2 = 0$

Q.24 Find the roots of  $\sqrt{3}m^2 + 10m + 7\sqrt{3} = 0$ .

- Ans
- ☒ A.  $-\frac{7}{\sqrt{3}}$  and  $-\sqrt{3}$
  - ☒ B.  $-\frac{7}{\sqrt{3}}$  and  $\sqrt{3}$
  - ☒ C.  $\frac{7}{\sqrt{3}}$  and  $-\sqrt{3}$
  - ☒ D.  $-\frac{7}{\sqrt{3}}$  and  $-2\sqrt{3}$

- Q.25** The frequency distribution here gives the monthly consumption of electricity of 60 consumers of a locality. What is the median of the data?

| Monthly consumption (in units) | Number of consumers |
|--------------------------------|---------------------|
| 50 – 60                        | 6                   |
| 60 – 70                        | 8                   |
| 70 – 80                        | 15                  |
| 80 – 90                        | 20                  |
| 90 – 100                       | 11                  |

- Ans** **A. 80.5**  
**B. 81.2**  
**C. 82.4**  
**D. 83.1**

### Section : General Intelligence and Reasoning

- Q.26** The table given below shows the number of students (girls and boys), in thousand numbers, who got admissions on merit basis in a certain well-recognised university 'XYZ' from four different places – J, K, L and M – over the years. Study the table and answer the question.

| Years | J    |       | K    |       | L    |       | M    |       |
|-------|------|-------|------|-------|------|-------|------|-------|
|       | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls |
| 2016  | 12.5 | 10    | 14   | 7.5   | 7    | 10    | 6    | 9     |
| 2017  | 10   | 9     | 13   | 7     | 8.5  | 11    | 8    | 7     |
| 2018  | 11   | 9     | 10   | 8.5   | 8    | 6     | 5    | 4     |
| 2019  | 9.5  | 7     | 11   | 9     | 9    | 8     | 10   | 11    |
| 2020  | 10.5 | 6     | 12   | 10.5  | 10.5 | 9.5   | 14   | 12    |
| 2021  | 12   | 8     | 10   | 9.5   | 11   | 10    | 15   | 18    |

The total number of boys who got admission from places J and M in 2017 was exactly equal to the total number of girls who got admission from place M in which of the following years?

- Ans** **A. 2017**  
**B. 2019**  
**C. 2020**  
**D. 2021**

- Q.27** Five girls, Beena, Elisa, Hema, Ketaki and Zoya, are sitting around a circular table facing the centre of the table. Beena is sitting to the immediate left of Ketaki. Hema is sitting to the immediate right of Zoya. Only Ketaki is sitting between Beena and Elisa. Who is sitting to the immediate right of Elisa?

- Ans** **A. Ketaki**  
**B. Hema**  
**C. Zoya**  
**D. Beena**

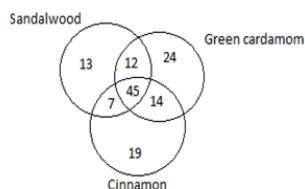
- Q.28** A certain number of people are sitting in a row, facing the north. Rahul is at the 8<sup>th</sup> place from the left end of the row. Only 11 persons are sitting between Rahul and Samar. Samar is at some place towards the right of Rahul. Mohit is to the immediate left of Zeeshan, who is sitting at the extreme right end. Samar is at the 9<sup>th</sup> place from the extreme right end. If no other person is sitting in the row, what is the total number of persons seated?

- Ans** **A. 26**  
**B. 27**  
**C. 28**  
**D. 29**

- Q.29** This question is based on the following three-letter words:  
(Left) NAT PAL COT TAN (Right)  
If in each of the words, each letter is changed to the next letter in the English alphabetical order, how many words thus formed will have no vowel?
- Ans** ☒ A. One  
☐ B. Two  
☐ C. Three  
☐ D. Four
- Q.30** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.  
 $6 : 150 :: 4 : 36 :: 5 : ?$
- Ans** ☐ A. 78  
☒ B. 80  
☐ C. 82  
☐ D. 84
- Q.31** Which of the following numbers will replace the question mark (?) in the given series?  
43, 80, 117, 154, ?
- Ans** ☐ A. 196  
☐ B. 190  
☐ C. 193  
☒ D. 191
- Q.32** Select the option that represents the letters that, when placed from left to right in the same sequence in the blanks below, will complete the letter series.  
F \_ L N \_ S V \_ Z C \_
- Ans** ☒ A. IPXF  
☐ B. IQXF  
☐ C. IPYF  
☐ D. IPXE
- Q.33** Which of the following options is the closest approximate value which will come in place of question mark (?) in the following equation?  
 $12.998 + 20.009 \div 4.998 - 2.999 \times 2.998 = ?$
- Ans** ☒ A. 8  
☐ B. 12  
☐ C. 16  
☐ D. 19
- Q.34** The position of how many letters will remain unchanged if each of the letters in the word 'ANOTHER' is arranged in alphabetical order?
- Ans** ☐ A. None  
☒ B. 1  
☐ C. 2  
☐ D. 3



- Q.35** Study the given diagram carefully and answer the following question. The numbers in different sections indicate the number of recipes in a cook book using the given ingredients.



How many recipes use exactly any two of the given ingredients?

- Ans** ☒ A. 33  
☒ B. 12  
☒ C. 14  
☒ D. 7

- Q.36** Parvati starts walking from point A and covers 35 m towards the south. From there, she takes a left turn and walks 60 m. Then, she takes a left turn and walks 15 m. After that, she takes a left turn and walks 90 m. Finally, she takes a right turn and walks 20 m to reach point D. How far and in which direction is point D from point A ? (All turns are 90 degree turns only)

- Ans** ☒ A. 30 m, West  
☒ B. 30 m, East  
☒ C. 20 m, West  
☒ D. 20 m, South

- Q.37** A statement is given followed by two possible conclusions I and II. Read all the information given in the statement carefully and decide which of the given conclusions can be concluded from the given information.

**Statement:**

An online teaching platform has reported to earn almost double through subscriptions ever since they started LIVE problem-solving classes on the platform.

**Conclusions:**

I. No other online teaching platform offers LIVE problem-solving classes.

II. Students who opt for LIVE problem-solving sessions on the said platform have to pay double the fees as compared to those who opt for regular classes.

- Ans** ☒ A. Only I can be concluded  
☒ B. Only II can be concluded  
☒ C. Both I and II can be concluded  
☒ D. Neither I nor II can be concluded

- Q.38** Each of A, B, C, D, E, F and G has an exam on a different day of a week starting from Monday and ending on Sunday of the same week. C has the exam on Tuesday. Only one person has the exam between A and G, A has exam before G. D has the exam on the day immediately before A, but not on Thursday. F's exam is on one of the days before E but after B. E has exam on Sunday. Who among the following has the exam on Monday?

- Ans** ☒ A. E  
☒ B. D  
☒ C. B  
☒ D. F

- Q.39** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/Symbol | 6 | 5 | 4 | 3 | % | # | 8 |
|---------------|---|---|---|---|---|---|---|
| Codes         | R | G | U | W | K | P | B |

Conditions:

- If the first element is an odd number and the last element is an even number, the codes for these two (the first and the last elements) are to be interchanged.
- If the second element is a symbol and the fifth element is an even number, the codes for these two (the second and the fifth elements) are to be interchanged.
- If the third element is a number and the fourth element is a symbol, both these elements (the third and the fourth elements) are to be coded as Y.

Question: 6 # % 3 8 5 # 4

- Ans**  **A. RBKWPGPU**  
 **B. RPKWBGPU**  
 **C. RBYYPGPU**  
 **D. BUKWPGPR**

- Q.40** Three statements are given, followed by two conclusions numbered I and II. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

All wires are switches.

No switch is a pipe.

All bulbs are pipes.

**Conclusions:**

I. No wire is a pipe.

II. No bulb is a switch.

- Ans**  **A. Only conclusion I follows**  
 **B. Only conclusion II follows**  
 **C. Both conclusions I and II follow**  
 **D. Neither conclusion I nor II follows**

- Q.41** If 1 is added to each odd digit and 1 is subtracted from each even digit in the number given below, what will be the difference in the digits that are third from the left and third from the right in the new number thus formed?

(Left) 86547231 (Right)

- Ans**  **A. 3**  
 **B. 4**  
 **C. 5**  
 **D. 6**

- Q.42** The following table shows the number of two-wheelers sold by five automobile companies named K, L, M, N and O in three different years from 2019, 2020, 2021. Study the table and answer the question.

| Companies | 2019 | 2020 | 2021 |
|-----------|------|------|------|
| K         | 210  | 240  | 320  |
| L         | 655  | 345  | 225  |
| M         | 235  | 340  | 765  |
| N         | 265  | 325  | 650  |
| O         | 650  | 345  | 555  |

What is the percentage share of sale of company M done in the year 2019 in the total sale of Company M in all three years taken together?

- Ans**
- ☒ A. 15.3%
  - ☒ B. 16.4%
  - ☒ C. 17.5%
  - ☒ D. 19.8%

- Q.43** Based on the given statement, two conclusions are drawn. Find out which conclusion is true based on the statement.

Statement:  $T \geq C$ ,  $B < D$ ,  $C > B$

Conclusions:

1.  $D = C$
2.  $T > B$

- Ans**
- ☒ A. Only conclusion 1 is true
  - ☒ B. Only conclusion 2 is true
  - ☒ C. Both conclusions 1 and 2 are true
  - ☒ D. Neither conclusion 1 nor 2 is true

- Q.44** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/symbol | 8 | 3 | ! | & | 4 | # | 6 | @ | \$ | 7 |
|---------------|---|---|---|---|---|---|---|---|----|---|
| Code          | Q | W | E | R | T | Y | U | L | P  | K |

Conditions:

- (i) If the second element is a symbol and the last is also a symbol, then these two symbols do not require coding.
- (ii) If the first element is an even number and the last is a symbol, the codes of the first and last elements are to be interchanged.
- (iii) If the question has more than two odd numbers, then all even numbers do not require coding.
- (iv) if none of the conditions apply, use the codes directly

Question: 7 # \$ 4 6 @ 4 ! 8 3

- Ans**
- ☒ A. KYPYULTEQW
  - ☒ B. KYPTULTEQW
  - ☒ C. WYP4UL4EQK
  - ☒ D. KYP46L4E8W

**Q.45** If the time in the mirror image of a 12-hour clock is 3:55, what is the actual time?

- Ans**
- ☐ A. 8:25
  - ☐ B. 7:05
  - ☐ C. 7:25
  - ☒ D. 8:05

**Q.46** Based on the given statement, four conclusions are drawn. Find out which conclusion is true based on the statement.

Statement:  $J > H = N \geq B \leq C < E$

- Ans**
- ☐ A.  $H < B$
  - ☒ B.  $B < J$
  - ☐ C.  $N > C$
  - ☐ D.  $N > E$

**Q.47** If 1 is added to each even digit and 1 is subtracted from each odd digit in the number 457943246, what will be the sum of the digits that are fourth from the left and fourth from the right?

- Ans**
- ☐ A. 8
  - ☒ B. 10
  - ☐ C. 12
  - ☐ D. 16

**Q.48** How many such pairs of letters are there in the word 'ROASTERS' (in both forward and backward directions) which have as many letters between them in the word as there are in the English alphabetical order?

- Ans**
- ☐ A. One
  - ☐ B. Two
  - ☒ C. Three
  - ☐ D. Four

**Q.49** Three statements are given followed by three conclusions I, II and III. You have to consider these statements to be true, even if they seem at variance from commonly known facts. Choose which of the given conclusions logically follow/s from the given statements.

**Statements:**

1. All sugars are jaggery.
2. No jaggery is sweetener.
3. All sweeteners are fruits.

**Conclusions:**

- I. No sugar is sweetener.
- II. Some jaggeries are sweeteners.
- III. Some jaggeries are sugars.

- Ans**
- ☐ A. Only conclusions I and II follow.
  - ☐ B. Only conclusions II and III follow.
  - ☐ C. All conclusions follow.
  - ☒ D. Only conclusion I and III follow.

**Q.50** J, K, L, M, N, O and P are seven comedians sitting in a straight row facing north. O and L are immediate neighbours. Only two people sit to the left of K. L is to the immediate right of N. P is an immediate neighbour of both K and N. If J is at the extreme left end of the row, who sits at the extreme right end?

- Ans**
- ☒ A. N
  - ☒ B. P
  - ☒ C. O
  - ☒ D. M

**Q.51** Seven boxes, A, B, C, D, E, F and G, are kept one over the other but not necessarily in the same order. Exactly two boxes are kept between C and D with C placed above D. F is immediately below A. G is immediately above B. B is the third box from the top. Exactly two boxes are kept between D and E with D placed above E. Only one box is kept between E and A. Which box is kept just above E?

- Ans**
- ☒ A. D
  - ☒ B. F
  - ☒ C. G
  - ☒ D. C

**Q.52** Six poles, A, B, C, D, E and F, are located in the same colony. B is 20 m to the west of C. F is 60 m to the south of E. C is 30 m to the north of E. A is 60 m to the west of B. D is 30 m to the south of B. In which direction is A with reference to C?

- Ans**
- ☒ A. East
  - ☒ B. West
  - ☒ C. North
  - ☒ D. South

**Q.53** Select the triad which follows the same pattern as that followed by the two triads given below. Both triads follow the same pattern.

PY – RW – TU

EN – GL – IJ

- Ans**
- ☒ A. DE – EF – FG
  - ☒ B. MT – OR – QP
  - ☒ C. XC – YB – ZA
  - ☒ D. UV – TU – ST

**Q.54** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 are not allowed.)

(12, 61, 7)

(15, 51, 6)

- Ans**
- ☒ A. (12, 46, 4)
  - ☒ B. (14, 78, 8)
  - ☒ C. (16, 70, 9)
  - ☒ D. (20, 54, 5)

**Q.55** Which of the following numbers will replace the question mark (?) in the given series?

11, 31, 55, 84, 119, ?

- Ans**
- ☐ A. 131
  - ☐ B. 142
  - ☐ C. 157
  - ☒ D. 161

Section : General Science

**Q.56** \_\_\_\_\_ make an isomeric pair.

- Ans**
- ☐ A. Propane and butane
  - ☒ B. Butane and 2-methyl propane
  - ☐ C. Butane and 2-ethyl butane
  - ☐ D. Propane and 2-methyl propane

**Q.57** Which of the following is a use of plaster of Paris?

- (i) Manufacture of glass, soap and paper
- (ii) As a cleaning agent for domestic purposes
- (iii) Making toys, materials for decoration and for making surfaces smooth
- (iv) For baking

- Ans**
- ☐ A. only i
  - ☐ B. only ii
  - ☒ C. only iii
  - ☐ D. Only iv

**Q.58** Carbonisation is a term used to describe the process of transforming dead plants into \_\_\_\_\_ over a long period of time.

- Ans**
- ☐ A. diesel
  - ☐ B. petrol
  - ☒ C. coal
  - ☐ D. fossil

**Q.59** Select the element with the highest valency from among the following.

- Ans**
- ☐ A. Li
  - ☐ B. Al
  - ☐ C. Ca
  - ☒ D. N

**Q.60** Which of the following formulae does NOT represent the heat produced in a conductor due to flow of electric current?

**Ans**

✗ A.  $H = I^2 R t$

✓ B.  $H = I R^2 t$

✗ C.  $H = \frac{V^2}{R} t$

✗ D.  $H = V I t$

**Q.61** \_\_\_\_\_ reduce (s) the size of large fat globules, allowing enzymes to work more effectively.

**Ans**

✗ A. Succus entericus

✗ B. Pancreatic juice

✗ C. Hydrochloric acid

✓ D. Bile salts

**Q.62** Match the following:

| Formula                                | Name           |
|----------------------------------------|----------------|
| i. $\text{CH}_3\text{COOH}$            | a. Methane     |
| ii. $\text{CHCl}_3$                    | b. Ethanol     |
| iii. $\text{CH}_3\text{CH}_2\text{OH}$ | c. Acetic acid |
| iv. $\text{CH}_4$                      | d. Chloroform  |

**Ans**

✗ A. i-c, ii-d, iii-a, iv-b

✗ B. i-a, ii-c, iii-b, iv-d

✗ C. i-a, ii-b, iii-c, iv-d

✓ D. i-c, ii-d, iii-b, iv-a

**Q.63** We should refrain from using plastics because \_\_\_\_\_.

**Ans**

✗ A. plastics are easily degraded by insects

✓ B. enzymes are unable to break down plastics

✗ C. plastics are not long-lasting

✗ D. plastics are water soluble

**Q.64** Which of the following is NOT TRUE about vegetative propagation in plants?

- Ans**
- ☒ A. Plants are grown from root, stem and leaves.
  - ☒ B. Plants that have lost the capacity to produce seeds can be grown.
  - ☒ C. Plants produced are genetically different from the parent plant.
  - ☒ D. Plants bear flowers and fruits earlier than those produced from seeds.

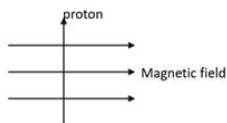
**Q.65** An object, 1.0 cm in height, is placed at a distance of 18.0 cm in front of a concave mirror of focal length 10.0 cm, on its principal axis. Its image has a height of \_\_\_\_\_ and is \_\_\_\_\_.

- Ans**
- ☒ A. more than 1.0 cm, erect
  - ☒ B. more than 1.0 cm, inverted
  - ☒ C. less than 1.0 cm, erect
  - ☒ D. less than 1.0 cm, inverted

**Q.66** The refractive indices of turpentine oil and glass are 1.47 and 1.52, respectively. A ray of light passes from turpentine oil to glass. The refractive index of glass with respect to turpentine oil is \_\_\_\_\_ and the ray bends \_\_\_\_\_ the normal in glass.

- Ans**
- ☒ A. 0.97, away from
  - ☒ B. 0.97, towards
  - ☒ C. 1.03, away from
  - ☒ D. 1.03, towards

**Q.67** A proton is projected into a magnetic field as shown in the figure, the direction of force experienced by it is :



- Ans**
- ☒ A. in the direction of motion of proton
  - ☒ B. against the direction of motion of proton
  - ☒ C. into the plane of paper
  - ☒ D. outside the plane of paper

**Q.68** Which of the following stores starch, proteins and oil granules in a plant cell?

- Ans**
- ☒ A. Chloroplast
  - ☒ B. Chromoplast
  - ☒ C. Leucoplast
  - ☒ D. Protoplast

**Q.69** The magnetic field strength inside a current carrying solenoid is:

- Ans**
- ☒ A. zero
  - ☒ B. uniform and non-zero
  - ☒ C. more at ends and less at centre
  - ☒ D. less at ends and more at centre



**Q.70** Three resistors of  $9\ \Omega$  each are connected in parallel. Their equivalent resistance is:

- Ans**
- ☐ A.  $27\ \Omega$
  - ☐ B.  $18\ \Omega$
  - ☐ C.  $9\ \Omega$
  - ☒ D.  $3\ \Omega$

**Q.71** Which of the following is an example of 'Electrolytic Decomposition Reaction'?

- Ans**
- ☒ A.  $2\text{H}_2\text{O} \rightarrow 2\text{H}_2 + \text{O}_2$
  - ☐ B.  $2\text{AgBr} \rightarrow 2\text{Ag} + \text{Br}_2$
  - ☐ C.  $\text{ZnCO}_3 \rightarrow \text{ZnO} + \text{CO}_2$
  - ☐ D.  $2\text{KClO}_3 \rightarrow 2\text{KCl} + 3\text{O}_2$

**Q.72** Which of the following is NOT a change that marks the onset of puberty

- Ans**
- ☐ A. Sudden increase in height
  - ☒ B. Growth of nails
  - ☐ C. change in voice
  - ☐ D. change in body shape

**Q.73** A concave mirror forms a real, inverted and diminished image of an object. Where is the object placed?

- Ans**
- ☐ A. Between focus and centre of curvature
  - ☐ B. Between pole and focus
  - ☒ C. Beyond centre of curvature
  - ☐ D. At focus

**Q.74** Which of the following is/are weak acid(s)?

$\text{HCl}$ ,  $\text{CH}_3\text{COOH}$ ,  $\text{H}_2\text{SO}_4$ ,  $\text{HNO}_3$ ,  $\text{H}_2\text{CO}_3$ ,  $\text{H}_2\text{SO}_3$

- Ans**
- ☐ A.  $\text{HCl}$ ,  $\text{CH}_3\text{COOH}$ ,  $\text{H}_2\text{SO}_4$
  - ☒ B.  $\text{CH}_3\text{COOH}$ ,  $\text{H}_2\text{CO}_3$
  - ☐ C.  $\text{H}_2\text{SO}_4$ ,  $\text{HNO}_3$ ,  $\text{H}_2\text{CO}_3$
  - ☐ D.  $\text{CH}_3\text{COOH}$ ,  $\text{H}_2\text{SO}_4$ ,  $\text{HNO}_3$ ,  $\text{H}_2\text{CO}_3$

**Q.75** In plants, the cells of meristematic tissue undergo a process wherein they lose their ability to divide, take up a permanent shape and size and specialise to perform a specific function. What is this process known as?

- Ans**
- ☒ A. Differentiation
  - ☐ B. Development
  - ☐ C. Regeneration
  - ☐ D. Proliferation

**Q.76** An object is placed on the principal axis of a concave lens of focal length 20 cm, at a distance of 10 cm. The magnification produced by the lens is \_\_\_\_\_ and the image is \_\_\_\_\_.

- Ans**
- ☒ A. more than 1, erect
  - ☒ B. less than 1, erect
  - ☒ C. more than 1, inverted
  - ☒ D. less than 1, inverted

**Q.77** Which cell organelle detoxifies toxins and drugs?

- Ans**
- ☒ A. Mitochondria
  - ☒ B. Golgi bodies
  - ☒ C. Endoplasmic reticulum
  - ☒ D. Ribosomes

**Q.78** Two bulbs A and B are rated 100 W and 25 W, respectively, at a given voltage. The ratio of resistance of bulb A to that of bulb B is:

- Ans**
- ☒ A. 1 : 4
  - ☒ B. 4 : 1
  - ☒ C. 1 : 2
  - ☒ D. 2 : 1

**Q.79** Which of the following groups represents zero valency?

- Ans**
- ☒ A. 12
  - ☒ B. 16
  - ☒ C. 14
  - ☒ D. 18

**Q.80** Which of the following is an example of combination reaction?

- Ans**
- ☒ A.  $\text{N}_2 + \text{H}_2 \rightarrow 2\text{NH}_3$
  - ☒ B.  $2\text{NaCl} \rightarrow 2\text{Na} + \text{Cl}_2$
  - ☒ C.  $\text{MgCl}_2 + \text{Na} \rightarrow 2\text{NaCl} + \text{Mg}$
  - ☒ D.  $\text{ZnCO}_3 \rightarrow \text{ZnO} + \text{CO}_2$

Section : General Awareness and Current Affairs

**Q.81** What is the full form of NABARD?

- Ans**
- ☒ A. National Bank for Agriculture and Rural Development
  - ☒ B. National Agriculture Bank Authority for Rural Development
  - ☒ C. National Bank for Rural Development
  - ☒ D. National Bank for Agriculture and Regional Development

**Q.82** India and which country among the following agreed to line up a joint task force on a "proposal to construct a hydropower project" from investments of both countries in February 2022?

- Ans**
- ☒ A. Nepal
  - ☐ B. Bhutan
  - ☐ C. Myanmar
  - ☐ D. Bangladesh

**Q.83** As long as MP (marginal product) remains higher than the average product (AP), the average product \_\_\_\_\_.

- Ans**
- ☐ A. continues to fall
  - ☐ B. remains constant
  - ☒ C. continues to rise
  - ☐ D. falls with diminishing rate

**Q.84** Which Article of the Indian Constitution envisages the Election Commission of India (ECI), a constitutional body established by the Constitution of India, to conduct and regulate elections in the country?

- Ans**
- ☒ A. Article 324
  - ☐ B. Article 148
  - ☐ C. Article 76
  - ☐ D. Article 350 B

**Q.85** The portion of agricultural product that is sold by farmers in market is popularly known as \_\_\_\_\_.

- Ans**
- ☐ A. minimum marketed product
  - ☐ B. permitted agriculture product
  - ☐ C. marketable agriculture product
  - ☒ D. marketed surplus

**Q.86** Which type of forest is most commonly home to the Royal Bengal tiger?

- Ans**
- ☐ A. Thorn Forests
  - ☐ B. Mountain Forests
  - ☒ C. Mangrove Forests
  - ☐ D. Deciduous Forests

**Q.87** In which one of the following state will you experience 'Kaal Baisakhi'?

- Ans**
- ☐ A. Punjab
  - ☐ B. Tamil Nadu
  - ☐ C. Gujarat
  - ☒ D. West Bengal

**Q.88** The \_\_\_\_\_ city has been named as the host of the International Olympic Committee session in 2023?

- Ans**
- ☐ A. Bengaluru
  - ☐ B. New Delhi
  - ☒ C. Mumbai
  - ☐ D. Pune

**Q.89**

On what date were the Consumer Protection (Direct Selling) Rules, 2021 introduced by the Government of India?

**Ans**

✓ A. 28 December 2021

✗ B. 26 December 2021

✗ C. 25 December 2021

✗ D. 24 December 2021

**Q.90**

The Digambara sect belongs to which of the following religions?

**Ans**

✗ A. Buddhism

✓ B. Jainism

✗ C. Islam

✗ D. Sikhism

**Q.91**

In July 2022, the Lok Sabha passed the Family Courts (Amendment) Bill, 2022, to overcome the issue of lack of jurisdiction of Family Courts in the States of Himachal Pradesh and \_\_\_\_\_.

**Ans**

✓ A. Nagaland

✗ B. Mizoram

✗ C. Meghalaya

✗ D. Sikkim

**Q.92**

In January 2022, who released 'Banking on electric vehicles in India' report in collaboration with Rocky Mountain Institute and RMI India?

**Ans**

✗ A. DRDO

✗ B. Ministry of Road Transport and Highways

✗ C. Ministry of Finance

✓ D. NITI Aayog

**Q.93**

\_\_\_\_\_ is an Indian regional political party in the state of Tamil Nadu and the union territory of Puducherry, established in 1972.

**Ans**

✓ A. AIADMK

✗ B. BJD

✗ C. DMDK

✗ D. INLD

**Q.94** The doldrums are an area of \_\_\_\_\_ pressure around the equator, where prevailing winds are calm.

- Ans**
- ✓ **A. low**
  - ✗ **B. high**
  - ✗ **C. Constant**
  - ✗ **D. fluctuating**

**Q.95** Which Amendment in the Indian Constitution substituted the words 'sovereign democratic republic' with the words 'sovereign socialist secular democratic republic' and 'unity of the Nation' with the words 'unity and integrity of the Nation'?

- Ans**
- ✗ **A. 31<sup>st</sup>**
  - ✓ **B. 42<sup>nd</sup>**
  - ✗ **C. 53<sup>rd</sup>**
  - ✗ **D. 64<sup>th</sup>**

**Q.96** In which of the following states did NESTLE India Ltd. set up its first factory in 1961?

- Ans**
- ✗ **A. Kerala**
  - ✗ **B. Madhya Pradesh**
  - ✓ **C. Punjab**
  - ✗ **D. Haryana**

**Q.97** Which festival revives and preserves the rich culture of Nagaland, and showcases its extraordinary traditions?

- Ans**
- ✓ **A. Hornbill Festival**
  - ✗ **B. Losar Festival**
  - ✗ **C. Thrissur Pooram Festival**
  - ✗ **D. Thaipusam Festival**

**Q.98** Which of the following is the first indigenous RT-PCR kit developed by 'CSIR – Central Drug Research Institute' for testing the omicron variant?

- Ans**
- ✗ **A. VinCom**
  - ✗ **B. Shanti**
  - ✓ **C. INDICoV-Om**
  - ✗ **D. Cowin**

**Q.99** Which Indian language is also recognised as an official language of Singapore and Sri Lanka?

- Ans**
- ✗ **A. Telugu**
  - ✗ **B. Kannada**
  - ✓ **C. Tamil**
  - ✗ **D. Bengali**

**Q.100** Who among the following became the first para-athlete of India to receive the Padma Bhushan in the year 2022?

**Ans**

✓ **A. Devendra Jhajharia**

✗ **B. Harvinder Singh**

✗ **C. Manoj Sarkar**

✗ **D. Pramod Bhagat**



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 25/08/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** Which of the following is the quadratic equation whose roots are -2 and 4?

- Ans**
- ☒ A.  $2x^2 - 6x - 24 = 0$
  - ☒ B.  $3x^2 - 5x - 24 = 0$
  - ☒ C.  $3x^2 - 6x - 24 = 0$
  - ☒ D.  $3x^2 - 6x - 20 = 0$

**Q.2** The ratio of the sum of all the interior angles to an exterior angle of a regular polygon is 24: 1. Find the number of sides of the polygon.

- Ans**
- ☒ A. 80
  - ☒ B. 78
  - ☒ C. 10
  - ☒ D. 8

**Q.3** There are four prime numbers taken in ascending order. The product of the first three prime numbers is 1771 and the sum of the last two prime numbers is 82. What is the product of the last two prime numbers?

- Ans**
- ☒ A. 1357
  - ☒ B. 1537
  - ☒ C. 1127
  - ☒ D. 1387

**Q.4** A train is moving in from north to south direction. It overtakes Raj and Madhur who are walking in the same direction at the rate of 2 km/h and 4 km/h in 9 sec and 10 sec, respectively. If the train is x metres long, find the value of x.

- Ans**
- ☒ A. 90
  - ☒ B. 70
  - ☒ C. 50
  - ☒ D. 30

**Q.5** In how much time will a sum of money double itself at 10 per cent per annum rate of simple interest?

**Ans** ☒ A. 10 years

☐ B. 8 years

☐ C. 12 years

☐ D. 5 years

**Q.6** The value of  $-48 \div [4 \times (6 - 5 + 1)] \div 24 =$

**Ans** ☐ A. 12

☐ B. -9

☐ C.  $-\frac{7}{4}$

☒ D.  $-\frac{1}{4}$

**Q.7** Simplify  $\sqrt{729} - \sqrt{400}$ .

**Ans** ☐ A. 5

☐ B. 6

☒ C. 7

☐ D. 8

**Q.8** The average age of Raj and his sister is 8 years. If Raj's age is 10 years, then find the age of his sister.

**Ans** ☐ A. 8 years

☐ B. 7 years

☒ C. 6 years

☐ D. 9 years

**Q.9** Find the fourth proportional of  $4a + 7$ ,  $11a + 3$  and  $6a$ , if  $a = 2$ .

**Ans** ☐ A. 15

☒ B. 20

☐ C. 25

☐ D. 30

**Q.10** Simplify:

$$(1.5a^2 - 2.5b^2)(1.5a^2 + 2.5b^2) + 6.25ab$$

**Ans** ☒ A.  $2.25a^4 - 6.25b^4 + 6.25ab$

☐ B.  $2.5a^4 - 6.25b^4 + 6.25ab$

☐ C.  $2.25a^4 - 6.5b^4 + 6.25ab$

☐ D.  $2.25a^4 - 6.25b^4$



**Q.11** If the selling price of an almirah is doubled, profit is tripled. Find the profit percentage.

- Ans**
- ☐ A. 10%
  - ☐ B. 25%
  - ☐ C. 50%
  - ☒ D. 100%

**Q.12** An amount is divided between two friends in the ratio 2 : 5. If the second part is ₹6 more than the first, then the initial amount is:

- Ans**
- ☐ A. ₹12
  - ☒ B. ₹14
  - ☐ C. ₹13
  - ☐ D. ₹23

**Q.13** A 250-metre long train running at a speed of 100 km/h crosses another train coming from the opposite direction at a speed of 62 km/h in 10 seconds. What is the length of the second train?

- Ans**
- ☐ A. 230 metres
  - ☒ B. 200 metres
  - ☐ C. 270 metres
  - ☐ D. 240 metres

**Q.14** The angles of a quadrilateral are in the ratio 2: 5: 7: 10. Find the difference between the greatest and the smallest angles of the quadrilateral.

- Ans**
- ☐ A.  $60^\circ$
  - ☐ B.  $50^\circ$
  - ☒ C.  $120^\circ$
  - ☐ D.  $180^\circ$

**Q.15** If  $a$  and  $b$  are the roots of  $x^2 - x - 12 = 0$ , and  $a > b$ , then the quadratic equation in  $x$  whose roots are  $(2a - 1)$  and  $(2b + 1)$  is:

- Ans**
- ☐ A.  $x^2 - 2x + 35 = 0$
  - ☒ B.  $x^2 - 2x - 35 = 0$
  - ☐ C.  $x^2 - 4x - 45 = 0$
  - ☐ D.  $x^2 - 4x + 45 = 0$

**Q.16** Simplify:  $(1 + \tan^2 \theta)(1 - \sin \theta)(1 + \sin \theta)$ .

- Ans**
- ☐ A. -1
  - ☐ B. 0
  - ☒ C. 1
  - ☐ D. 2

**Q.17** Find the third proportional of 18 and 54.

- Ans**
- ☐ A. 121
  - ☐ B. 144
  - ☒ C. 162
  - ☐ D. 172

**Q.18** In Munnar, a travel company has three 4-seater cars and two 8-seater maxi cabs. The rate of each passenger for a round trip in a car is ₹25 and for a round trip in a maxi cab is ₹20. The average occupancy of the seats is 100%. What is the average earning of each vehicle for one round trip?

- Ans**
- ☒ A. ₹127
  - ☒ B. ₹126
  - ☒ C. ₹125
  - ☒ D. ₹124

**Q.19** Find the double of the lower limit of the modal class in the given data.

| CI | 100-110 | 110-120 | 120-130 | 130-140 | 140-150 |
|----|---------|---------|---------|---------|---------|
| F  | 12      | 15      | 32      | 34      | 22      |

- Ans**
- ☒ A. 280
  - ☒ B. 68
  - ☒ C. 260
  - ☒ D. 540

**Q.20** How many cylinders of radius 10 cm and height 20 cm can be filled with water from a cylinder of radius 20 cm and height 100 cm full of water?

- Ans**
- ☒ A. 20
  - ☒ B. 30
  - ☒ C. 40
  - ☒ D. 60

**Q.21** The difference between two numbers is 42 and they are in the ratio 5 : 3. Find the smaller number.

- Ans**
- ☒ A. 105
  - ☒ B. 36
  - ☒ C. 63
  - ☒ D. 21

**Q.22** If a man bought 6 pencils for ₹5, and sold them at 5 pencils for ₹6, then the gain percentage is \_\_\_\_\_

- Ans**
- ☒ A. 44%
  - ☒ B. 43%
  - ☒ C. 42%
  - ☒ D. 41%

**Q.23** Convert  $0.2\overline{36}$  into a vulgar fraction.

- Ans**
- ☒ A.  $\frac{17}{66}$
  - ☒ B.  $\frac{13}{55}$
  - ☒ C.  $\frac{9}{44}$
  - ☒ D.  $\frac{7}{33}$

**Q.24** Which of the following pairs of numbers is co-prime?

- Ans**
- ☒ A. (14, 21)
  - ☒ B. (17, 23)
  - ☒ C. (12, 24)
  - ☒ D. (15, 25)

**Q.25** The radius and height of a cylinder are in the ratio 2 : 1 Find its total surface area if curved surface area is 616 m<sup>2</sup>.

- Ans**
- ☒ A. 908 m<sup>2</sup>
  - ☒ B. 1512 m<sup>2</sup>
  - ☒ C. 1232 m<sup>2</sup>
  - ☒ D. 1848 m<sup>2</sup>

Section : General Intelligence and Reasoning

**Q.26** Select the option that is related to the fifth letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster and the fourth letter-cluster is related to the third letter-cluster.

FINE : GKQI :: MOST : NQVX :: SEAL : ?

- Ans**
- ☒ A. TPGD
  - ☒ B. PGTD
  - ☒ C. TGDP
  - ☒ D. TGPD

**Q.27** In a class of 11 students, each scored differently. V's rank from the bottom is 6<sup>th</sup>, while D's rank from the top is 4<sup>th</sup>. T's rank from the top is exactly between the ranks of V and D. What is T's rank from the bottom?

- Ans**
- ☒ A. 5<sup>th</sup>
  - ☒ B. 8<sup>th</sup>
  - ☒ C. 7<sup>th</sup>
  - ☒ D. 9<sup>th</sup>

**Q.28** If '+' means '-', '-' means '×', '×' means '÷' and '÷' means '+', what will come in place of the question mark (?) in the following equation?

$$24 + 16 \div 132 \times 11 - 3 = ?$$

- Ans**
- ☒ A. 40
  - ☒ B. 42
  - ☒ C. 44
  - ☒ D. 46

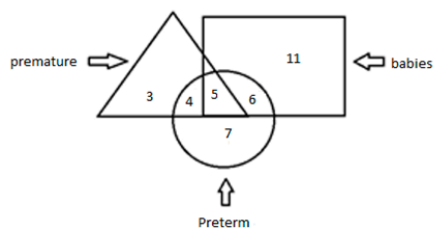
**Q.29** Refer to the following letter and number series and answer the question.

(Left) G C 6 8 T 7 D 4 6 K 2 R Y 3 5 E S A 4 T Y 7 8 G T (Right)

If all the numbers are dropped from the series, how many letters are there in the English alphabetical order between the letter that is fourth from the right end and the letter that is sixth from the left end of the given series?

- Ans**
- ☒ A. None
  - ☒ B. One
  - ☒ C. Two
  - ☒ D. Three

- Q.30** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



How many such babies are there who are NEITHER premature NOR preterm?

**Ans**

- ☒ A. 4  
☒ B. 5  
☒ C. 6  
☒ D. 11

- Q.31** A decision is given followed by two statements I and II. Read all the information carefully and select the correct option.

**Decision:**

In order to promote tourism, Country W is declaring 20 of its cities as Heritage Sites.

**Statements:**

I. 4 of the 20 cities are located in hilly areas and have limited access to transport.

II. In the past whenever a city in Country W has been promoted for tourism, it has led to increased employment opportunities in that city.

**Ans**

- ☒ A. Both statements I and II strengthen the decision  
☒ B. Statement I weakens the decision and statement II strengthens the decision  
☒ C. Both statements I and II weaken the decision  
☒ D. Statement I is a neutral statement and statement II strengthens the decision

- Q.32** How many such pairs of letters are there in the word 'DEVELOP' (in both forward and backward directions) each of which have as many letters between them in the word as there are in the English alphabetical order?

**Ans**

- ☒ A. 1  
☒ B. 2  
☒ C. 3  
☒ D. 4

- Q.33** How many such pairs of letters are there in the word 'ABILITY' (in both forward and backward directions) each of which have as many letters between them in the word as there are in the English alphabetical order?

**Ans**

- ☒ A. 1  
☒ B. 2  
☒ C. 3  
☒ D. 4

- Q.34** Select the option that represents the letters that, when placed from left to right in the blanks below, will complete the letter series.

P \_ T P \_ S \_ C T \_ R S P C \_ P R \_ P \_ T \_ R S

**Ans**

- ☒ A. C S P C R P T P  
☒ B. C R P P T S C P  
☒ C. C C P P R S T  
☒ D. C R P C S P P T

**Q.35** Five persons, A, B, C, D and E, are sitting in a straight line. All are facing the north direction. D sits to the immediate left of A. Only two persons are sitting between D and B. C sits second from the extreme right end of the line. Only two persons are sitting between C and E. Who is sitting to the immediate right of E?

- Ans**
- ☒ A. A
  - ☒ B. B
  - ☒ C. C
  - ☒ D. D

**Q.36** Which of the following numbers will replace the question mark (?) in the given series?

23, 31, 95, 311, ?

- Ans**
- ☒ A. 832
  - ☒ B. 823
  - ☒ C. 818
  - ☒ D. 876

**Q.37** Which of the following numbers will replace the question mark (?) in the given series?

8, 17, 33, 63, 114, 193, ?

- Ans**
- ☒ A. 370
  - ☒ B. 377
  - ☒ C. 307
  - ☒ D. 347

**Q.38** The following table shows the break-up of the costs (in ₹) incurred by a company in the production of five products, A to E. Study the table and answer the question.

| Product           | A          | B          | C           | D          | E           |
|-------------------|------------|------------|-------------|------------|-------------|
| Raw material      | 400        | 200        | 700         | 300        | 400         |
| Manufacturing     | 80         | 40         | 150         | 80         | 100         |
| Advertisement     | 180        | 70         | 200         | 170        | 200         |
| Labour            | 200        | 180        | 400         | 140        | 250         |
| Miscellaneous     | 40         | 10         | 50          | 10         | 50          |
| <b>Total cost</b> | <b>900</b> | <b>500</b> | <b>1500</b> | <b>700</b> | <b>1000</b> |

Which of the following products has the maximum manufacturing cost in comparison to its total cost of production?

- Ans**
- ☒ A. A
  - ☒ B. B
  - ☒ C. C
  - ☒ D. D

**Q.39** In this question, a statement is followed by four conclusions. Find out which conclusion is true based on the given statement.

**Statement:**

$$Q = R > S \leq T < U > V = Z$$

**Conclusions:**

1.  $U > S$
2.  $Q < T$
3.  $S < V$
4.  $Z > U$

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.40** Sujlam started from a point facing towards the west, turned left and walked for 10 m, then turned right and walked for 12 m, then turned left and walked for 11 m, and then turned left again at point P and walked for 17 m. Prior to turning left at point P, he was facing in which direction?

(All turns are 90 degree turns only)

- Ans**
- ☒ A. East
  - ☒ B. West
  - ☒ C. North
  - ☒ D. South

**Q.41** In a certain code language, MUTINY is written as 25149202113 and MAGIC is written as 397113. How will NECTAR be written in the same language?

- Ans**
- ☒ A. 191253014
  - ☒ B. 182203614
  - ☒ C. 182103513
  - ☒ D. 181203514

**Q.42** Based on the given statement, four conclusions are drawn. Find out which conclusion is NOT true based on the statement.

Statement:  $B > F \geq P > L = K \leq W < M$

- Ans**
- ☒ A.  $L < M$
  - ☒ B.  $F > K$
  - ☒ C.  $P = K$
  - ☒ D.  $B > L$

**Q.43** What will come in the place of the question mark (?) in the following equation if '+' and '-' are interchanged and also 'x' and '÷' are interchanged?

$$12 - 104 \times 8 + 5 \div 4 = ?$$

- Ans**
- ☒ A. 5
  - ☒ B. 7
  - ☒ C. 9
  - ☒ D. 11

**Q.44** In this question, a group of letters is coded using numbers as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Letter/<br>Symbol | I | L | M | H | Y | O | C | E | R |
|-------------------|---|---|---|---|---|---|---|---|---|
| Code              | 4 | 5 | 9 | 1 | 2 | 3 | 6 | 7 | 8 |

Conditions:

- (i) If the first element is a vowel and the last, a consonant, the codes for these two (the first and the last elements) are to be interchanged.
- (ii) If the first element is a consonant and the last, an vowel, the first and last elements are to be coded as 0.
- (iii) If both the second and the fifth elements are vowels, the fifth element is to be coded as the code for the second element and vice-versa.

Question: EICHER

- Ans**
- ☒ A. 876417
  - ☒ B. 814767
  - ☒ C. 876147
  - ☒ D. 877416

**Q.45** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

(5, 21, 2)

(7, 33, 4)

**Ans** ✓ **A. (8, 51, 9)**

✗ **B. (11, 24, 3)**

✗ **C. (6, 40, 8)**

✗ **D. (10, 93, 3)**

**Q.46** Five students - 1, 2, 3, 4 and 5 - are sitting around a circular table facing the centre. 4 is sitting to the immediate right of 1 and immediate left of 2. 5 is sitting second to the left of 1. Which of the following statements is true?

**Ans** ✗ **A. 5 is sitting third to the right of 3.**

✗ **B. 1 is the immediate neighbour of 5.**

✓ **C. 3 is sitting between 5 and 1.**

✗ **D. 2 is sitting between 4 and 1.**

**Q.47** Pole E is to the north of pole U and east of pole R. Pole N is to the west of pole U and east of pole I. Pole J is to the south of pole I. What is the position of pole R with respect to pole U?

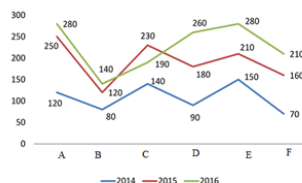
**Ans** ✗ **A. North**

✗ **B. South**

✗ **C. South-west**

✓ **D. North-west**

**Q.48** The following line graph shows the number of admissions of students (in thousands) in six different districts, A, B, C, D, E and F, in three consecutive years, 2014, 2015 and 2016. Study the graph and answer the question.



What is the difference between the total number of admissions in district B for the given three years and the total number of admissions in district E for the first two consecutive years (2014 and 2015)?

**Ans** ✗ **A. 80**

✓ **B. 20**

✗ **C. 40**

✗ **D. 25**

**Q.49** In a queue of boys, there are exactly 8 boys standing between Suraj and Bheem. Suraj is 21<sup>st</sup> from the front, while Bheem is at the first position from the back. How many total boys are there in the queue?

**Ans** ✗ **A. 29**

✗ **B. 31**

✓ **C. 30**

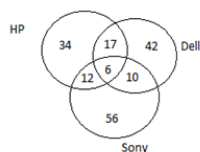
✗ **D. 32**

**Q.50** If '+' means '-', '-' means '×', '×' means '+' and '+' means '+', what will come in place of the question mark (?) in the following equation?

$$28 - 2 + 80 \times 5 \div 14 = ?$$

- Ans**
- ☒ A. 52
  - ☒ B. 54
  - ☒ C. 25
  - ☒ D. 45

**Q.51** Study the given diagram carefully and answer the following question. The numbers in different sections indicate the number of persons using different brands of laptop in an IT office.



How many people use both Sony and Dell laptops?

- Ans**
- ☒ A. 6
  - ☒ B. 10
  - ☒ C. 16
  - ☒ D. 20

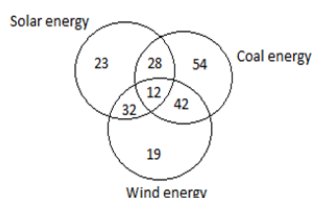
**Q.52** Find the approximate angle between the minute hand and the hour hand of a 12-hour clock when the time is 9:25.

- Ans**
- ☒ A. 130 degrees
  - ☒ B. 150 degrees
  - ☒ C. 190 degrees
  - ☒ D. 100 degrees

**Q.53** A, B, C, D, E, F and G want to play a video game they purchased together. Each will get it on one day of the same week starting from Monday and ending on Sunday. No one gets it on same day of the week. A will play on Sunday. D will play immediately before A. B will play immediately after E. E will play on Wednesday. C will not get it on Monday. F gets it on a day between B and D. On which day will G get to play?

- Ans**
- ☒ A. Friday
  - ☒ B. Thursday
  - ☒ C. Monday
  - ☒ D. Saturday

**Q.54** Study the given diagram carefully and answer the following question. The numbers in different sections indicate the number of persons in a small village relying on different sources of energy for their daily needs.



How many people rely on both Solar energy and Coal energy?

- Ans**
- ☒ A. 28
  - ☒ B. 12
  - ☒ C. 77
  - ☒ D. 40



**Q.55** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

13 : 96 :: 18 : 131 :: 14 : ?

- Ans**
- ☒ A. 100
  - ☒ B. 102
  - ☒ C. 103
  - ☒ D. 104

Section : General Science

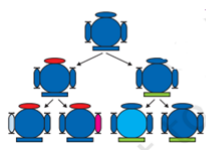
**Q.56** How many hydrogen atoms will be added along with one carbon atom in the next member of a homologous series?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.57** The sex of a person is determined by \_\_\_\_\_.

- Ans**
- ☒ A. the chromosomes present in both sperm and ovum
  - ☒ B. the chromosomes present in sperm
  - ☒ C. the chromosomes present in ovum
  - ☒ D. the chromosomes present in both sperm and ovum and dietary habits of parents

**Q.58** The figure below shows a single organism undergoing reproduction and the progeny with minor differences. What could be the reason for the variation?



- Ans**
- ☒ A. Errors in protein formation
  - ☒ B. Errors in DNA copying
  - ☒ C. Gene being non-functional
  - ☒ D. Errors in RNA formation

**Q.59** Which of the following method(s) can be used to change the direction of force on a current carrying conductor?

- (i) Changing the magnitude of current
- (ii) Changing the strength of magnetic field
- (iii) Changing the direction of current

- Ans**
- ☒ A. Only (i)
  - ☒ B. Only (iii)
  - ☒ C. Both (i) and (iii)
  - ☒ D. Both (ii) and (iii)

**Q.60** Identify the INCORRECT statement from among the following.

- Ans**
- ☒ A. Outside a bar magnet, the magnetic field lines are directed from north to south pole.
  - ☒ B. A freely suspended bar magnet points in north-south direction.
  - ☒ C. Repulsion is a sure test of magnetism.
  - ☒ D. A number of field lines intersect at a given point inside a magnetic field.

**Q.61** Pesticides, though non-biodegradable, are both beneficial and harmful for agriculture. Select the INCORRECT option regarding pesticides.

- Ans**
- ☒ A. They reduce chlorophyll content of the plant and hence affect photosynthesis
  - ☒ B. They reduce plant growth
  - ☒ C. They alter nitrogen metabolism, so less protein content in plants
  - ☒ D. They are used to control weeds, pests and plant diseases

**Q.62** In amoeba, the food is taken by the \_\_\_\_\_.

- Ans**
- ☒ A. mouth
  - ☒ B. movement of flagella
  - ☒ C. movement of cilia
  - ☒ D. entire body surface area

**Q.63** Two metallic wires A and B are made of the same material. Wire A has length  $l$  and radius  $r$  while wire B has length  $2l$  and radius  $2r$ . The ratio of the resistance of wire A to that of wire B is:

- Ans**
- ☒ A. 1 : 2
  - ☒ B. 2 : 1
  - ☒ C. 1 : 4
  - ☒ D. 4 : 1

**Q.64** A ray of light bends towards the normal while travelling from medium A to medium B. Which of the following statements is/are correct?

- (A) Medium A is optically denser than medium B.
- (B) Speed of light is more in medium A than medium B.
- (C) Refractive index of medium B is more than refractive index of medium A.

- Ans**
- ☒ A. Both A and B
  - ☒ B. Both B and C
  - ☒ C. Both A and C
  - ☒ D. A, B and C

**Q.65** An object, 3.0 cm in height, is placed at a distance of 20.0 cm in front of a convex mirror of focal length 6.0 cm, on its principal axis. Its image has a height of \_\_\_\_\_ and is \_\_\_\_\_.

- Ans**
- ☒ A. less than 3.0 cm, erect
  - ☒ B. more than 3.0 cm, erect
  - ☒ C. less than 3.0 cm, inverted
  - ☒ D. more than 3.0 cm, inverted

**Q.66** The Modern Periodic Table has \_\_\_\_\_ groups and \_\_\_\_\_ periods.

- Ans**
- ☒ A. 18, 7
  - ☐ B. 17, 8
  - ☐ C. 18, 6
  - ☐ D. 18, 5

**Q.67** Which of the following excretory products is stored in the old xylem of the plants?

- Ans**
- ☒ A. Resin
  - ☐ B. Morphin
  - ☐ C. Carbon dioxide
  - ☐ D. Citric acid

**Q.68** Sardar Sarovar Dam was constructed in Gujarat over the \_\_\_\_\_.

- Ans**
- ☐ A. Ganga River
  - ☐ B. Mahanadi River
  - ☒ C. Narmada River
  - ☐ D. Sutlej River

**Q.69** Four different experiments were conducted by students of Class X.

- I. Navin took a beaker containing some aqueous solution of  $\text{CuSO}_4$  and added a piece of magnesium strip in it.
- II. Ayush took a beaker containing some aqueous solution of  $\text{CuSO}_4$  and added some platinum pieces in it.
- III. Sneha took a beaker containing some aqueous solution  $\text{CuSO}_4$  and added some copper turnings in it.
- IV. Akriti took a beaker containing some aqueous solution  $\text{CuSO}_4$  and added a piece of silver wire in it.

Who among them was able to perform a displacement reaction?

- Ans**
- ☐ A. Ayush
  - ☒ B. Navin
  - ☐ C. Akriti
  - ☐ D. Sneha

**Q.70** Which structure is responsible for maintaining the amount of water in amoeba?

- Ans**
- ☐ A. Plasma membrane
  - ☒ B. Contractile vacuole
  - ☐ C. Food vacuole
  - ☐ D. Cytoplasm

**Q.71** Babu took some quantity of dilute nitric acid in a test tube and heated the test tube at  $70^\circ\text{C}$  for about 10 minutes. What was its effect on the pH of nitric acid?

- Ans**
- ☐ A. It rose up
  - ☒ B. It decreased
  - ☐ C. It remained constant
  - ☐ D. It first increased and then decreased

**Q.72** According to Dobereiner, \_\_\_\_\_.

**Ans** ☒ A.

the sum of atomic masses of the first and the second elements of the triad is equal to that of the third element

☒ B.

the arithmetical mean of the atomic masses of the second and the third elements of the triad is equal to that of the first one

☒ C.

the sum of atomic masses of the first and the third elements of the triad is equal to that of the second element

☒ D.

the arithmetical mean of the atomic masses of the first and the third elements of the triad is equal to that of the second one

**Q.73** What is the similarity between fermentation in yeast and anaerobic respiration taking place in muscle cells of humans?

**Ans** ☒ A. Take place in mitochondria

☒ B. Take place in Cytoplasm

☒ C. Ethanol is formed

☒ D. Lactic acid is formed

**Q.74** Which form of carbon is used as a dry lubricant?

**Ans** ☒ A. Coal

☒ B. Coke

☒ C. Diamond

☒ D. Graphite

**Q.75** Chlorine gas reacts with potassium iodide solution to form potassium chloride and iodine. This reaction is an example of a:

**Ans** ☒ A. combination reaction

☒ B. double displacement reaction

☒ C. decomposition reaction

☒ D. displacement reaction

**Q.76** The S.I unit of resistivity is:

**Ans** ☒ A. ohm

☒ B. mho

☒ C. ohm m

☒ D. ohm/m

**Q.77** An object is placed at a distance of 30 cm in front of a concave mirror of focal length 15 cm. The image formed is:

**Ans** ☒ A. real and erect

☒ B. real and inverted

☒ C. virtual and erect

☒ D. virtual and inverted

**Q.78** Consider the below statements and identify the correct answer.

Statement-I: The chemical formula for baking soda is  $\text{CaSO}_4 \frac{1}{2} \text{H}_2\text{O}$ .

Statement-II: Baking soda is used for making toys, materials for decoration and for making surfaces smooth

- Ans**
- ☒ A. Both the statements are true.
  - ☒ B. Both the statements are false.
  - ☒ C. Statement-I is true, and Statement-II is false.
  - ☒ D. Statement-II is true, and Statement-I is false.

**Q.79** An object is placed on the principal axis of a convex lens of focal length 12 cm, at a distance of 18 cm. The magnification produced by the lens is \_\_\_\_\_ and the image is \_\_\_\_\_.

- Ans**
- ☒ A. less than 1, erect
  - ☒ B. less than 1, inverted
  - ☒ C. more than 1, erect
  - ☒ D. more than 1, inverted

**Q.80** Two resistors A and B have resistances 5 ohm and 10 ohm, respectively. If they are connected in series to a voltage source of 5 V. The ratio of power developed in resistor A to that of power developed in resistor B will be:

- Ans**
- ☒ A. 1 : 2
  - ☒ B. 1 : 4
  - ☒ C. 2 : 1
  - ☒ D. 4 : 1

#### Section : General Awareness and Current Affairs

**Q.81** Identify the sportsperson who received the Major Dhyan Chand Khel Ratna Award 2021 in the wrestling discipline from the following options.

- Ans**
- ☒ A. Sharad Kumar
  - ☒ B. Ravi Kumar
  - ☒ C. Suhash Yathiraj
  - ☒ D. Nishad Kumar

**Q.82** In which of the following period do the monsoon winds tentatively reach Punjab, Western Uttar Pradesh and Haryana during a normal monsoon year?

- Ans**
- ☒ A. First week of June
  - ☒ B. First week of July
  - ☒ C. First week of August
  - ☒ D. First week of May

**Q.83** The headquarters of Central Institute of Indian Languages (CIIL) is situated in \_\_\_\_\_.

- Ans**
- ☒ A. Bengaluru
  - ☒ B. Mysuru
  - ☒ C. Pondicherry
  - ☒ D. Chennai

**Q.84**

Which of the following parallels of latitude is INCORRECTLY matched with its location?

**Ans**

- ☒ A. Tropic of Cancer - North Hemisphere
- ☒ B. Tropic of Capricorn - Eastern Hemisphere
- ☒ C. Arctic Circle - North of the Equator
- ☒ D. Antarctic Circle - South of the Equator

**Q.85**

Every year, which day is observed as the 'Minorities Rights Day' to uphold the right to freedom and equal opportunities for the ethnic minorities in India and create awareness about the respect and dignity of the minorities?

**Ans**

- ☒ A. 27 February
- ☒ B. 29 August
- ☒ C. 18 December
- ☒ D. 25 December

**Q.86**

With which sport is the Rovers Cup associated?

**Ans**

- ☒ A. Cricket
- ☒ B. Hockey
- ☒ C. Football
- ☒ D. Rowing

**Q.87**

According to the Constitution of India, in which of the following matters can only Union Legislature make laws?

**Ans**

- ☒ A. Prison
- ☒ B. Trade and Commerce
- ☒ C. Agriculture
- ☒ D. Post and Telegram

**Q.88**

As per the Ministry of New And Renewable Energy, which state has the highest wind power potential as on March 2021?

**Ans**

- ☒ A. Gujarat
- ☒ B. Tamil Nadu
- ☒ C. Rajasthan
- ☒ D. Karnataka

**Q.89** Crop production does NOT involve considerable costs on which of the following?

- Ans**
- ☐ A. Costs on seeds
  - ☐ B. Costs on fertilizers
  - ☐ C. Costs on pesticides
  - ☒ D. Costs on animal food

**Q.90** What type of political party system does India have?

- Ans**
- ☐ A. One-party system
  - ☐ B. Two-party system
  - ☐ C. Three-party system
  - ☒ D. Multi-party system

**Q.91** As per Article 243B of the Indian Constitution, Panchayats at the intermediate level may NOT be constituted in a State having a population not exceeding \_\_\_\_\_.

- Ans**
- ☐ A. 5 lakhs
  - ☐ B. 10 lakhs
  - ☒ C. 20 lakhs
  - ☐ D. 25 lakhs

**Q.92** What is the theme selected by RBI as the 2022 theme for Financial Literacy week?

- Ans**
- ☐ A. Credit Discipline and Credit from Formal Institutions
  - ☒ B. Go Digital, Go Secure
  - ☐ C. Farmers
  - ☐ D. Micro, Small and Medium Enterprises

**Q.93** Where did the first Green Hydrogen Microgrid Project start in 2021?

- Ans**
- ☐ A. Maharashtra
  - ☒ B. Andhra Pradesh
  - ☐ C. Tamil Nadu
  - ☐ D. Kerala

**Q.94** \_\_\_\_\_ played a major role in the revival of Hinduism and the spread of his interpretation of Advaita Vedanta known as 'Neo-Vedanta' in the West.

- Ans**
- ☒ A. Swami Vivekananda
  - ☐ B. Swami Dayanand
  - ☐ C. Samrat Ashoka
  - ☐ D. Sri Ramkrishna Paramhansa



**Q.95** Who was the founder of the social reform movement for Sikhism - the Nirankari movement?

- Ans**
- ☐ A. Shri Sohan Singh
  - ☐ B. Baba Balak Singh
  - ☐ C. Baba Gurmeet Dev
  - ☒ D. Baba Dyal Das

**Q.96** How many times has The Factory Act been amended as on June 2022?

- Ans**
- ☐ A. 9
  - ☐ B. 5
  - ☒ C. 8
  - ☐ D. 4

**Q.97** In January 2022, with which university did Jio sign a pact for undertaking research and standardisation related activities in 6G technology?

- Ans**
- ☐ A. Canadian Institute of Health Research
  - ☐ B. Indian Institute of Science Bengaluru
  - ☒ C. University of Oulu, Finland
  - ☐ D. Barcelona Institute of Science and Technology

**Q.98** The Central Bank of Zimbabwe has been lowering rate of interests of the economy to boost growth. The bank is being \_\_\_\_\_ in its monetary policy stance.

- Ans**
- ☒ A. dovish
  - ☐ B. hawkish
  - ☐ C. Accommodative
  - ☐ D. Neutral



Q.99

National Women's Day is celebrated on which date in India?

Ans

☐ A. 13 January

☐ B. 23 January

☒ C. 13 February

☐ D. 23 February

Q.100 The Longest Moustache competition is held at which of the following festivals/fairs?

Ans

☐ A. Hornbill Festival

☒ B. Pushkar Fair

☐ C. Thrissur Pooram Festival

☐ D. Kila Raipur Sports Festival



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 25/08/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** Which vulgar fraction is equal in value to the mixed recurring decimal 0.3125125125...?

- Ans**
- ☒ A.  $\frac{1561}{4995}$
  - ☐ B.  $\frac{1783}{4995}$
  - ☐ C.  $\frac{1653}{4995}$
  - ☐ D.  $\frac{1967}{4995}$

**Q.2** In  $\Delta PQR$ ,  $\angle PQR = 90^\circ$ ,  $m(\overline{PQ}) = 3$  cm and  $m(\overline{PR}) = 6$  cm. What is the measure of  $\angle PRQ$ ?

- Ans**
- ☒ A.  $30^\circ$
  - ☐ B.  $45^\circ$
  - ☐ C.  $60^\circ$
  - ☐ D.  $70^\circ$

**Q.3** Today, age of the father is twice the sum of the ages of his 3 children. After 15 years father's age will be equal to the sum of the ages of his children. How old is the father 15 years from today?

- Ans**
- ☐ A. 75 years
  - ☐ B. 85 years
  - ☐ C. 90 years
  - ☐ D. 95 years

**Note:** For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

**Q.4** I walk at a speed of 10 km/h and reach the destination in 2 hrs. If I increase my speed by 5 km/h, how early would I reach my destination?

- Ans**
- ☐ A. 20 min
  - ☐ B. 30 min
  - ☒ C. 40 min
  - ☐ D. 50 min

**Q.5** The LCM of two numbers is 385 and their HCF is 7. If the sum of the two numbers is 112, then their difference is:

- Ans** ☒ A. 42  
☐ B. 35  
☐ C. 50  
☐ D. 43

**Q.6** A shopkeeper offered successive discounts of 10% and 15% on an article having a marked price of ₹28,000. Find the selling price of the article.

- Ans** ☒ A. ₹21,420  
☐ B. ₹21,240  
☐ C. ₹22,140  
☐ D. ₹21,402

**Q.7** The least number which, when diminished by 7, is divisible by 12, 16, 18 and 21 is:

- Ans** ☐ A. 1150  
☐ B. 1051  
☐ C. 1105  
☒ D. 1015

**Q.8** Find the value of  $\frac{\sqrt{729}}{15} \times \frac{25}{\sqrt{81}} \times \frac{15}{\sqrt{225}}$ .

- Ans** ☐ A. 4  
☐ B. 3  
☐ C. 2  
☒ D. 5

**Q.9** For the following data, find the weighted mean.

$X_i$  4 3 5 7 2 1

$W_i$  1 0 2 1 3 5

- Ans** ☐ A. 5.6  
☒ B. 2.66  
☐ C. 8  
☐ D. 7.5

**Q.10** A sum was invested at a certain rate of simple interest per annum for 2 years. Had it been invested at 2% per annum more than the existing rate, the simple interest accrued in the 2 years would have been ₹240 more. Find the sum invested.

- Ans** ☐ A. ₹8,000  
☐ B. ₹24,000  
☒ C. ₹6,000  
☐ D. ₹16,000

**Q.11** Two pipes A and B can fill the tank in 5 hours and 8 hours, respectively. Pipe C can empty the same tank in 10 hours. Find the time taken to fill the empty tank when all the pipes are opened simultaneously.

**Ans**

☒ A.  $4\frac{2}{9}$  hours

☒ B.  $4\frac{5}{9}$  hours

☒ C.  $4\frac{7}{9}$  hours

☒ D.  $4\frac{4}{9}$  hours

**Q.12** Simplify  $\frac{3^3 \times 2^4 \times 7^2}{3^2 \times 56}$ .

**Ans**

☒ A. 42

☒ B. 36

☒ C. 28

☒ D. 70

**Q.13** Find the mean proportional between 17 and 68.

**Ans**

☒ A. 34

☒ B. 38

☒ C. 42

☒ D. 46

**Q.14** Simplify  $(a + 2b - c)(b - c) + (a - c)2b + b^2$ .

**Ans**

☒ A.  $3b^2 + 3ab - 5bc - ac$

☒ B.  $2b^2 + 3ab - 4bc + c$

☒ C.  $3b^2 + c^2 + 3ab - 5bc - ac$

☒ D.  $3ab - 5bc - ac - 2abc$

**Q.15** The roots of quadratic equation that satisfies  $12x^2 = 27x$  are:

**Ans**

☒ A.  $1, \frac{3}{4}$

☒ B.  $1, \frac{4}{3}$

☒ C.  $0, \frac{9}{4}$

☒ D.  $0, \frac{3}{4}$

**Q.16** If the surface area of a spherical ball is  $616 \text{ m}^2$ , its volume is:

**Ans**

☒ A.  $1238.33 \text{ m}^3$

☒ B.  $1786.35 \text{ m}^3$

☒ C.  $1657.29 \text{ m}^3$

☒ D.  $1437.33 \text{ m}^3$

**Q.17** A, B and C started a business with investments in the ratio 20 : 15 : 12. After 3 months C withdrew half of his investment and after another 9 months, a profit of ₹ 3,23,000 is divided among them. The share of C is:

- Ans**
- ☒ A. ₹1,14,000
  - ☒ B. ₹1,57,000
  - ☒ C. ₹57,000
  - ☒ D. ₹1,52,000

**Q.18** A parallelogram has one parallel side length of 12 cm and perpendicular distance between its base and other parallel side is 8 cm. Its area is \_\_\_\_\_.

- Ans**
- ☒ A.  $96 \text{ cm}^2$
  - ☒ B.  $48 \text{ cm}^2$
  - ☒ C.  $24 \text{ cm}^2$
  - ☒ D.  $192 \text{ cm}^2$

**Q.19** Find the volume of a cuboid whose length is 12 m, breadth is 10 m, and height is 15 m.

- Ans**
- ☒ A.  $1800 \text{ m}^3$
  - ☒ B.  $1800 \text{ m}^2$
  - ☒ C.  $1500 \text{ m}^3$
  - ☒ D.  $1500 \text{ m}^2$

**Q.20** Find the mean of the following data.

|   |   |   |    |   |   |
|---|---|---|----|---|---|
| X | 3 | 2 | 10 | 4 | 5 |
| f | 5 | 3 | 4  | 2 | 6 |

- Ans**
- ☒ A. 6.52
  - ☒ B. 4.95
  - ☒ C. 8.65
  - ☒ D. 3.68

**Q.21** Solve  $(a - b)^3 + (b - 2c)^3 + (-a + 2c)^3$ .

- Ans**
- ☒ A.  $a - b + 2c$
  - ☒ B.  $(a - b + 2c)^2$
  - ☒ C.  $a - 2c + 4b$
  - ☒ D.  $3((a - b)(b - 2c)(-a + 2c))$

**Q.22** In certain store, the profit is 260% of the cost. If the selling price is ₹7,200, then the cost price is:

- Ans**
- ☒ A. ₹2,000
  - ☒ B. ₹2,200
  - ☒ C. ₹2,420
  - ☒ D. ₹3,000

**Q.23** What is the nature of the roots of  $3x^2 - 6x + 5 = 0$ ?

- Ans**
- ☐ A. The roots are real and equal.
  - ☐ B. The roots are real and distinct.
  - ☐ C. The roots are real and more than 2.
  - ☒ D. There are no real roots.

**Q.24** Chandra is 10 years younger than Chandrika. 5 years later Chandrika will be twice as old as Chandra. Find Chandrika's present age.

- Ans**
- ☐ A. 10 years
  - ☒ B. 15 years
  - ☐ C. 20 years
  - ☐ D. 25 years

**Q.25** In triangle ABC,  $AB = 3$  m,  $BC = 4$  m, and  $AC = 5$  m. In triangle PRQ,  $PR = 4$  m,  $PQ = 5$  m, and  $RQ = 3$  m.

Which of the following is a correct order of congruency?

- Ans**
- ☐ A.  $\triangle BAC$  congruent to  $\triangle RPQ$
  - ☒ B.  $\triangle BCA$  congruent to  $\triangle RPQ$
  - ☐ C.  $\triangle CBA$  congruent to  $\triangle RPQ$
  - ☐ D.  $\triangle ABC$  congruent to  $\triangle RPQ$

#### Section : General Intelligence and Reasoning

**Q.26** Study the given number, symbol series and answer the question that follows.

$8 @ 4 * 7 ^ 5 3 \# 9 1 < 5 7 @ 4 \$ \# 2 * 6 ! 4 \& 9 < 6$

How many such numbers are there which are immediately preceded by a symbol and immediately followed by an odd number?

- Ans**
- ☐ A. 2
  - ☒ B. 3
  - ☐ C. 4
  - ☐ D. 5

**Q.27** A, B, C, D, E, F, G and H are sitting around a square table facing the centre of the table. Some of them are sitting at the corners, while some are sitting at the exact centre of the sides. E is sitting at any one of the sides and is the immediate neighbour of both B and D. C is sitting exactly opposite to D, and H is sitting exactly opposite to B. G is sitting second to the left of E and to the immediate left of D. F is exactly opposite to G. Who among the following is sitting exactly opposite to A?

- Ans**
- ☒ A. E
  - ☐ B. G
  - ☐ C. F
  - ☐ D. B

**Q.28** Sam steps out from his house and walks 160 m towards the east. He then takes a right turn and walks 50 m. He then turns right and walks 70 m. He then turns left and walks 35 m. He then turns right and walks 90 m to reach a gift shop. How far and in which direction is the gift shop from Sam's house? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 85 m, South
  - ☐ B. 85 m, North
  - ☐ C. 120 m, South
  - ☐ D. 120 m, North

**Q.29** A decision is given followed by two statements I and II. Read all the information carefully and select the correct option.

**Decision:**

Company K has a wide chain of grocery stores and sweet shops across all cities and even villages of Country M. The CEO of Company K has decided to discontinue cash payments completely from next month onwards.

**Statements:**

I. As per the reports of the last 3 years, around 24% of payments each month were through cash.

II. 35% of the population of Country M is either illiterate or does not have access to bank accounts.

- Ans**
- ☒ A. Both statements I and II strengthen the decision
  - ☒ B. Statement I weakens the decision and statement II is a neutral statement
  - ☒ C. Both statements I and II weaken the decision
  - ☒ D. Statement I is a neutral statement and II weakens the decision

**Q.30** Select the option that is related to the fifth letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster and the fourth letter-cluster is related to the third letter-cluster.

SEARCH : ESRAHC :: DESIGN : EDISNG :: LAYOUT : ?

- Ans**
- ☒ A. UYTLOA
  - ☒ B. ALOYTU
  - ☒ C. UTYOLA
  - ☒ D. AOLTYU

**Q.31** In a certain code language, 'NATURE' is written as 'QYWSUC' and 'REASON' is written as 'UCDQRL'. How will 'LOTION' be written in that language?

- Ans**
- ☒ A. MNGVLQ
  - ☒ B. NMVGQL
  - ☒ C. OLWFRK
  - ☒ D. OMWGRL

**Q.32** Six friends scored different marks in their annual psychology examination. Q scored more than exactly four friends. M scored more than exactly three friends. Both P and N scored more than T. Y scored the least marks. N is not the top scorer. Who scored the highest marks?

- Ans**
- ☒ A. T
  - ☒ B. M
  - ☒ C. Q
  - ☒ D. P

**Q.33** Each of A, B, C, D, E and F has an exam on a different day of a week starting from Monday and ending on Saturday of the same week. None of them have the exam before C and after B. F has the exam just after A and just before D. E has the exam on Tuesday and just before A. Who among the following has the exam on Friday?

- Ans**
- ☒ A. F
  - ☒ B. D
  - ☒ C. A
  - ☒ D. B

**Q.34** Three statements are given, followed by two conclusions numbered I and II. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

Some prizes are caps.

Some caps are medals.

All prizes are masks.

**Conclusions:**

I. Some masks are caps.

II. Some masks are medals.

- Ans** ☒ A. Only conclusion I follows  
☐ B. Only conclusion II follows  
☐ C. Both conclusions I and II follow  
☐ D. Neither conclusion I nor II follows

**Q.35** Which of the following terms will replace the question mark (?) in the given series to make it logically complete?

RBM 7, NXI 11, JTE 13, FPA 17, BLW 19, ?

- Ans** ☐ A. XSO 21  
☐ B. XOS 21  
☐ C. FHA 23  
☒ D. XHS 23

**Q.36** In this question, a statement is followed by two conclusions. Which of the two conclusions is/are true with respect to the statement?

Statement:  $U \leq W = V < Y > I \geq F > N$

Conclusions:

I.  $Y > U$

II.  $N < I$

- Ans** ☐ A. Only conclusion I is true  
☐ B. Only conclusion II is true  
☒ C. Both conclusions I and II are true  
☐ D. Neither conclusion I nor II is true

**Q.37** Shaily starts walking from her home and goes 45 m towards the east. She then takes a right turn and walks 85 m. She then turns left and walks 40 m. She then takes a final left turn and walks 85 m to reach an ATM. How far is the ATM from her home? (All turns are 90 degree turns only)

- Ans** ☐ A. 80 m  
☒ B. 85 m  
☐ C. 40 m  
☐ D. 125 m

**Q.38** A certain number of people are sitting in a row, facing the north. Only 6 persons are sitting between Monika and Dipen. Monika is at the 8<sup>th</sup> place from the extreme right end of the row. Ketan is at some place towards the left of Monika. Ketan and Monika have exactly 3 persons sitting between them. Ketan is at the 10<sup>th</sup> place from the extreme left end. Dipen is sitting at the extreme right end. If no other person is sitting in the row, what is the total number of persons seated?

- Ans** ☐ A. 20  
☒ B. 21  
☐ C. 22  
☐ D. 23



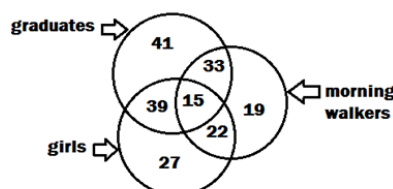
**Q.39** Eight boxes, P, Q, R, S, T, U, V and W, are kept one over the other, but not necessarily in the same order. V is fourth from the top and immediately below R. W is kept at the topmost position and immediately above P. Only one box is there between S and T. T is kept below S, and U is kept above Q. How many boxes are there between T and Q?

- Ans**
- ☒ A. Two
  - ☒ B. One
  - ☒ C. None
  - ☒ D. Three

**Q.40** A, B, C, D, E, F, G and H are sitting around a square table facing the centre of the table. Some of them are sitting at the corners, while some are sitting at the exact centre of the sides. A is sitting at one of the corners and is the immediate neighbour of E and F. D is sitting exactly opposite to A and to the immediate left of B. C is sitting at one of the corners and to the immediate right of F. G is not sitting at any of the corners. Who among the following is sitting exactly opposite to F?

- Ans**
- ☒ A. G
  - ☒ B. B
  - ☒ C. E
  - ☒ D. H

**Q.41** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



Which of the following statements is correct on the basis of the above diagram?

- Ans**
- ☒ A. The number of morning walkers who are also girls but not graduates is 19.
  - ☒ B. The number of girls who are both graduates and morning walkers is 39.
  - ☒ C. The number of graduates who are also girls but not morning walkers is 22.
  - ☒ D. The number of graduates who are also morning walkers but not girls is 33.

**Q.42** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

35 : 21 :: 20 : 12 :: 40 : ?

- Ans**
- ☒ A. 39
  - ☒ B. 26
  - ☒ C. 24
  - ☒ D. 42

**Q.43** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(12, 313, 13)

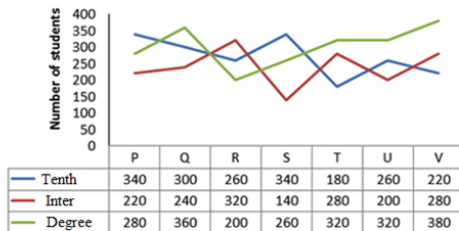
(7, 50, 1)

- Ans**
- ☒ A. (15, 150, 10)
  - ☒ B. (12, 158, 12)
  - ☒ C. (9, 90, 3)
  - ☒ D. (4, 125, 11)

**Q.44** If 1 is added to each odd digit and 2 is subtracted from each even digit in the number 4681342, what will be difference between the highest and lowest digits thus formed?

- Ans**
- ☒ A. 2
  - ☒ B. 4
  - ☒ C. 5
  - ☒ D. 6

**Q.45** The following line graph shows the educational qualifications of students (Tenth, Intermediate [Inter] and Degree) of seven districts, P, Q, R, S, T, U and V, of a state. Study the graph and answer the question.



What is the difference between the total number of students with Tenth qualification from all the districts together and the total number of students with Degree qualification from all the districts together?

- Ans**
- ☒ A. 230
  - ☒ B. 240
  - ☒ C. 220
  - ☒ D. 210

**Q.46** What approximate value should come in place of the question mark (?) in the following equation?

$$(23.01 + 16.986) \div 2.023 \times 4.05 - 41.999 + 643.999 = ?$$

- Ans**
- ☒ A. 542
  - ☒ B. 682
  - ☒ C. 745
  - ☒ D. 765

**Q.47** What day of the week was 1 January 2009, if 1 January 2006 was a Sunday?

- Ans**
- ☒ A. Wednesday
  - ☒ B. Thursday
  - ☒ C. Friday
  - ☒ D. Saturday

**Q.48** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/<br>Symbol | 9 | ∞ | 8 | 4 | ÷ | ± | 6 | \$ | ! | 2 | = | 5 | 7 | 3 |
|-------------------|---|---|---|---|---|---|---|----|---|---|---|---|---|---|
| Code              | H | G | K | L | U | Q | S | U  | W | Y | A | C | E | G |

Conditions:

- (i) If the first element is a number and the last, a symbol, the codes for these two (the first and the last elements) are to be interchanged.
- (ii) If the first element is an EVEN number and the last, an ODD number, the first and last elements are to be coded as &.
- (iii) If both the third and the fourth elements are prime numbers, the fourth element is to be coded as the code for the third element and vice-versa.

Question: 2675\$!

- Ans**
- ✓ A. WSCEUY
  - ✗ B. WUYECS
  - ✗ C. WSECUY
  - ✗ D. WECSUY

**Q.49** Which of the following numbers will replace the question mark (?) in the given series?

25, 29, 38, 54, 79, ?

- Ans**
- ✗ A. 96
  - ✗ B. 110
  - ✓ C. 115
  - ✗ D. 120

**Q.50** The position of how many letters will remain unchanged if each of the letters in the word BREAKDOWN is arranged in alphabetical order?

- Ans**
- ✗ A. 1
  - ✓ B. 2
  - ✗ C. 3
  - ✗ D. 4

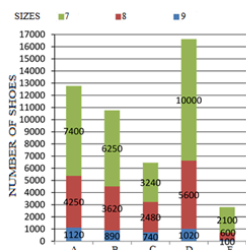
**Q.51** Study the given number series and answer the question that follows.

29, 74, 93, 75, 19, 52, 75, 94, 93, 71

If the ten's and one's position is interchanged for all the numbers, then which original number will form the largest and the smallest in the series, respectively?

- Ans**
- ✗ A. 93 and 71
  - ✗ B. 19 and 29
  - ✗ C. 93 and 94
  - ✓ D. 29 and 71

- Q.52** Data regarding the sales of the number of shoes of sizes 7, 8 and 9 in five showrooms, A to E, is given in the following stacked bar chart. Study the chart and answer the question.



By approximately what percentage is the sales of shoes of size 8 more than the sales of shoes of size 9 in showroom C?

- Ans**
- ☒ A. 215%
  - ☒ B. 225%
  - ☒ C. 235%
  - ☒ D. 335%

- Q.53** What approximate value should come in place of the question mark (?) in the following equation?

$$126.012 \times 14.987 - 603.045 = ? + 261.987$$

- Ans**
- ☒ A. 875
  - ☒ B. 845
  - ☒ C. 1025
  - ☒ D. 1235

- Q.54** Study the given diagram carefully and answer the following question. The numbers in different sections indicate the number of persons who eat certain foods in breakfast.



How many people eat Pasta but NOT Doughnut?

- Ans**
- ☒ A. 62
  - ☒ B. 50
  - ☒ C. 71
  - ☒ D. 79

- Q.55** Which of the following numbers will replace the question mark (?) in the given series?

5, 24, 46, 74, 111, 160, 224, ?

- Ans**
- ☒ A. 306
  - ☒ B. 360
  - ☒ C. 305
  - ☒ D. 350

**Q.56** World Water Day is celebrated on \_\_\_\_\_.

- Ans**
- ☐ A. 8 March
  - ☒ B. 22 March
  - ☐ C. 15 August
  - ☐ D. 26 August

**Q.57** Which of the following is not the use of washing soda?

- (i) Manufacture of glass, soap and paper
- (ii) As a cleaning agent for domestic purposes
- (iii) For removing permanent hardness of water
- (iv) Baking cake

- Ans**
- ☐ A. i
  - ☐ B. ii
  - ☐ C. iii
  - ☒ D. iv

**Q.58** The pattern of magnetic field lines due to a current carrying solenoid is similar to a:

- Ans**
- ☒ A. bar magnet
  - ☐ B. horseshoe magnet
  - ☐ C. current carrying straight wire
  - ☐ D. current carrying circular loop

**Q.59** An electric device draws a current of 5 A when connected to a 220 V supply. The power of the electric device is:

- Ans**
- ☐ A. 0.44 kW
  - ☒ B. 1.1 kW
  - ☐ C. 110 W
  - ☐ D. 440 W

**Q.60** Which of the following is NOT a main site of transpiration?

- Ans**
- ☐ A. Cuticle
  - ☐ B. Lenticels
  - ☐ C. Stomata
  - ☒ D. Intracellular spaces

**Q.61** Which of the following optical devices can be used to produce a parallel beam of rays from a point source of light?

- (A) Convex lens
- (B) Concave lens
- (C) Concave mirror
- (D) Convex mirror

**Ans** ☒ A. Both (A) and (B)  
☒ B. Both (A) and (C)  
☒ C. Both (B) and (C)  
☒ D. Both (A) and (D)

**Q.62** Identify the correct statement(s) from among the following.

- (a) The direction of magnetic field at a point can be found by placing a magnetic compass at that point.
- (b) A freely suspended magnetic needle points in north-east direction.
- (c) The magnetic field lines are denser near the poles of a magnet.
- (d) Two magnetic field lines can intersect at a given point.

**Ans** ☒ A. Both (a) and (b)  
☒ B. Both (a) and (c)  
☒ C. Both (b) and (c)  
☒ D. Both (a) and (d)

**Q.63** Which of the following sexually transmitted diseases is transmitted by a virus?

**Ans** ☒ A. Cold  
☒ B. AIDS  
☒ C. Syphilis  
☒ D. Gonorrhoea

**Q.64** An object of size 3.0 cm is placed in front of a concave mirror of focal length 18 cm, at a distance of 54 cm. The image formed is \_\_\_\_\_ and its height is \_\_\_\_\_.

**Ans** ☒ A. erect, 0.75 cm  
☒ B. inverted, 0.75 cm  
☒ C. erect, 1.5 cm  
☒ D. inverted, 1.5 cm

**Q.65** Which of the following is the correct set of raw materials for washing soda preparation?

**Ans** ☒ A. NaCl, NH<sub>3</sub>, CO<sub>2</sub>  
☒ B. NaCl, CO<sub>2</sub>  
☒ C. NaCl, NH<sub>3</sub>  
☒ D. NaCl and H<sub>2</sub>O

**Q.66** What is the full form of UNEP?

- Ans**
- ☒ A. United Nations Educational Programme
  - ☒ B. United Nations Environment Programme
  - ☒ C. United Nations Environment Planning
  - ☒ D. United Nations Educational Planning

**Q.67** Which option correctly shows the path that the sperms take when they are released from the human male reproductive system?

- Ans**
- ☒ A. Testis → Ureter → Urethra → Penis
  - ☒ B. Testis → Vas deferens → Ureter → Penis
  - ☒ C. Testis → Ureter → Vas deferens → Penis
  - ☒ D. Testis → Vas deferens → Urethra → Penis

**Q.68** Rays coming from the sun are refracted by the atmosphere. Due to this, the apparent sunrise is about \_\_\_\_\_ the actual sunrise.

- Ans**
- ☒ A. 2 minutes after
  - ☒ B. 2 minutes before
  - ☒ C. 1 minute after
  - ☒ D. 1 minute before

**Q.69** Which of the following is/are example(s) of exothermic reaction?

- (i) Making of slaked lime
- (ii) Burning of natural gas
- (iii) Respiration

- Ans**
- ☒ A. Only i
  - ☒ B. Only ii
  - ☒ C. Both i and ii
  - ☒ D. All i, ii, iii

**Q.70** The atomic size \_\_\_\_\_ moving from left to right and \_\_\_\_\_ moving from up to down in the periodic table.

- Ans**
- ☒ A. decreases, increases
  - ☒ B. decreases, decreases
  - ☒ C. increases, decreases
  - ☒ D. increases, increases

**Q.71** Which of the following sequences of events occurs during the formation of urine in the human body?

- Ans**
- ☒ A. Filtration, reabsorption, secretion
  - ☒ B. Filtration, secretion, reabsorption, secretion
  - ☒ C. Secretion, filtration, reabsorption
  - ☒ D. Reabsorption, filtration, secretion, storage

**Q.72** What is the average amount of urine that an adult human produces in 24 hours?

- Ans**
- ☒ A. 1-1.5 litres
  - ☒ B. 1-1.8 litres
  - ☒ C. 1.5-2 litres
  - ☒ D. 1.5-2.5 litres

**Note:** For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

**Q.73** The S.I unit of resistance is equivalent to:

- Ans**
- ☒ A. volt/ampere
  - ☒ B. ampere/volt
  - ☒ C. joule/coulomb
  - ☒ D. coulomb/joule

**Q.74** The material most suitable for making the filament of an incandescent bulb is:

- Ans**
- ☒ A. tungsten
  - ☒ B. manganin
  - ☒ C. tin-lead alloy
  - ☒ D. nichrome

**Q.75** Reaction conditions are indicated at which place in the chemical equation?

- Ans**
- ☒ A. Only above the arrow
  - ☒ B. Only below the arrow
  - ☒ C. Above and/or below the arrow
  - ☒ D. In the beginning of the equation

**Q.76** The reaction in which a single reactant splits into the two or more simpler products is called:

- Ans**
- ☒ A. displacement reaction
  - ☒ B. double displacement reaction
  - ☒ C. combination reaction
  - ☒ D. decomposition reaction

**Q.77** Consider the below statements and identify the correct answer.

Statement I: Lithium, Sodium and Rubidium are elements of Dobereiner's triad.

Statement II: In triads, the atomic mass of the middle element was roughly the average of the atomic masses of the other two elements

- Ans**
- ☒ A. Statement I is correct, Statement II is incorrect.
  - ☒ B. Statement II is correct, Statement I is incorrect.
  - ☒ C. Both statements are correct.
  - ☒ D. Both statements are incorrect.



**Q.78** Which of the following statements regarding fertilizers is FALSE?

- Ans**
- ☒ A. Nutrient amounts calculated in advance can be applied
  - ☒ B. Leaches out with rains or irrigation water
  - ☒ C. Never contaminate air and water
  - ☒ D. Must be properly stored

**Q.79** Consider the below statements and identify the correct answer.

Statement I: Graphite is bad conductors of electricity.

Statement II: In graphite, each carbon atom is bonded to three other carbon atoms in the same plane giving a hexagonal array.

- Ans**
- ☒ A. Statement I is correct, and Statement II is incorrect.
  - ☒ B. Statement II is correct, and Statement I is incorrect.
  - ☒ C. Both the statements are correct.
  - ☒ D. Both the statements are incorrect.

**Q.80** An object is placed in front of a convex mirror at a point between infinity and the pole of the mirror. The image formed is:

- Ans**
- ☒ A. real and erect
  - ☒ B. real and inverted
  - ☒ C. virtual and erect
  - ☒ D. virtual and inverted

Section : General Awareness and Current Affairs

**Q.81** The 'Garo', 'Khasi' and 'Jaintia' hills are part of which physical division of India?

- Ans**
- ☒ A. The Himalayan Mountain
  - ☒ B. The Peninsular Plateau
  - ☒ C. The Northern Plains
  - ☒ D. The Coastal Plains

**Q.82** Which of the following longitudes is considered as the International Date Line?

- Ans**
- ☒ A.  $0^\circ$
  - ☒ B.  $90^\circ$  E
  - ☒ C.  $90^\circ$  W
  - ☒ D.  $180^\circ$

**Q.83** In February 2022, where was India's most powerful supercomputer Param Pravega launched?

- Ans**
- ☒ A. IIT Ropar
  - ☒ B. IISc Bengaluru
  - ☒ C. IIT Roorkee
  - ☒ D. IIT Gandhinagar

**Q.84** Which state is famous for celebrating the Pongal festival?

- Ans**
- ✓ A. Tamil Nadu
  - ✗ B. Tripura
  - ✗ C. Odisha
  - ✗ D. Telangana

**Q.85** Who is remembered as 'Deshbandhu', who served as the President of the Indian National Congress for one session in 1922 and co-founded the Swaraj Party with Motilal Nehru?

- Ans**
- ✗ A. Lala Lajpat Rai
  - ✗ B. Gopal Krishna Gokhale
  - ✗ C. Aurobindo Ghosh
  - ✓ D. Chittaranjan Das

**Q.86** In March 2022, which bank launched 'Project Banksakhi' in Odisha?

- Ans**
- ✓ A. Bank of Maharashtra
  - ✗ B. Axis Bank
  - ✗ C. HDFC Bank
  - ✗ D. PNB Bank

**Q.87** The Right to Education in the Indian Constitution was added by introducing a new Article, \_\_\_\_\_, in the Chapter on Fundamental Rights in 2002 by the 86th Constitutional Amendment.

- Ans**
- ✗ A. 19A
  - ✓ B. 21A
  - ✗ C. 23A
  - ✗ D. 25A

**Q.88** In March 2022, who unveiled a new brand 'VIDA' for its emerging mobility solutions and upcoming electric vehicles?

- Ans**
- ✗ A. Tata Motors
  - ✗ B. Maruti Suzuki
  - ✗ C. Hyundai Motors
  - ✓ D. Hero Motocorp

**Q.89** Which of the following educational Institutes won the Rashtriya Khel Protsahan Puruskar 2021 in the category 'Identification and Nurturing of Budding and Young Talent'?

- Ans**
- ☒ A. Indian Institute of Technology
  - ☒ B. Manav Rachna Educational Institution
  - ☒ C. Lingayas Institute of Management and Technology
  - ☒ D. Maharashtra Institute of Technology

**Q.90** Which of the following apps has been launched to make the Indian Parliament proceedings accessible to the public at large in January 2022?

- Ans**
- ☒ A. Digital Sansad
  - ☒ B. Sansad Dekho Live
  - ☒ C. Online Sansad Karyawahi
  - ☒ D. Sansad Yojana

**Q.91** Marathi, which is an Indo-Aryan language, is the \_\_\_\_\_ largest language spoken by 6.86% of the total population of India according to the 2011 census.

- Ans**
- ☒ A. Second
  - ☒ B. Third
  - ☒ C. Fourth
  - ☒ D. Fifth

**Q.92** According to Centre for Monitoring Indian Economy (CMIE), which state recorded the highest unemployment rate in June 2022?

- Ans**
- ☒ A. Gujarat
  - ☒ B. Goa
  - ☒ C. Kerala
  - ☒ D. Haryana

**Q.93** Securities sold by the Central Bank with a clear specification of repurchase date and price is called \_\_\_\_\_.

- Ans**
- ☒ A. repurchase agreement
  - ☒ B. reverse repo
  - ☒ C. Interest Rate Swap
  - ☒ D. outright open market operations

**Q.94** The 'Kangra' and 'Kullu' valley is situated in which state of India?

- Ans**
- ☒ A. Uttarakhand
  - ☒ B. Himachal Pradesh
  - ☒ C. Sikkim
  - ☒ D. Arunachal Pradesh

**Q.95** What is another term for 'pedology'?

- Ans**
- ☒ A. Phyto Geography
  - ☒ B. Soil Geography
  - ☒ C. Geomorphology
  - ☒ D. Oceanography

**Q.96** The Sarpanch or the president of the Gram Panchayat is elected by the ward members as per the State Act for a period of \_\_\_\_\_ years.

- Ans**
- ☒ A. 5
  - ☐ B. 3
  - ☐ C. 2
  - ☐ D. 1

**Q.97** As of March 2022, who is the President of the Indian Olympic Association?

- Ans**
- ☒ A. Narinder Dhruv Batra
  - ☐ B. N Ramachandran
  - ☐ C. Nita Ambani
  - ☐ D. Abhay Singh Chautala

**Q.98** Which state on 23 December 2021, passed Shakti Criminal Laws?

- Ans**
- ☐ A. Kerala
  - ☒ B. Maharashtra
  - ☐ C. Karnataka
  - ☐ D. Assam

**Q.99** Who among the following is in charge of the Union Territories in the absence of the Chief Minister?

- Ans**
- ☐ A. Chief Justice of India
  - ☒ B. Lieutenant Governor
  - ☐ C. President
  - ☐ D. Prime Minister

**Q.100** Urgelling Gumpa is found in the Indian state of \_\_\_\_\_.

- Ans**
- ☐ A. Sikkim
  - ☒ B. Arunachal Pradesh
  - ☐ C. Himachal Pradesh
  - ☐ D. Uttarakhand



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 26/08/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

Q.1 Simplify  $(2z - 5y)^2 + (5z + 2y)^2 - 25z^2$ .

- Ans
- ☒ A.  $19y^2 + 4z^2$
  - ☒ B.  $29y^2 + 4z^2$
  - ☒ C.  $29y^2 - 4z^2$
  - ☒ D.  $19y^2 - 4z^2$

Q.2 If  $25x^3 = 1600$ , then which of the following is a possible value of  $x$ ?

- Ans
- ☒ A. 4
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 5

Q.3 Find the mode of the given frequency distribution.

| $x$ | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 |
|-----|------|-------|-------|-------|-------|
| $f$ | 5    | 8     | 10    | 2     | 5     |

- Ans
- ☒ A. 20
  - ☒ B. 22
  - ☒ C. 24
  - ☒ D. 26

Q.4 Find the greatest number by which when the numbers 57, 95 and 211 are divided, it leaves the same remainder in each case.

- Ans
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.5** The marked price of a book is ₹900. A man bought the same for ₹693 after getting two successive discounts, the first being 12%. What was the second discount rate?

- Ans**
- ☐ A. 11.5%
  - ☒ B. 12.5%
  - ☐ C. 13.5%
  - ☐ D. 14.5%

**Q.6** The cost of two chairs and three tables is ₹1,450. If a chair costs ₹250 less than a table, then find the cost of one table.

- Ans**
- ☐ A. ₹350
  - ☒ B. ₹390
  - ☐ C. ₹440
  - ☐ D. ₹320

**Q.7** It takes two pipes A and B, running together, to fill a tank completely in 4 minutes. If it takes A, 6 minutes less than B, to fill the tank completely, then what will be the time taken by B alone to fill the tank completely?

- Ans**
- ☐ A. 6 min
  - ☒ B. 12 min
  - ☐ C. 20 min
  - ☐ D. 15 min

**Q.8**  $\triangle ABC$  is similar to  $\triangle FED$  and  $AB = x$  cm,  $BC = x + 2$  cm,  $EF = 12$  cm, and  $ED = 18$  cm. The value of  $x$  is \_\_\_\_\_.

- Ans**
- ☐ A. 2 cm
  - ☐ B. -2 cm
  - ☒ C. 4 cm
  - ☐ D. -4 cm

**Q.9** A clock marked for ₹10,000 is available on successive discounts of 40% and  $k\%$ . If the selling price of the clock is ₹2,400, then find the value of  $k$ .

- Ans**
- ☐ A. 36%
  - ☒ B. 60%
  - ☐ C. 24%
  - ☐ D. 40%

**Q.10** If  $\triangle ABC \cong \triangle PQR$ , which of the following need NOT be NECESSARILY true?

- Ans**
- ☐ A.  $m(\overline{AB}) = m(\overline{PQ})$ ;  $m(\overline{BC}) = m(\overline{QR})$ ;  $m(\overline{CA}) = m(\overline{PR})$
  - ☐ B.  $\angle A = \angle P$ ;  $\angle B = \angle Q$ ;  $\angle C = \angle R$
  - ☐ C.  $m(\overline{AB}) = m(\overline{PQ})$ ;  $m(\overline{BC}) = m(\overline{QR})$ ;  $\angle A = \angle P$
  - ☒ D.  $m(\overline{AB}) = m(\overline{PQ})$ ;  $m(\overline{BC}) = m(\overline{RP})$ ;  $\angle A = \angle P$

**Q.11** If  $\operatorname{cosec} 2A = \sec(A - 15^\circ)$ , then find the measure of  $A$  (in degrees).

- Ans**
- ☐ A. 15
  - ☐ B. 23
  - ☒ C. 35
  - ☐ D. 45

**Q.12** The ratio between the present ages of P and Q is 7 : 5, respectively. The ratio between P's age 5 years ago and Q's age 5 years hence is 1 : 1. What is the ratio between P's age 5 years hence and Q's age 5 years ago?

- Ans**
- ✓ A. 2 : 1
  - ✗ B. 1 : 2
  - ✗ C. 3 : 2
  - ✗ D. 2 : 3

**Q.13** The equation  $2x^2 + 7x + 6 = 0$  can be written as:

- Ans**
- ✗ A.  $(2x - 3)(x + 2) = 0$
  - ✓ B.  $(2x + 3)(x + 2) = 0$
  - ✗ C.  $(2x - 3)(x - 2) = 0$
  - ✗ D.  $(2x + 3)(x - 2) = 0$

**Q.14** A semi-circular field of radius 14 m needs to be fenced with a wire. Find the length of wire required.

- Ans**
- ✗ A. 44 m
  - ✗ B. 46 m
  - ✓ C. 72 m
  - ✗ D. 80 m

**Q.15** The difference of the ages of two siblings is 7 years. If the sum of their ages is 21 years, how old is the younger of the siblings?

- Ans**
- ✗ A. 14 years
  - ✗ B. 10 years
  - ✓ C. 7 years
  - ✗ D. 3 years

**Q.16** A sum of money is distributed among four persons A, B, C and D in the ratio 4: 7: 9: 3. If C gets ₹800 more than B, then find the amount that D gets.

- Ans**
- ✗ A. ₹1,000
  - ✓ B. ₹1,200
  - ✗ C. ₹1,400
  - ✗ D. ₹1,500

**Q.17** A and B can together complete a piece of work in 9 days, B and C together can complete the same work in 18 days and C and A together can complete it in 27 days. In how many days can A, B, and C, working together complete the same work?

- Ans**
- ✗ A.  $8\frac{9}{11}$  days
  - ✗ B.  $9\frac{7}{11}$  days
  - ✓ C.  $9\frac{9}{11}$  days
  - ✗ D.  $9\frac{8}{11}$  days

**Q.18** If  $a^2 + b^2 = 50$  and  $a \times b = 7$ . Find  $\frac{(a-b)}{(a+b)}$ , where  $a > b$ .

- Ans**
- ☒ A.  $\frac{3}{4}$
  - ☐ B.  $\frac{3}{5}$
  - ☐ C.  $\frac{4}{3}$
  - ☐ D.  $\frac{5}{3}$

**Q.19** Village A has a population of 72,000, which is decreasing at the rate of 1,000 per year. Village B has a population of 54,000, which is increasing at the rate of 800 per year. In how many years will the population of both the villages be the same?

- Ans**
- ☐ A. 7
  - ☒ B. 10
  - ☐ C. 12
  - ☐ D. 15

**Q.20** The mean proportional of 0.25 and 0.64 is

- Ans**
- ☒ A. 0.4
  - ☐ B. 0.5
  - ☐ C. 0.6
  - ☐ D. 0.7

**Q.21** Find the total surface area of a closed cuboid whose length, breadth and height are 16 cm, 12 cm, and 8 cm, respectively.

- Ans**
- ☐ A.  $823 \text{ cm}^2$
  - ☐ B.  $382 \text{ cm}^2$
  - ☒ C.  $832 \text{ cm}^2$
  - ☐ D.  $238 \text{ cm}^2$

**Q.22** If a sum of ₹3,500 is invested at 5% compound interest per annum, compounded annually, then what is the period for which the compound interest is ₹358.75?

- Ans**
- ☐ A. 18 months
  - ☐ B. 20 months
  - ☒ C. 24 months
  - ☐ D. 15 months

**Q.23** How many numbers between 1 to 150 are divisible by 3 and 4 both?

- Ans**
- ☐ A. 9
  - ☐ B. 10
  - ☐ C. 11
  - ☒ D. 12



**Q.24** The average of 70 values is 40. If each value is multiplied by 20, what will be the changed average?

- Ans**
- ☒ A. 1400
  - ☒ B. 90
  - ☒ C. 800
  - ☒ D. 60

**Q.25** If one of the roots of a quadratic equation is  $\frac{1}{2-\sqrt{2}}$ , then find the quadratic equation.

- Ans**
- ☒ A.  $2x^2 - 4x + 1 = 0$
  - ☒ B.  $\sqrt{2}x^2 + 3x + 2 = 0$
  - ☒ C.  $\sqrt{2}x^2 + 3x - 2 = 0$
  - ☒ D.  $-2x^2 + 3x + 5 = 0$

Section : General Intelligence and Reasoning

**Q.26** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding / subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(13, 84, 29)

(27, 122, 34)

- Ans**
- ☒ A. (25, 90, 20)
  - ☒ B. (17, 45, 13)
  - ☒ C. (10, 56, 23)
  - ☒ D. (15, 57, 27)

**Q.27** If '+' means '-', '-' means '×', '×' means '+' and '+' means '+', what will come in place of the question mark (?) in the following equation?

$$15 + 12 \times 4 \div 5 - 2 = ?$$

- Ans**
- ☒ A. 20
  - ☒ B. 22
  - ☒ C. 18
  - ☒ D. 28

**Q.28** Five boxes F, E, T, C and S are placed one over the other but not necessarily in the same order. S is second from the top, while E is second from the bottom. C is neither at the top nor at the bottom. What is the position of C from the top?

- Ans**
- ☒ A. Fifth
  - ☒ B. Fourth
  - ☒ C. Third
  - ☒ D. Second

**Q.29** Select the option that represents the letters that, when placed from left to right in the blanks below, will complete the letter series.

P \_ Q \_ P \_ M \_ Q \_ P \_ Q \_ P

- Ans**
- ☒ A. MPPQQQM
  - ☒ B. MQPQPQM
  - ☒ C. MQPQPMQ
  - ☒ D. MPQPQM

**Q.30** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

8 : 127 :: 5 : 49 :: 11 : ?

- Ans**
- ☒ A. 214
  - ☒ B. 241
  - ☒ C. 103
  - ☒ D. 203

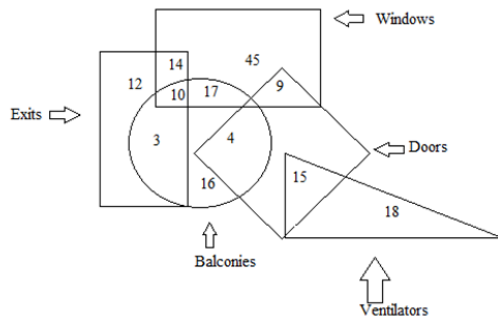
**Q.31** Refer to the following letter series and answer the question.

(Left) T Y A N E C M K E W A F H E Q A P M N B E D H E K U W S D A N M A W E (Right)

If all the vowels are dropped from the series, which of the following will be fifth from the right?

- Ans**
- ☒ A. S
  - ☒ B. D
  - ☒ C. W
  - ☒ D. K

**Q.32** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of units.



How many such balconies are there that are either doors or windows?

- Ans**
- ☒ A. 21
  - ☒ B. 17
  - ☒ C. 20
  - ☒ D. 16

**Q.33** A certain number of people are sitting in a row, facing the north. A sits fourth to the left of C and seventh to the left of B. B sits fifth to the left of D. There is only one person sitting between D and E. No person sits to the right of E. If no other person is sitting in the row, what is the total number of persons seated?

- Ans**
- ☒ A. 13
  - ☒ B. 12
  - ☒ C. 11
  - ☒ D. 15

**Q.34** Six persons, A, B, C, D, E and F, were born on different dates – 12<sup>th</sup>, 14<sup>th</sup>, 18<sup>th</sup>, 19<sup>th</sup>, 4<sup>th</sup> and 6<sup>th</sup>, of the same month. None of them were born after D and he was born just after E. Only three people were born before A. Only two people were born between C and E. B was not born after C. Who among the following was born on 12<sup>th</sup>?

- Ans**
- ☒ A. B
  - ☒ B. C
  - ☒ C. F
  - ☒ D. A

**Q.35** Pole C is to the south of pole H and east of pole R. Pole M is to the west of pole R. Pole A is to the south of pole M. What is the position of pole R with respect to the pole H?

- Ans**
- ☐ A. North
  - ☐ B. South
  - ☒ C. South-west
  - ☐ D. South-east

**Q.36** BU23G is related to GZ18L in a certain way. In the same way, LC41M is related to QH36R. To which of the following is GU18N related following the same logic?

- Ans**
- ☒ A. LZ13S
  - ☐ B. LZ13H
  - ☐ C. LP15J
  - ☐ D. ZL3G

**Q.37** What day of the week was 26 January 2003?

- Ans**
- ☐ A. Friday
  - ☐ B. Saturday
  - ☒ C. Sunday
  - ☐ D. Monday

**Q.38** Ananya, Jaya, Priya, Roma, Geeta and Deepa were having a picnic lunch around a circular table. They were facing the table's centre. Exactly two people sit between Roma and Priya. Roma sits second to the right of Ananya. Deepa was second to the left of Jaya. Who was to the immediate left of Deepa?

- Ans**
- ☒ A. Ananya
  - ☐ B. Priya
  - ☐ C. Roma
  - ☐ D. Geeta

**Q.39** Eight people, A, B, C, D, E, F, G and H, are sitting in a straight row, facing the south. B is sitting at one of the extreme ends and his immediate left neighbour is F. Only two people are sitting between F and D. C is sitting between D and H. Neither E nor A is sitting at the extreme end. How many people are sitting between F and G?

- Ans**
- ☐ A. One
  - ☐ B. Two
  - ☒ C. Five
  - ☐ D. Four

**Q.40** In a certain code language, 'ERGOT' is written as 'FTJSY' and 'SKELP' is written as 'TMHPU'. How will 'KESHA' be written in that language?

- Ans**
- ☐ A. LGFVL
  - ☐ B. GLVEL
  - ☐ C. LGLVE
  - ☒ D. LGVLF

**Q.41** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/<br>Symbol | 1 | % | 8 | 4 | 0 | ø | 2 | \$ | ! | 6 | = | 3 | 7 | 5 |
|-------------------|---|---|---|---|---|---|---|----|---|---|---|---|---|---|
| Code              | A | E | I | O | U | P | R | T  | V | X | Z | B | D | F |

Conditions:

- If the first element is a number and the last, a symbol, the codes for these two (the first and the last elements) are to be interchanged.
- If the first element is an EVEN number and the last, an ODD number, the first and last elements are to be coded as &.
- If both the second and the third elements are prime numbers, the third element is to be coded as the code for the second element.

Question: 2 \$ 3 7 3

- Ans**
- ✓ A. & T B D &
  - ✗ B. & B T D &
  - ✗ C. B B T D R
  - ✗ D. R B T D B

**Q.42** A statement is given, followed by four conclusions given in the options. Find out which conclusion is true based on the given statement.

Statement:  $C > X < N < S < D = K$

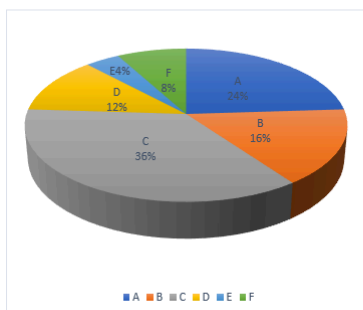
- Ans**
- ✗ A.  $C > N$
  - ✗ B.  $N > D$
  - ✓ C.  $K > N$
  - ✗ D.  $X > K$

**Q.43** Karan steps out of his house and walks 200 m towards the east. Then, he takes a right turn and walks 50 m. Then, he takes a right turn and walks 70 m. Then, he takes left turn and walks 35 m. Then, he takes a right turn and walks 130 m. Finally, he takes a final right turn and walks 45 m to reach his college. How far and in which direction is the college from Karan's house? (All turns are 90 degree turns only)

- Ans**
- ✗ A. 50 m, North
  - ✗ B. 50 m, South
  - ✗ C. 40 m, North
  - ✓ D. 40 m, South

**Q.44** The following pie chart shows the percentage distribution of power to six districts, A to F, of a state. Study the chart and answer the question.

Total number of units generated = 5400



What is the average number of units distributed to districts C, D and E?

- Ans**
- ✗ A. 935
  - ✓ B. 936
  - ✗ C. 1050
  - ✗ D. 1120

**Q.45** A statement is given followed by two possible underlying assumptions I and II. Read all the information carefully and decide which of the given assumptions can be assumed by the given statement.

**Statement:**

Doctors suggest that for people who are deficient in Vitamin C and have a weakened digestive system, it is better to take Vitamin C supplements than to eat citrus fruits rich in Vitamin C.

**Assumptions:**

I. Anyone suffering from indigestion issues should stop eating citrus fruits.

II. The end result of both citric fruits and Vitamin C supplements is more or less similar

- Ans**
- ☒ A. Only I can be assumed
  - ☒ B. Only II can be assumed
  - ☒ C. Both I and II can be assumed
  - ☒ D. Neither I nor II can be assumed

**Q.46** The position of how many letters will remain unchanged if each of the letters in the word QUALITY is arranged in alphabetical order?

- Ans**
- ☒ A. None
  - ☒ B. One
  - ☒ C. Two
  - ☒ D. Three

**Q.47** Refer to the following number series and answer the question.

(Left) 2 5 4 3 7 8 6 7 9 4 3 7 8 6 2 3 4 8 9 4 8 7 6 4 3 7 2 8 9 7 5 3 2 4 5 9 (Right)

If all the even numbers are dropped from the series, which of the following will be sixth from the left?

- Ans**
- ☒ A. 3
  - ☒ B. 5
  - ☒ C. 7
  - ☒ D. 9

**Q.48** Which of the following numbers will replace the question mark (?) in the given series?

47, 48, 52, 79, 95, ?

- Ans**
- ☒ A. 202
  - ☒ B. 220
  - ☒ C. 212
  - ☒ D. 221

**Q.49** Which of the following numbers will replace the question mark (?) in the given series?

12, 17, 32, 57, 92, ?

- Ans**
- ☒ A. 112
  - ☒ B. 122
  - ☒ C. 137
  - ☒ D. 157

**Q.50** Which of the following options is the closest approximate value which will come in place of question mark (?) in the following equation?

$$44.999 + 8.998 + 23.996 + 11.998 - 7.009 + 8.002 \times 1.998 = ?$$

- Ans**
- ✓ A. 16
  - ✗ B. 20
  - ✗ C. 24
  - ✗ D. 28

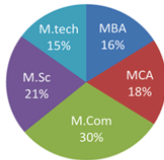
**Q.51** If '+' means '+', '-' means '×', '×' means '+', '÷' means '-', what will come in place of the question mark (?) in the following equation?

$$9 \div 3 \times 21 + 7 - 17 = ?$$

- Ans**
- ✗ A. 53
  - ✗ B. 33
  - ✗ C. 116
  - ✓ D. 57

**Q.52** The following chart shows fee waiver seats in different courses in a university. Study the chart and answer the question.

Total number of students in the university = 15000



What is the total number of fee waiver seats in M.Tech and M.Com together?

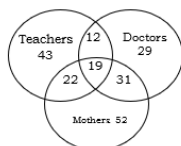
- Ans**
- ✗ A. 4250
  - ✓ B. 6750
  - ✗ C. 5000
  - ✗ D. 6800

**Q.53** A statement is given, followed by four conclusions given in the options. Find out which conclusion is true based on the given statement.

Statement:  $H < Z > P = E > W > Q = U$

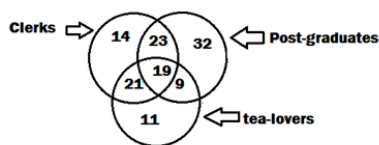
- Ans**
- ✗ A.  $H < P$
  - ✓ B.  $Z > E$
  - ✗ C.  $U = W$
  - ✗ D.  $Q > E$

**Q.54** Study the diagram and answer the question that follows. The numbers in different sections indicate the number of persons. What is the sum of the two categories, that is teachers who are doctors and teachers who are mothers but excluding teachers who are doctors as well as mothers?



- Ans**
- ✓ A. 34
  - ✗ B. 31
  - ✗ C. 43
  - ✗ D. 50

- Q.55** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



How many such tea-lovers are there who are also post-graduates but NOT clerks?

- Ans** ☒ A. 9  
☒ B. 19  
☒ C. 28  
☒ D. 11

#### Section : General Science

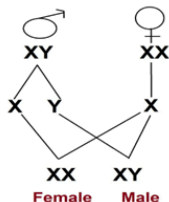
- Q.56** A ray of white light is incident on a refracting surface AB of a glass prism and emerges out of the other refracting surface AC. Consider the following statements:

- (a) The angle of refraction at surface AB is different for different colours of white light.  
 (b) The angle of refraction at the surface AC is the same for different colours.

Which of the above statements is/are correct?

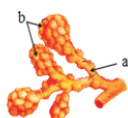
- Ans** ☒ A. Only (a)  
☒ B. Only (b)  
☒ C. Both (a) and (b)  
☒ D. Neither (a) nor (b)

- Q.57** A flow chart of sex determination in human beings is shown below. Some conclusions that can be drawn from it are mentioned in the options. Select the INCORRECT option.



- Ans** ☒ A. The female decides the sex of the offspring.  
☒ B. The male decides the sex of the offspring.  
☒ C. The chances of a child being male or female is 50%.  
☒ D. All children inherit X chromosome from their mother.

- Q.58** The diagram below shows a part of the respiratory system in humans. Which option shows the correct labelling of 'a' and 'b' and the function of 'b'?



- Ans** ☒ A. a - Bronchi, b - Alveoli (exchange of gases)  
☒ B. a - Bronchioles, b - Alveoli (exchange of gases)  
☒ C. a - Bronchi, b - Bronchioles (exchange of gases)  
☒ D. a - Bronchioles, b - Bronchi (exchange of gases)

**Q.59** In a cell that is NOT dividing, DNA is present as part of the \_\_\_\_\_.

- Ans**
- ☐ A. nucleoplasm
  - ☐ B. chromosome
  - ☐ C. gene
  - ☒ D. chromatin material

**Q.60** Which of the following property/properties are correct for the magnetic field lines around a bar magnet:

- (i) Magnetic field lines form closed loops
- (ii) Magnetic field lines do not intersect
- (iii) Outside the magnet, magnetic field lines go from south to north pole of the magnet.

- Ans**
- ☐ A. Only (i)
  - ☐ B. Only(ii)
  - ☒ C. Both (i) and (ii)
  - ☐ D. Both (ii) and (iii)

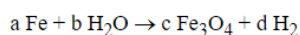
**Q.61** How are the gaseous waste products produced in the hard stem of big plants and trees removed by the plant?

- Ans**
- ☐ A. Through stomata
  - ☒ B. Through lenticels
  - ☐ C. Through transpiration
  - ☐ D. Through osmosis

**Q.62** The power of a concave lens of focal length 25 cm is \_\_\_\_\_.

- Ans**
- ☐ A. -0.04 D
  - ☐ B. 0.04 D
  - ☒ C. -4.0 D
  - ☐ D. 4.0 D

**Q.63** In a balanced chemical reaction, like the one shown below, the values of a, b, c and d respectively, are:



- Ans**
- ☐ A. 3,1,1,4
  - ☒ B. 3,4,1,4
  - ☐ C. 1,4,1,4
  - ☐ D. 3,4,3,4

**Q.64** A ray of light, passing through the centre of curvature, is incident on a concave mirror. It is reflected by an angle of \_\_\_\_\_.

- Ans**
- ☐ A.  $30^\circ$
  - ☐ B.  $20^\circ$
  - ☐ C.  $10^\circ$
  - ☒ D.  $0^\circ$



Q.65 Which of the following properties are a sure test for magnetism?

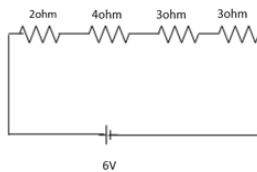
- (a) Attractive property
- (b) Repulsive property
- (c) Directive property

Ans ☒ A. Both (a) and (b)  
☒ B. Both (b) and (c)  
☒ C. Both (a) and (c)  
☒ D. (a), (b) and (c)

Q.66 An object is placed at a distance of 24 cm in front of a convex mirror. Its image is formed at a distance of 12 cm behind the mirror. The focal length of the mirror is:

Ans ☒ A. -8 cm  
☒ B. 8 cm  
☒ C. -24 cm  
☒ D. 24 cm

Q.67 Which of the following options gives the current and equivalent resistance of the circuit in respective order?



Ans ☒ A. 0.5 A, 12  $\Omega$   
☒ B. 5 A, 12  $\Omega$   
☒ C. 0.5 A, 6  $\Omega$   
☒ D. 5 A, 6  $\Omega$

Q.68 Two resistances  $R_1$  and  $R_2$  are connected in parallel. Their equivalent resistance is:

Ans ☒ A.  $\frac{R_1 + R_2}{R_1 R_2}$   
☒ B.  $\frac{R_1 R_2}{R_1 + R_2}$   
☒ C.  $R_1 + R_2$   
☒ D.  $R_1 R_2$

Q.69 According to Newland's Law of Octaves, the properties of beryllium are similar to those of \_\_\_\_\_.

Ans ☒ A. B  
☒ B. C  
☒ C. Al  
☒ D. Mg

**Q.70** The most electronegative element in the periodic table is:

- Ans**
- ☒ A. chlorine
  - ☒ B. fluorine
  - ☒ C. oxygen
  - ☒ D. nitrogen

**Q.71** Select the option that correctly indicates which of the following statements are true.

When a piece of magnesium metal is placed in copper sulphate solution:

- (i) magnesium displaces copper from copper sulphate solution.
- (ii) the blue colour of copper sulphate solution fades.
- (iii) a red brown deposit of copper metal is formed on the magnesium piece.

- Ans**
- ☒ A. i, ii and iii
  - ☒ B. i and ii
  - ☒ C. i and iii
  - ☒ D. ii and iii

**Q.72** Match the following:

| Natural source | Acid           |
|----------------|----------------|
| i. Vinegar     | a. Oxalic acid |
| ii. Tomato     | b. Citric acid |
| iii. Orange    | c. Acetic acid |

- Ans**
- ☒ A. i-a, ii-b, iii-c
  - ☒ B. i-c, ii-b, iii-a
  - ☒ C. i-c, ii-a, iii-b
  - ☒ D. i-a, ii-c, iii-b

**Q.73** Which of the following properties is NOT exhibited or shown by carbon?

- Ans**
- ☒ A. Catenation
  - ☒ B. Covalency
  - ☒ C. Allotropy
  - ☒ D. Metallic character

**Q.74** Which property/ properties of copper make it ideal for electrical transmission lines?

- (i) Low melting point
- (ii) High resistivity
- (iii) Low resistance

**Ans** ☒ A. Only (i)

☒ B. Only (iii)

☒ C. Both (i) and (ii)

☒ D. Both (i) and (iii)

**Q.75** 'Amrita Devi Bishnoi National Award for Wildlife Conservation' is given in the memory of Amrita Devi Bishnoi. She sacrificed her life to save which trees and where?

**Ans** ☒ A. Khejri trees, Rajasthan

☒ B. Sal trees, West Bengal

☒ C. Sal trees, Rajasthan

☒ D. Khejri trees, West Bengal

**Q.76** Recycling is one of the best methods to decrease the amount of waste generated. Some of its benefits are given below. Which of the following is NOT an advantage of recycling?

**Ans** ☒ A. It reduces waste sent to landfills.

☒ B. It prevents pollution.

☒ C. It is of economic benefit, as it creates jobs.

☒ D. It is expensive and uses energy.

**Q.77** Consider the below statements and identify the correct answer.

Statement-I: An Olfactory indicator is a material whose smell varies depending on whether it is mixed with an acidic or basic solution.

Statement-II: Onion, clove oil and vanilla extract are examples of some olfactory indicators

**Ans** ☒ A. Both the statements are true.

☒ B. Both the statements are false.

☒ C. Statement-I is true, and Statement-II is false.

☒ D. Statement-II is true, and Statement-I is false.

**Q.78** All of the methods mentioned below are effective preventive methods of HIV infection that can be practiced. Select the one that is NOT practiced.

**Ans** ☒ A. Safe and protected sex

☒ B. Use of available vaccines

☒ C. Use of sterile injection needles

☒ D. Safe blood transfusion method

**Q.79** If a substance gains hydrogen during reaction, it is said to be:

**Ans** ☒ A. reduced

☒ B. oxidised

☒ C. decomposed

☒ D. neutralised

**Q.80** Which molecule is known as the 'Energy Currency' of the cell

- Ans**
- ☐ A. Pyruvic acid
  - ☐ B. Glucose
  - ☐ C. ADP
  - ☒ D. ATP

Section : General Awareness and Current Affairs

**Q.81** Gandhi Jayanti is celebrated every year on 2nd October as a national festival. In which year was Mahatma Gandhi's 150th birth anniversary?

- Ans**
- ☐ A. 2018
  - ☒ B. 2019
  - ☐ C. 2020
  - ☐ D. 2021

**Q.82**

Which of the following Indian language constitutes third most spoken language in the world as per Forbes data published in August 2021?

- Ans**
- ☐ A. Bengali
  - ☐ B. Telugu
  - ☒ C. Hindi
  - ☐ D. Odia

**Q.83** Which factor is NOT a parameter for declaring an area as an urban area?

- Ans**
- ☐ A. At least 75% of male population engaged in non-agricultural occupation
  - ☐ B. Density of population of at least 400 persons per square kilometre
  - ☐ C. A minimum population of 5000
  - ☒ D. At least 60% of the population lie above poverty line

**Q.84** Digha Nikaya consists of \_\_\_\_\_ long (dīgha) discourses (suttas), divided into three sections known respectively as the Sīlakkhandha, the Mahāvagga, and the Pātheya.

- Ans**
- ☐ A. 25
  - ☐ B. 31
  - ☒ C. 34
  - ☐ D. 39

**Q.85** The Right to Education for all between \_\_\_\_\_ years of age is included in Article 21-A of Fundamental Rights in the Constitution of India.

- Ans**
- ☐ A. 5 to 10
  - ☒ B. 6 to 14
  - ☐ C. 6 to 18
  - ☐ D. 6 to 12

**Q.86** Which Indian state was the first to make rooftop rainwater harvesting structure mandatory for all homes?

- Ans**
- ☐ A. Chhattisgarh
  - ☐ B. Telangana
  - ☐ C. Karnataka
  - ☒ D. Tamil Nadu

**Q.87** Where was the 14th National Wheelchair Fencing Championship – 2021-22 held between 25 and 27 February 2022?

- Ans**
- ☐ A. Assam
  - ☒ B. Odisha
  - ☐ C. West Bengal
  - ☐ D. Jharkhand

**Q.88** Which of the following is the first indigenous drug to treat COVID-19 developed jointly by the Centre for Cellular and Molecular Biology (CCMB), VINS Bioproducts and the University of Hyderabad (UoH)?

- Ans**
- ☐ A. Moderena
  - ☒ B. Vincov-19
  - ☐ C. Covavex 22
  - ☐ D. Covishield

**Q.89** Which of the following schedules of the Indian Constitution describes the number of seats represented in the Council of States from each state and Union Territory?

- Ans**
- ☐ A. Third Schedule
  - ☐ B. Second Schedule
  - ☒ C. Fourth Schedule
  - ☐ D. First Schedule

**Q.90** SEWA Cooperative Bank was first initiated in \_\_\_\_\_ in 1974.

- Ans**
- ☒ A. Ahmedabad
  - ☐ B. Chennai
  - ☐ C. Jaipur
  - ☐ D. Varanasi

**Q.91** In March 2022, which State Assembly became the first to implement the National e-Vidhan Application (NeVA) programme to become paperless?

- Ans**
- ☐ A. Assam
  - ☒ B. Nagaland
  - ☐ C. Rajasthan
  - ☐ D. Mizoram

**Q.92** Who was the first Indian citizen to receive the Nobel Prize in literature?

- Ans**
- ☒ A. Swami Vivekananda
  - ☒ B. Rabindranath Tagore
  - ☒ C. Sarojini Naidu
  - ☒ D. Sully Prudhomme

**Q.93** Which technology company launched a Cyber Security Centre in Bengaluru in February 2022, to tackle cyber-attacks?

- Ans**
- ☒ A. HCL
  - ☒ B. IBM
  - ☒ C. Apple
  - ☒ D. Dell

**Q.95** Which of the following is a qualitative instrument of credit control used by the Reserve Bank of India?

- Ans**
- ☒ A. Moral suasion
  - ☒ B. Open market operations
  - ☒ C. Bank rate
  - ☒ D. Repo rate

**Q.96** In the context of Industrial Policy Resolution 1956, which of the following is a correct statement?

- a) Schedule A comprised of industries exclusively owned by the state.
- b) Schedule B comprised of small-scale industries.
- c) Schedule C comprised of the remaining industries.

- Ans**
- ☒ A. Only a and b
  - ☒ B. Only b and c
  - ☒ C. Only a and c
  - ☒ D. All of a, b, and c

**Q.97** Which social sector organization has the vision and mission of 'every child in school and learning well' as of July 2022?

- Ans**
- ☒ A. Pratham
  - ☒ B. Goonj
  - ☒ C. Nanhi Kali
  - ☒ D. Care India

**Q.98** Find the marginal product.

| Labour | Total Product | Marginal Product |
|--------|---------------|------------------|
| 1      | 10            | 10               |
| 2      | 28            | ?                |
| 3      | 40            | ?                |
| 4      | 50            | ?                |

- Ans**
- ✓ A. 18, 12 and 10
  - ✗ B. 14, 13.33 and 12.50
  - ✗ C. 9, 4 and 2.50
  - ✗ D. 5, 9.33 and 10

**Q.99** Identify the world's largest river line island formed by the Brahmaputra.

- Ans**
- ✗ A. Sandwip Island
  - ✓ B. Majuli Island
  - ✗ C. Sumba Island
  - ✗ D. Diglipur Island

**Q.100** Which Kabaddi team won the title of Pro Kabaddi League 2022 for the first time by defeating three-time champions Patna Pirates?

- Ans**
- ✗ A. Pink Panthers
  - ✗ B. Gujrat Giants
  - ✓ C. Dabang Delhi
  - ✗ D. Bengaluru Bulls



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 26/08/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

## Section : Mathematics

**Q.1** Raghu invests ₹5,00,000 in the name of his daughter, who is 16 years old, in a scheme that pays 5% compound interest per annum, compounded annually. What will be the total amount due to the daughter when she turns 18 years old?

- Ans**
- ☒ A. ₹ 5,52,150
  - ☒ B. ₹ 5,51,520
  - ☒ C. ₹ 5,15,250
  - ☒ D. ₹ 5,51,250

**Q.2** Express  $0.13\overline{241}$  in the form  $\frac{p}{q}$ , where p and q are integers and  $q \neq 0$ .

- Ans**
- ☒ A.  $\frac{3307}{24975}$
  - ☒ B.  $\frac{3807}{24975}$
  - ☒ C.  $\frac{3337}{24160}$
  - ☒ D.  $\frac{3287}{21780}$

**Q.3** A dishonest dealer professes to sell his goods at cost price but uses a false weight and thus gains 20%. For a kilogram he uses a weight of how many grams?

- Ans**
- ☒ A. 750.5 gm
  - ☒ B. 708.06 gm
  - ☒ C. 833.33 gm
  - ☒ D. 785.5 gm

**Q.4** A retailer would have made a profit of 18% if he sold an article at its marked price. If he allowed a discount of 10% on the marked price, what would his actual profit on that article have been?

- Ans**
- ☒ A. 6.2%
  - ☒ B. 5.5%
  - ☒ C. 4.6%
  - ☒ D. 7.1%



**Q.5** For a given data, if mean and mode are 42 and 60, respectively, then find the median of the data using empirical relation.

- Ans** ☒ A. 48  
☐ B. 46  
☐ C. 44  
☐ D. 50

**Q.6** A and B together can complete a work in 12 days. A alone can complete it in 20 days. If B does the work only for the first half of the day daily, then in how many days will A and B together complete the work?

- Ans** ☐ A.  $\frac{22}{3}$  days  
☐ B.  $\frac{43}{2}$  days  
☒ C. 15 days  
☐ D.  $\frac{40}{3}$  days

**Q.7** Find the measure of each exterior angle of a regular octagon.

- Ans** ☐ A.  $120^\circ$   
☐ B.  $60^\circ$   
☐ C.  $135^\circ$   
☒ D.  $45^\circ$

**Q.8** Find the surface area of a sphere with a diameter  $\frac{1}{2}$  cm.

- Ans** ☐ A.  $\pi^2 \text{ cm}^2$   
☒ B.  $\frac{\pi}{4} \text{ cm}^2$   
☐ C.  $\frac{\pi}{2} \text{ cm}^2$   
☐ D.  $2\pi^2 \text{ cm}^2$

**Q.9** The sum of the prime factors of  $9^6 \times 12^4 \times 7^7$  is:

- Ans** ☐ A. 14  
☐ B. 13  
☐ C. 11  
☒ D. 12

**Q.10** If  $a$  and  $b$  are the roots of the equation  $x^2 - 5x - 14 = 0$ , then the value of  $a^3b^2 + a^2b^3$  is:

- Ans** ☐ A. 670  
☐ B. 790  
☐ C. 840  
☒ D. 980

Q.11 If  $x = 2 + \sqrt{5}$  and  $y = 2 - \sqrt{5}$ , then the value of  $x^2 + y^2$  is:

- Ans ☒ A. 18  
☐ B. 16  
☐ C. 20  
☐ D. 22

Q.12 Simplify  $6^2 + 3^2 + 2^4$ .

- Ans ☒ A. 61  
☐ B. 45  
☐ C. 52  
☐ D. 63

Q.13 A and B can complete a piece of work in 10 days and 12 days, respectively. If they work on alternate days beginning with A, then in how many days will the work be completed?

- Ans ☐ A. 10  
☒ B.  $10\frac{5}{6}$   
☐ C.  $10\frac{1}{4}$   
☐ D.  $10\frac{1}{2}$

Q.14 If, for  $x > 0$ , the mean of 22.5, 56, 42.5,  $2x+1$ ,  $x-2$ ,  $3x$ , 36 is 30, then the value of  $x$  is \_\_\_\_\_.

- Ans ☐ A. 7  
☒ B. 9  
☐ C. 4  
☐ D. 6

Q.15 Find the remainder, when  $171 \times 172 \times 173$  is divided by 17.

- Ans ☐ A. 9  
☒ B. 6  
☐ C. 7  
☐ D. 8

Q.16 A 3-digit number is such that the unit digit, tens digit and hundreds digit are in the ratio 1 : 2 : 3. The sum of this number and its reversed number is 1332. Find the number

- Ans ☐ A. 414  
☐ B. 246  
☐ C. 123  
☒ D. 369

Q.17 The value of  $2 - \frac{\sin^2 \alpha}{1 - \cos \alpha} + \frac{1 - \cos \alpha}{\sin \alpha} - \frac{\sin \alpha}{1 + \cos \alpha}$  is

- Ans ☐ A.  $1 + \cos \alpha$   
☒ B.  $1 - \cos \alpha$   
☐ C.  $1 + \sin \alpha$   
☐ D.  $1 - \sin \alpha$

Q.18 Which of the following is true?

- a) Every trapezium is a parallelogram.
- b) Every parallelogram is a square.
- c) Every rectangle is a square.
- d) Every square is a rhombus.

Ans ☒ A. both a and b  
☒ B. only a  
☒ C. only d  
☒ D. only c

Q.19 A's salary is 20% less than B's salary. By how much per cent is B's salary more than A's?

Ans ☒ A. 25%  
☒ B. 20%  
☒ C. 15%  
☒ D. 17%

Q.20 Ramya got married 10 years ago. Now her age is  $1\frac{1}{5}$  times her age at the time of marriage. Her daughter's age is one-tenth of her present age. Find her daughter's present age.

Ans ☒ A. 12 years  
☒ B. 6 years  
☒ C. 8 years  
☒ D. 20 years

Q.21 Bhuvan's salary was first decreased by 16% and subsequently increased by 25%. Find the net percentage change in his salary.

Ans ☒ A. 5% increase  
☒ B. 10% increase  
☒ C. 5% decrease  
☒ D. 10% decrease

Q.22 If  $x^3 - 3x + 6 = 0$ , then it is:

Ans ☒ A. a quadratic equation  
☒ B. not a quadratic equation  
☒ C. a quadratic expression  
☒ D. a linear equation

Q.23 Solve:  $3(5x^2 - 7) - 5(3x^2 + 2x - 7) = -16$

Ans ☒ A. 2  
☒ B. 3  
☒ C. 4  
☒ D. 5

**Q.24** If the breadth and height of a closed cuboid are, respectively, 25% and 50% of its length of 12 cm, then find the total surface area of this cuboid.

- Ans**
- ☐ A.  $63 \text{ cm}^2$
  - ☐ B.  $522 \text{ cm}^2$
  - ☐ C.  $126 \text{ cm}^2$
  - ☒ D.  $252 \text{ cm}^2$

**Q.25** The sum of the ages of five children born at the intervals of three years each is 60 years. What is the age of the youngest child?

- Ans**
- ☐ A. 4 years
  - ☐ B. 5 years
  - ☒ C. 6 years
  - ☐ D. 7 years

#### Section : General Intelligence and Reasoning

**Q.26** Hisar is to the north of Bhiwani, Bhiwani is to the west of New Delhi, Rohtak is to the south of Panipat and to the east of New Delhi. What is the position of Hisar with respect to Panipat?

- Ans**
- ☐ A. East
  - ☒ B. West
  - ☐ C. North
  - ☐ D. South

**Q.27** Q started from a point and walked towards the south for 42 m and reached point A. Q then turned right from point A and walked 2 m, he then turned right again and walked 30 m. Q turned left now and walked 10 m, he then turned left again and walked 30 m. How far is Q from point A?

(All turns are 90 degree turns only)

- Ans**
- ☐ A. 52 m
  - ☐ B. 42 m
  - ☒ C. 12 m
  - ☐ D. 30 m

**Q.28** Nirmal and Sushma are standing in a queue of people facing north. Nirmal is at the 20th position from the extreme left end, and Sushma is at the 10th position from the extreme right end. The positions of Nirmal and Sushma are interchanged due to some criteria based on age. If the new position of Nirmal is 30th from the extreme left end, then what is the new position of Sushma from the extreme right end?

- Ans**
- ☒ A. 20th
  - ☐ B. 18th
  - ☐ C. 25th
  - ☐ D. 30th

- Q.29** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/<br>Symbol | 4 | α | 5 | 9 | + | ± | 8 | \$ | ! | 3 | @ | 6 | 7 | 2 |
|-------------------|---|---|---|---|---|---|---|----|---|---|---|---|---|---|
| Code              | C | G | K | Q | W | R | T | V  | X | D | A | E | H | G |

Conditions:

- (i) If the first element is a number and the last, a symbol, the codes for these two (the first and the last elements) are to be interchanged.
- (ii) If the first element is an EVEN number and the last, an ODD number, the first and last elements are to be coded as !
- (iii) If both the third and the fourth elements are prime numbers, the fourth element is to be coded as the code for the third element and vice-versa.

Question: 8 \$ 5 2 @

- Ans**
- ☒ A. TVKGA
- ☒ B. AVGKT
- ☒ C. TVGKA
- ☒ D. AVKGT

- Q.30** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

18 : 63 :: 44 : 154 :: 54 : ?

- Ans**
- ☒ A. 138
- ☒ B. 179
- ☒ C. 189
- ☒ D. 146

- Q.31** The following table shows the population of six different cities, A, B, C, D, E and F, the ratio of males to females among them and the ratio of adults to children in the total population. Study the table and answer the question.

| City | Population | Male : Female | Adult : Children |
|------|------------|---------------|------------------|
| A    | 410400     | 13 : 11       | 5 : 3            |
| B    | 369900     | 5 : 4         | 7 : 2            |
| C    | 442800     | 5 : 7         | 7 : 5            |
| D    | 465500     | 17 : 18       | 4 : 3            |
| E    | 499500     | 5 : 4         | 5 : 4            |
| F    | 424500     | 8 : 7         | 17 : 13          |

What is the difference between the total number of adults and the total number children in city A?

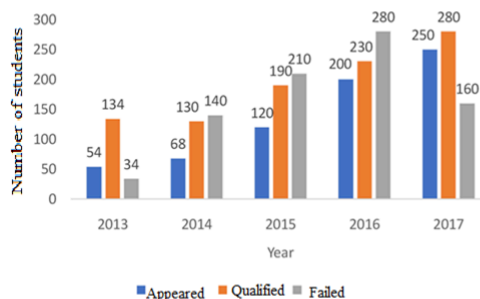
- Ans**
- ☒ A. 1,04,600
- ☒ B. 1,02,600
- ☒ C. 1,12,600
- ☒ D. 1,02,000

- Q.32** Which of the following numbers will replace the question mark (?) in the given series?

7, 18, 34, 72, 142, ?

- Ans**
- ☒ A. 288
- ☒ B. 282
- ☒ C. 228
- ☒ D. 298

- Q.33** The following bar graph gives the information on the number of students who appeared, qualified and failed in a bank PO exam (in hundreds) in different years. Study the graph and answer the question.



By what percentage is the average number of students who failed in the given five years more than the number of students who failed in 2017?

- Ans**
- ☒ A. 2%
  - ☒ B. 3%
  - ☒ C. 4%
  - ☒ D. 5%

- Q.34** A statement is given followed by two arguments I and II. Read the statement and the arguments carefully and select the appropriate answer from the given options.

**Statement:**

Students have complained that questions outside the prescribed syllabus were asked in the X standard board exams this year.

**Arguments:**

- I. The pass percentage in the X standard board exams has declined by 8 percent this year.
- II. The number of students scoring over 60 percent in the X standard board exams has shown an increase of 15 percent this year.

- Ans**
- ☒ A. Argument I weakens, while argument II strengthens the statement
  - ☒ B. Argument II weakens, while argument I strengthens the statement
  - ☒ C. Both arguments I and II weaken the statement
  - ☒ D. Both arguments I and II strengthen the statement

- Q.35** Nine people, 1 to 9, are sitting in a straight row, facing the north. 8 is sitting in the middle of the row and his immediate left and right neighbours are 5 and 1, respectively. 9 is sitting at one of the extreme ends and his immediate right neighbour is 2. Only five people are there between 2 and 3. 3 is sitting between 7 and 6. 1 and 7 are immediate neighbours. How many people are there between 4 and 6?

- Ans**
- ☒ A. One
  - ☒ B. Two
  - ☒ C. Five
  - ☒ D. Four

- Q.36** What approximate value should come in place of the question mark (?) in the following equation?

$$99.01 \div 10.93 + 6.987 \times 16.01 = ?$$

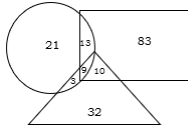
- Ans**
- ☒ A. 133
  - ☒ B. 145
  - ☒ C. 129
  - ☒ D. 121

**Q.37** Which of the following terms will replace the question mark (?) in the given series to make it logically complete?

TDK-4, XHO-9, BLS-16, FPW-25, ?

- Ans**
- ✓ A. JTA-36
  - ✗ B. JTB-36
  - ✗ C. JUA-36
  - ✗ D. JTA-64

**Q.38** In the following diagram, the circle represents girls, the triangle represents science students, and the rectangle represents PG students. The numbers in different sections indicate the number of persons. How many PG students are girls who are NOT science students?



- Ans**
- ✗ A. 12
  - ✓ B. 13
  - ✗ C. 19
  - ✗ D. 22

**Q.39** If each of the digits in the number 63547981 is arranged in ascending order from left to right, then the position of how many digits will remain unchanged as compared to that in the original number?

- Ans**
- ✗ A. One
  - ✓ B. Two
  - ✗ C. Three
  - ✗ D. Four

**Q.40** What will come in the place of the question mark (?) in the following equation if '+' and '-' are interchanged and also '×' and '÷' are interchanged?

$$10 + 152 \times 19 - 2 \div 3 = ?$$

- Ans**
- ✗ A. 2
  - ✗ B. 4
  - ✗ C. 6
  - ✓ D. 8

**Q.41** Which of the following numbers will replace the question mark (?) in the given series?

3, 9, 25, 53, 157, ?

- Ans**
- ✗ A. 300
  - ✗ B. 307
  - ✓ C. 317
  - ✗ D. 371

**Q.42** A, B, C, D, E and F live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it is numbered 2, and so on till the topmost floor is numbered 6. E lives on the floor immediately below F's floor. D lives on the 2<sup>nd</sup> floor. C lives on the floor immediately below A's floor. F does not live on the 5<sup>th</sup> floor. On which floor does B live?

- Ans**
- ✓ A. 1<sup>st</sup>
  - ✗ B. 3<sup>rd</sup>
  - ✗ C. 5<sup>th</sup>
  - ✗ D. 6<sup>th</sup>

**Q.43** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

MGB : NTY

THK : GSP

- Ans**
- ☒ A. LCP : OXJ
  - ☒ B. QDF : JWU
  - ☒ C. MER : NVH
  - ☒ D. CHX : XIC

**Q.44** In a college, the Art room, the Library, the Gym, the Labs, the Storerooms, the Staffrooms and the Classrooms are there on seven different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it is numbered 2, and so on till the topmost floor is numbered 7. No other floors are there below the Library, and the Library is immediately below the Gym. Only two floors are there between the Gym and the Classrooms. Both the Labs and the Staffrooms are on even numbered floors. Only three floors are there between the Storerooms and the Art room. The Storerooms are immediately below the Labs. Which of the following is/are there on floor number 4?

- Ans**
- ☒ A. Art room
  - ☒ B. Storerooms
  - ☒ C. Labs
  - ☒ D. Staffrooms

**Q.45** Refer to the following letter, number and symbol series and answer the question.

(Left) G B D F H & 8 \* T % 7 D 4 @ 6 K & 2 R P Q T @ Y # 3 5 E \* S (Right)

How many such symbols are there in the series which are immediately preceded by a letter and also immediately followed by a number?

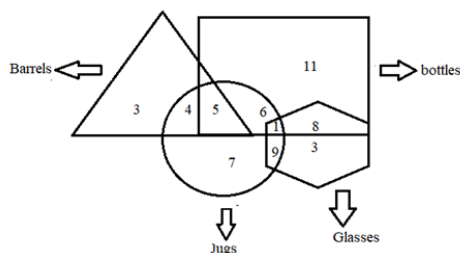
- Ans**
- ☒ A. One
  - ☒ B. Two
  - ☒ C. Three
  - ☒ D. Four

**Q.46** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

6 : 33 :: 11 : 58 :: 18 : ?

- Ans**
- ☒ A. 105
  - ☒ B. 98
  - ☒ C. 93
  - ☒ D. 150

**Q.47** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of articles.



How many such barrels are there that are only jugs?

- Ans**
- ☒ A. 4
  - ☒ B. 5
  - ☒ C. 6
  - ☒ D. 1



**Q.48** Eight students, 1 to 8, are sitting around a circular table facing the centre. 1 is the immediate neighbour of both 8 and 2. 3 is sitting second to the right of 1. 1 is sitting second to the right of 7. 5 is the immediate neighbour of 6 and 4. How many students were sitting between 5 and 1?

- Ans**
- ☒ A. One
  - ☒ B. Two
  - ☒ C. Three
  - ☒ D. None

**Q.49** How many such pairs of letters are there in the word HINDUSTAN (in both forward and backward directions) which have as many letters between them in the word as there are in the English alphabetical order?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.50** Among six students, K, L, M, N, O and P, each scores different marks in an examination. M scores more marks than only three other students. K scores more marks than N. P scores less marks than M. O scores more marks than L. P scores more marks than K. L scores more marks than M. Who scores the highest marks among all six students?

- Ans**
- ☒ A. O
  - ☒ B. P
  - ☒ C. K
  - ☒ D. N

**Q.51** At what time between 2 o'clock and 3 o'clock will the hands of a clock be together?

- Ans**
- ☒ A.  $10\frac{10}{11}$  past 2
  - ☒ B.  $11\frac{12}{11}$  past 2
  - ☒ C.  $6\frac{5}{11}$  past 2
  - ☒ D.  $3\frac{5}{11}$  past 2

**Q.52** How many such pairs of letters are there in the word TOMORROW (in both forward and backward directions) which have as many letters between them in the word as there are in the English alphabetical order?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.53** Among six persons, K, L, M, N, O and P, each one has a different age. P is older than only three other persons. N is older than L. O is younger than L. M is older than K. P is younger than K. Who is the second youngest among all six persons?

- Ans**
- ☒ A. O
  - ☒ B. N
  - ☒ C. L
  - ☒ D. K

- Q.54** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/symbol | 22 | 56 | 33 | # | 46 | & | 64 | @ | % | 37 | 57 |
|---------------|----|----|----|---|----|---|----|---|---|----|----|
| Code          | L  | K  | J  | H | G  | F | D  | S | A | P  | B  |

Conditions:

- If the first element is a symbol and the last element is a number, then replace these two (first and last) elements with %.
- If the second element is a number and the second last is a symbol, the codes of the first and last elements are to be interchanged.
- If the question has an equal quantity of even and odd numbers, then replace the even numbers with \* and odd numbers with <

Question: # 22 64 % 33 & 37 @

- Ans**
- ☒ A. HLDAJFPS
  - ☒ B. #LDAJFP@
  - ☒ C. H\*\*A33F37S
  - ☒ D. H\*\*A<F<S

- Q.55** Given below are three statements and three conclusions. Take the statements to be true even if they are at variance with commonly known facts, and decide whether the conclusion/s follow/s the given statements.

Statements:

- All pen drives are hard drives.
- Some hard drives are chips.
- All chips are keyboards.

Conclusions:

- Some keyboards are pen drives.
- Some chips are pen drives.
- Some keyboards are hard drives.

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Conclusions I and III follow
  - ☒ C. Only conclusion III follows
  - ☒ D. All the conclusions follow

#### Section : General Science

- Q.56** Which of the following diseases is NOT sexually transmitted?

- Ans**
- ☒ A. AIDS
  - ☒ B. Syphilis
  - ☒ C. Hepatitis B
  - ☒ D. Tuberculosis

- Q.57** A lens having power 8 D is kept in contact with another lens having power -4 D. The lens combination will act as a:

- Ans**
- ☒ A. convex lens having focal length 25 cm
  - ☒ B. concave lens having focal length 25 cm
  - ☒ C. convex lens having focal length 50 cm
  - ☒ D. concave lens having focal length 50 cm

**Q.58** Which of the following reactions will be considered as a double displacement reaction?

- Ans**
- ☐ A.  $\text{MgO} + \text{H}_2\text{O} \rightarrow \text{Mg}(\text{OH})_2$
  - ☐ B.  $\text{Zn} + \text{FeCl}_3 \rightarrow \text{ZnCl}_2 + \text{Fe}$
  - ☐ C.  $\text{H}_2\text{CO}_3 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$
  - ☒ D.  $\text{HCl} + \text{KOH} \rightarrow \text{KCl} + \text{H}_2\text{O}$

**Q.59** The potential difference across a copper wire is 2.0 V when a current of 0.4 A flows through it. The resistance of the wire is:

- Ans**
- ☐ A. 0.2  $\Omega$
  - ☐ B. 0.5  $\Omega$
  - ☐ C. 2.5  $\Omega$
  - ☒ D. 5.0  $\Omega$

**Q.60** In the conservation of forests, stakeholders play a very important role. Which of the following are NOT the stakeholders in the forest?

- Ans**
- ☐ A. Forest Department of the Government
  - ☐ B. The people who live in and around the forest and depend on forest produce
  - ☒ C. People living in urban areas
  - ☐ D. Wildlife and nature enthusiasts

**Q.61** It is found that during dispersion of white light by a glass prism, the more a colour component is bent, the more is the refractive index of the glass for that colour component. If  $\mu_Y$ ,  $\mu_V$  and  $\mu_G$  are refractive indices for yellow, violet and green lights, respectively, then which of the following relations between them is correct?

- Ans**
- ☐ A.  $\mu_G > \mu_Y > \mu_V$
  - ☐ B.  $\mu_Y > \mu_V > \mu_G$
  - ☒ C.  $\mu_V > \mu_G > \mu_Y$
  - ☐ D.  $\mu_Y = \mu_V = \mu_G$

**Q.62** The first step to practice waste management is segregation. Select the INCORRECT option with regard to segregation of waste into different categories.

- Ans**
- ☐ A. Segregation helps to reduce the money spent on disposal of waste
  - ☒ B. It increases the amount of waste going into landfills
  - ☐ C. It prevents items suitable for recycling from being thrown away
  - ☐ D. It helps to identify materials that can be sold to earn revenue

**Q.63** An object is placed in front of a concave mirror of focal length 12 cm, at a distance of 8 cm. Its image is formed at a distance of:

- Ans**
- ☒ A. 24 cm
  - ☐ B. 12 cm
  - ☐ C. 8 cm
  - ☐ D. 4.8 cm

**Q.64** Consider the following statements about magnetic field due to a current-carrying solenoid:

- (a) The magnetic field is uniform inside the solenoid.
- (b) One end of the solenoid behaves like the north pole and the other like the south pole of a bar magnet.

Which of the above statements is/are correct?

**Ans**

- ✓ **A. Both (a) and (b)**
- ✗ **B. Neither (a) nor (b)**
- ✗ **C. Only (a)**
- ✗ **D. Only (b)**

**Q.65** Some features of villi of the small intestine in humans are given below:

- (i) They are finger-like with very thin walls
- (ii) Provide a large surface area
- (iii) Have small pores for food to pass
- (iv) Richly supplied by blood capillaries

Which option/options shows/show the features that enable the villi to absorb food?

**Ans**

- ✗ **A. Only (i)**
- ✗ **B. Only (ii) and (iii)**
- ✗ **C. Only (i) and (iii)**
- ✓ **D. (i), (ii) and (iv)**

**Q.66** Consider the following statements about magnetic field due to a current-carrying straight conductor:

- (a) The direction of the south pole of a compass needle at a point gives the direction of the magnetic field at that point.
- (b) The direction of the magnetic field lines gets reversed if the direction of the current in the conductor is reversed.

Which of the above statements is/are correct?

**Ans**

- ✗ **A. Only (a)**
- ✓ **B. Only (b)**
- ✗ **C. Neither (a) nor (b)**
- ✗ **D. Both (a) and (b)**

**Q.67** Which of the following groups of three elements each constitutes Dobereiner's triads?

**Ans**

- ✗ **A. Li, Mg, Al**
- ✗ **B. Cl, H, Si**
- ✗ **C. Ca, Ba, F**
- ✓ **D. Cl, Br, I**

**Q.68** Mendel worked with a number of contrasting visible characters of garden pea. Some of them were:

- a) Round and wrinkled seeds
- b) tall and short plants
- c) white and violet flowers

Which of these are the recessive traits in the pea plant?

- Ans**
- ☒ A. Wrinkled, short and violet
  - ☒ B. Round, short and white
  - ☒ C. Wrinkled, short and white
  - ☒ D. Violet, short and round

**Q.69** Where in the human body does pyruvate undergo aerobic breakdown?

- Ans**
- ☒ A. Cytoplasm
  - ☒ B. Nucleus
  - ☒ C. Mitochondria
  - ☒ D. Muscles

**Q.70** A concave mirror converges light rays from the sun at 10 cm from the mirror. If an object is placed 20 cm from the mirror, the image is formed:

- Ans**
- ☒ A. 20 cm in front of the mirror
  - ☒ B. 20 cm behind the mirror
  - ☒ C. 10 cm in front of the mirror
  - ☒ D. 10 cm behind the mirror

**Q.71** All of the statements given below regarding inhalation in humans are correct except one. Which one is NOT correct?

- a) Ribs move inward and diaphragm is raised.
- b) Ribs are lifted up and diaphragm becomes flat.
- c) Chest cavity becomes larger.
- d) Air is sucked into the lungs.

- Ans**
- ☒ A. b
  - ☒ B. a
  - ☒ C. c
  - ☒ D. d

**Q.72** Consider the below statements and identify the correct answer.

Statement-I: Salts of strong acid and a strong base are neutral with pH value of 7.

Statement-II: Salts of a strong acid and weak base are acidic with pH value less than 7.

- Ans**
- ☒ A. Both the statements are true.
  - ☒ B. Both the statements are false.
  - ☒ C. Statement-I is true, and Statement-II is false.
  - ☒ D. Statement-II is true, and Statement-I is false.

**Q.73** Long chain compounds formed by Silicon are:

- Ans**
- ☐ A. Very stable
  - ☐ B. Less polarizable
  - ☒ C. Very reactive
  - ☐ D. More Ionic

**Q.74** Two resistors, A of  $10\ \Omega$  and B of  $30\ \Omega$ , are connected in series to a battery of 6 V. The total heat dissipated in the resistors in 1 second is:

- Ans**
- ☐ A. 0.45 J
  - ☒ B. 0.90 J
  - ☐ C. 2.4 J
  - ☐ D. 4.8 J

**Q.75** Silver chloride turns into silver and chlorine gas in the presence of ultraviolet radiation. This is an example of:

- Ans**
- ☐ A. thermal decomposition reaction
  - ☐ B. double displacement reaction
  - ☐ C. redox reaction
  - ☒ D. photolytic decomposition reaction

**Q.76** Two resistors, A of  $6\ \Omega$  and B of  $12\ \Omega$ , are connected in parallel to a battery of 3 V. The total energy supplied by the battery to the circuit in 1 second is:

- Ans**
- ☐ A. 0.75 J
  - ☐ B. 1.5 J
  - ☒ C. 2.25 J
  - ☐ D. 4.5 J

**Q.77** Consider the below statements and identify the correct answer.

Statement I: Atomic radius increases in moving from left to right along a period.

Statement II: Nuclear charge increases in moving from left to right along a period.

- Ans**
- ☐ A. Both statements are correct. Statement II is correct explanation of Statement I.
  - ☐ B. Both statements are correct. Statement I is correct explanation of Statement II.
  - ☐ C. Only Statement I is correct.
  - ☒ D. Only Statement II is correct.

**Q.78** What is the process called when a substance's spontaneous movement from a high concentration to a low concentration takes place?

- Ans**
- ☒ A. Diffusion
  - ☐ B. Osmosis
  - ☐ C. Gaseous exchange
  - ☐ D. Circulation

**Q.79** Formation of methyl chloride from methane and chlorine gas is which type of reaction?

- Ans**
- ☐ A. Combustion reaction
  - ☐ B. Oxidation reaction
  - ☐ C. Addition reaction
  - ☒ D. Substitution reaction

**Q.80** Which compounds are required to manufacture baking soda?

- Ans**
- ☐ A. Sodium hydroxide and water
  - ☐ B. Water and bleaching powder
  - ☐ C. Water and sodium carbonate
  - ☒ D. Common salt, carbon dioxide and ammonia

Section : **General Awareness and Current Affairs**

**Q.81** India's first wholly owned women's industrial park opened in March 2022 in Hyderabad. This park has been promoted by which organization in collaboration with the Government of Telangana?

- Ans**
- ☐ A. Sabala Organisation
  - ☒ B. FICCI Ladies Organisation
  - ☐ C. Self Employed Women's Association
  - ☐ D. Confederation of Women Entrepreneurs

**Q.82** Which of the following types of coal is known to have the highest carbon content in it?

- Ans**
- ☐ A. Bituminous
  - ☐ B. Sub-bituminous
  - ☒ C. Anthracite
  - ☐ D. Lignite

**Q.83** From which of the following countries has the Freedom of Trade feature been taken by the Indian Constitution?

- Ans**
- ☐ A. Ireland
  - ☐ B. Germany
  - ☒ C. Australia
  - ☐ D. USSR

**Q.84** 'Families increase savings to offset the increased government dissaving.'

Who among the following has given the above mentioned theory?

- Ans**
- ☒ A. David Ricardo
  - ☐ B. Takeshi Amemiya
  - ☐ C. Walter Adams
  - ☐ D. BR Ambedkar



**Q.85** According to Article 24 of the Constitution of India which deals with the Right against Exploitation, what is the minimum age fixed by the government to work in a factory or mine?

- Ans**
- ☐ A. 18 years
  - ☐ B. 21 years
  - ☐ C. 16 years
  - ☒ D. 14 years

**Q.86** Which institution governs the area that is in transition from rural to urban?

- Ans**
- ☐ A. Gram Sabha
  - ☐ B. Gram Panchayat
  - ☒ C. City Councils
  - ☐ D. Panchayat Samitis

**Q.87** On 14 February 2022, ISRO (Indian Space Research Organisation) launched which of the following satellites?

- Ans**
- ☒ A. EOS-04
  - ☐ B. EOS-03
  - ☐ C. CMS-01
  - ☐ D. EOS-01

**Q.88** Which of the following cities is famous for the iconic 'Kumbh Mela'?

- Ans**
- ☒ A. Prayagraj
  - ☐ B. Ahmedabad
  - ☐ C. Lucknow
  - ☐ D. Surat

**Q.89** The Secretary General of the Rajya Saba is appointed by who among the following?

- Ans**
- ☒ A. Chairman of Rajya Sabha
  - ☐ B. President
  - ☐ C. Attorney General
  - ☐ D. Prime Minister

**Q.90** Who was the first Deputy Chairman of the Planning Commission of India?

- Ans**
- ☐ A. KC Neogy
  - ☒ B. Gulzarilal Nanda
  - ☐ C. Jawaharlal Nehru
  - ☐ D. Vallabhbhai Jhaverbhai Patel



**Q.91** If Average Production is decreasing, then what will be the effect on Marginal Production?

- Ans**
- ☒ A. It will be less than Average Production
  - ☐ B. It will be the same as Average Production
  - ☐ C. It will be more than Average Production
  - ☐ D. It will have a positive slope

**Q.92** Who presented a draft bill in the Parliament – The National Anti-Doping Bill, 2021 – to regulate anti-doping activities in sports?

- Ans**
- ☐ A. Rajyavardhan Singh Rathore
  - ☐ B. Kiran Rijiju
  - ☒ C. Anurag Thakur
  - ☐ D. Sandeep Singh

**Q.93** Where was the first session of Indian National Congress held?

- Ans**
- ☒ A. Bombay
  - ☐ B. Madras
  - ☐ C. Lucknow
  - ☐ D. Patna

**Q.94** Which of the following is the non-metallic form of mineral?

- Ans**
- ☐ A. Silver
  - ☐ B. Lead
  - ☐ C. Bauxite
  - ☒ D. Mica

**Q.95** Books that contain the records of Christ's life are known as \_\_\_\_\_.

- Ans**
- ☐ A. Torahs
  - ☐ B. Sermons
  - ☒ C. Gospels
  - ☐ D. Psalms

**Q.96** What is the name of a river in central India with a total length of about 724 km, which originates from Betul, Madhya Pradesh, and joins the Arabian Sea?

- Ans**
- ☐ A. Godavari River
  - ☒ B. Tapi River
  - ☐ C. Kaveri River
  - ☐ D. Krishna River

**Q.97** In September 2021, which state government launched the Nirbhaya Ek Pahal scheme under Phase 3 of Mission Shakti?

- Ans**
- ☐ A. Chhattisgarh
  - ☐ B. Goa
  - ☒ C. Uttar Pradesh
  - ☐ D. Rajasthan

**Q.98** As a part of policy to promote 'Sports for Unity' National Games Gujarat 2022 is proposed to have a total of how many sports?

- Ans**
- ☐ A. 28
  - ☐ B. 30
  - ☐ C. 32
  - ☒ D. 36

**Q.99** Which of the following statements about Classical Language is INCORRECT?

- Ans**
- ☐ A. High antiquity of a language's early texts over a period of 1500-2000 years for it to be considered classical.
  - ☐ B. The literary tradition be original and not borrowed from another speech community for a language to be classical .
  - ☐ C. The classical language and literature being distinct from modern for a language to be classical.
  - ☒ D. At least two million people must speak the language for it to be considered classical.

**Q.100** Which of the following institutions launched the microfinance movement in India on a pilot basis in 1992?

- Ans**
- ☐ A. SIDBI
  - ☒ B. NABARD
  - ☐ C. IFCI
  - ☐ D. IIFCL



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 29/08/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** Which of the identities given below is NOT true?

- Ans**
- ☒ A.  $\sec^2\theta - \tan^2\theta = 1$
  - ☒ B.  $\tan^2\theta + \cot^2\theta = 1$
  - ☒ C.  $\operatorname{cosec}^2\theta - \cot^2\theta = 1$
  - ☒ D.  $\sin^2\theta + \cos^2\theta = 1$

**Q.2** The value of

$$\left\{ \left( 234^5 - 243^8 + \frac{1}{72} \right)^{-8} \right\}^0 + 8 =$$

- Ans**
- ☒ A. 234
  - ☒ B. 10
  - ☒ C. 9
  - ☒ D. 243

**Q.3** The ratio of milk to water in 10 litres of a mixture is 3: 2. If this ratio is to be made 2: 3, then the quantity of water to be added further to the mixture is:

- Ans**
- ☒ A. 10 litres
  - ☒ B. 8 litres
  - ☒ C. 5 litres
  - ☒ D. 12 litres

**Q.4** A man brought some fruits at 14 for ₹30 and sold them at 7 for ₹20. What is his profit percentage?

- Ans**
- ☒ A. 30%
  - ☒ B. 33.33%
  - ☒ C. 36.33%
  - ☒ D. 20%

Q.5 The internal bisectors of  $\angle B$  and  $\angle C$  of  $\triangle ABC$  meet at D. If  $\angle A = 75^\circ$ , the  $\angle BDC$  is:

- Ans ☒ A.  $127.5^\circ$   
☒ B.  $112.5^\circ$   
☒ C.  $105.5^\circ$   
☒ D.  $102.5^\circ$

Q.6 If  $\text{GCD}(108, 36) = \text{GCD}(x, 72)$  then what is the minimum possible value of  $x$ ?

- Ans ☒ A. 24  
☒ B. 36  
☒ C. 12  
☒ D. 72

Q.7 By what per cent does the curved surface area of a cylinder decrease, if the radius is increased by 10% and the height is decreased by 40%?

- Ans ☒ A. 20%  
☒ B. 34%  
☒ C. 51.6%  
☒ D. 24.3%

Q.8 If a person covers a distance of 90 km at a speed of 45 km/h and another distance of 150 km at a speed of 50 km/h, then his average speed for the whole journey is:

- Ans ☒ A. 48 km/h  
☒ B. 47 km/h  
☒ C. 49 km/h  
☒ D. 46 km/h

Q.9 The value of  $\frac{1}{4} + \frac{2}{5} \div \left[ \left\{ 2\frac{1}{5} - 2 \right\} \times 5 \right] - \frac{2}{3} \times \frac{3}{5}$  is:

- Ans ☒ A.  $\frac{3}{5}$   
☒ B.  $\frac{5}{6}$   
☒ C.  $\frac{1}{4}$   
☒ D.  $\frac{2}{3}$

Q.10 Find the sum of the roots of the quadratic equation  $7x^2 + 28x + 1 = 0$ .

- Ans ☒ A. 28  
☒ B. -4  
☒ C. 1  
☒ D.  $-\frac{1}{7}$

Q.11 If  $a + b = 48$  and  $ab = 56$ , then what is the value of  $a^3 + b^3$ ?

- Ans
- ☐ A. 1,20,528
  - ☐ B. 1,20,825
  - ☐ C. 1,02,258
  - ☒ D. 1,02,528

Q.12 Which of the following is true for a square?

- a) All angles equal
- b) All sides parallel
- c) Diagonals equal
- d) All sides equal

- Ans
- ☐ A. a, b, c
  - ☒ B. a, c, d
  - ☐ C. b, c, d
  - ☐ D. a, b

Q.13 A dishonest shopkeeper claims to sell rice at the cost price of ₹95 per kg, but the weight he uses has 1 kg written on it, while it actually weighs 950 gms. The profit he thus earns on selling rice having an actual weight of 100 kg rice is:

- Ans
- ☐ A. ₹275
  - ☐ B. ₹375
  - ☐ C. ₹475
  - ☒ D. ₹500

Q.14 If T denotes the sum of money, M denotes the number of years and P denotes the rate of interest, then the compound interest is given by:

- Ans
- ☐ A.  $M(1 + T/100)^P - T$
  - ☐ B.  $M(1 + M/100)^P$
  - ☒ C.  $T(1 + P/100)^M - T$
  - ☐ D.  $T(1 + P/100)^M$

Q.15 Find the median of the given frequency distribution.

| Class Interval | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 |
|----------------|------|-------|-------|-------|-------|
| $f$            | 10   | 8     | 7     | 9     | 12    |

- Ans
- ☒ A.  $\frac{190}{7}$
- ☐ B.  $\frac{250}{7}$
- ☐ C.  $\frac{290}{7}$
- ☐ D.  $\frac{150}{7}$

Q.16 Using  $\pi = \frac{22}{7}$ , find the total surface area of a cylinder whose radius of base is 7 cm and height is 8 cm.

- Ans
- ☐ A.  $625 \text{ cm}^2$
- ☒ B.  $660 \text{ cm}^2$
- ☐ C.  $665 \text{ cm}^2$
- ☐ D.  $710 \text{ cm}^2$

Q.17 The fraction equivalent to 0.4363636..... is:

- Ans
- ☐ A.  $\frac{42}{100}$
- ☐ B.  $\frac{236}{99}$
- ☒ C.  $\frac{24}{55}$
- ☐ D.  $\frac{42}{99}$

Q.18 Meenu alone can do a work in 16 days. Simi alone can do it in 12 days. If Raj joins them, they three together can complete the work in 4 days. How long will Raj alone take to finish the work?

- Ans
- ☐ A. 23 days
- ☐ B.  $\frac{12}{7}$  days
- ☒ C.  $\frac{48}{5}$  days
- ☐ D.  $\frac{111}{2}$  days

Q.19 P, Q and R can do a piece of work in 9 days, 18 days and 12 days, respectively. They start the work, with P working on Day 1, Q working on Day 2 and R working on Day 3, and then continuing with this cycle till the work got is completed. How many days will be needed to complete this work in this manner?

- Ans
- ☐ A. 11 days
- ☒ B. 12 days
- ☐ C. 15 days
- ☐ D. 16 days

**Q.20** The population of a village was 4,00,000. It increased by 20% in the first year and increased by 30% in the second year. Its population after these two years is \_\_\_\_\_.

- Ans**
- ☐ A. 5,20,000
  - ☐ B. 5,40,000
  - ☐ C. 6,25,000
  - ☒ D. 6,24,000

**Q.21** If the roots of quadratic equation  $(2 - p)x^2 + 2px - (p + 1) = 0$  are equal, then the value of p is:

- Ans**
- ☐ A. 2
  - ☒ B. -2
  - ☐ C. -1
  - ☐ D. 1

**Q.23** Find the negative root of  $3x^2 + 12x - 15 = 0$ .

- Ans**
- ☐ A.  $x = -1$
  - ☒ B.  $x = -5$
  - ☐ C.  $x = 5$
  - ☐ D.  $x = 1$

**Q.24** The prime factorisation of the number 266805 is:

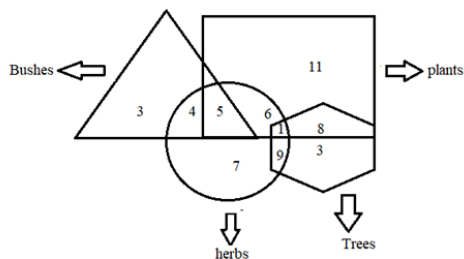
- Ans**
- ☐ A.  $3 \times 5 \times 7^3 \times 11^2$
  - ☐ B.  $3^3 \times 5^2 \times 7 \times 11^2$
  - ☒ C.  $3^2 \times 5 \times 7^2 \times 11^2$
  - ☐ D.  $3^4 \times 5^2 \times 7^2 \times 11^2$

**Q.25** If the opposite angles of a cyclic quadrilateral are in the ratio 3 : 7, then the measure of the bigger angle among the two is

- Ans**
- ☐ A.  $105^\circ$
  - ☐ B.  $140^\circ$
  - ☐ C.  $70^\circ$
  - ☒ D.  $126^\circ$

Section : General Intelligence and Reasoning

- Q.26** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of things.



How many such trees are there that are also plants but NEITHER herbs NOR bushes?

- Ans** ☒ A. 1  
☒ B. 9  
☒ C. 8  
☒ D. 3

- Q.27** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

BLG : DHM

GMQ : IIW

- Ans** ☒ A. CNH : EJM  
☒ B. QDR : TZS  
☒ C. ULF : WGL  
☒ D. YPJ : ATP

- Q.28** Select correct combination of mathematical signs to sequentially replace the @ signs and balance the following equation.

28 @ 7 @ 12 @ 6 @ 8

- Ans** ☒ A. ×, =, −, +  
☒ B. ÷, ×, =, −  
☒ C. ×, ÷, =, −  
☒ D. ÷, ×, =, ×

- Q.30** The position of how many letters will remain unchanged if each of the letters in the word ABDUCT is arranged in alphabetical order?

- Ans** ☒ A. 1  
☒ B. 2  
☒ C. 3  
☒ D. 4

- Q.31** In this question, the statement is followed by two conclusions. Which of the two conclusion(s) is/are true based on the given statement?

Statement:  $Z > G \geq W < Y = V > L < N$

Conclusions:

- I.  $V < G$   
 II.  $Z < W$

- Ans** ☒ A. Only conclusion I is true  
☒ B. Only conclusion II is true  
☒ C. Both conclusions I and II are true  
☒ D. Neither conclusion I nor II is true



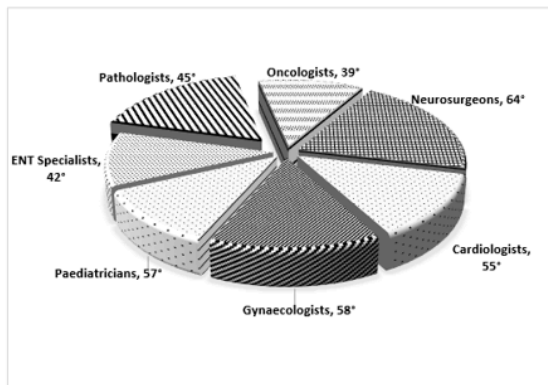
**Q.32** If 9 May 2016 was a Monday, then what day of the week was 2 September 2016?

- Ans**
- ☐ A. Sunday
  - ☐ B. Tuesday
  - ☐ C. Thursday
  - ☒ D. Friday

**Q.33** Amit steps out of his house and walks 76 m towards the north. He takes a right turn and walks 23 m. He takes a right turn again and walks 61 m. Then he takes a left turn and walks 20 m. Then he takes a right turn and walks 34 m. He takes a final right turn and walks 43 m to reach a library. How far and in which direction is the library from Amit's house? (All turns are 90 degree turns only)

- Ans**
- ☐ A. 19 m, North
  - ☒ B. 19 m, South
  - ☐ C. 34 m, North
  - ☐ D. 34 m, South

**Q.34** The given circle graph shows the specialists in a well-recognised private hospital during a particular year (in the form of central angle). Study the circle graph and answer the question.



If the total number of all the mentioned specialists during the year in the hospital was 120, then how many pathologists were there in the hospital?

- Ans**
- ☐ A. 12
  - ☐ B. 10
  - ☐ C. 11
  - ☒ D. 15

**Q.35** Each of D, E, G, H, S, T, and Y has an exam on a different day of a week starting from Monday and ending on Sunday of the same week. G's exam is on one of the days before H. E has the exam on Thursday. Only two person have exams between S and E. D has the exam on the day immediately after S. T has the exam on the day immediately before Y, but not on Saturday. G does not have the exam on Sunday. Who among the following has the exam on Friday?

- Ans**
- ☐ A. Y
  - ☒ B. T
  - ☐ C. G
  - ☐ D. H

**Q.36** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding / subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(4, 50, 6)

(2, 18, 4)

**Ans** ☒ A. (5, 62, 6)

☒ B. (15, 162, 3)

☒ C. (12, 60, 5)

☒ D. (2, 125, 3)

**Q.37** Refer to the given letter, number and symbol series and answer the question that follows.

(Left) \* Y S 2 # C 2 4 & 7 F & 2 @ R 4 € G 4 £ 9 (Right)

How many such letters are there in the series each of which is immediately preceded by a symbol and also immediately followed by a number?

**Ans** ☒ A. 1

☒ B. 2

☒ C. 3

☒ D. 4

**Q.38** A decision is given followed by two statements I and II. Read all the information carefully and select the correct option.

**Decision:**

In many cities of Country S only hybrid cars are allowed in the centre of the city in order to control pollution. Following the same, Country M has also decided to implement this in some tier-I cities.

**Statements:**

I. Unlike Country S, public transport is not well connected in most of the tier-I cities in Country M.

II. As per recent reports, the biggest contributor of pollution in Country M are transport trucks and two-wheelers.

**Ans** ☒ A. Both statements I and II weaken the decision

☒ B. Statement I weakens the decision and statement II is a neutral statement

☒ C. Both statements I and II strengthen the decision

☒ D. Statement I is a neutral statement and statement II strengthens the decision

**Q.39** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding / subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(12, 9, 4)

(25, 25, 5)

**Ans** ☒ A. (15, 12, 7)

☒ B. (20, 12, 10)

☒ C. (14, 10, 7)

☒ D. (12, 16, 3)

- Q.40** L, M, N, O, P, Q, R and S are sitting in a straight row, facing south. R and S are at the extreme ends of the row. O and Q are immediate neighbours. Only L sits between N and P. M sits to the immediate right of N. O sits to the immediate left of P. S sits to the immediate left of Q. Who sits to the immediate left of R?

**Ans** ☒ A. M  
☒ B. P  
☒ C. O  
☒ D. Q

- Q.41** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons in a family with different professions.



How many members of the family are clerks as well as potters?

**Ans** ☒ A. 20  
☒ B. 12  
☒ C. 18  
☒ D. 48

- Q.42** If each of the digits in the number 243978615 is arranged in ascending order from left to right, the position of how many digits will remain unchanged as compared to that in the original number?

**Ans** ☒ A. 4  
☒ B. 3  
☒ C. 2  
☒ D. 1

- Q.43** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the condition is your answer.

| Number/Symbol | 3 | # | 4 | 7 | @ | % | > | 2 | ! | ? | 5 | 8 | \$ | 9 |
|---------------|---|---|---|---|---|---|---|---|---|---|---|---|----|---|
| Code          | S | F | T | J | D | G | E | X | V | W | K | U | P  | M |

Conditions:

- If the first element is a symbol and the last a number, the codes for these two are to be interchanged.
- If the first element is an odd number and the last an even number, the first and the last elements are to be coded as Ø.
- If both the second and third elements are perfect squares, the third element is to be coded as the code for the second element.

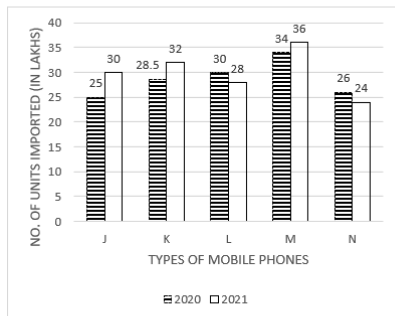
How will '3 @ 2 % 8' be coded?

**Ans** ☒ A. Ø G V E Ø  
☒ B. Ø D X G Ø  
☒ C. S D X G U  
☒ D. S G V E U

- Q.44** A, B, C, D, E, F, G and H are sitting around a square table facing the centre of the table. Some of them are sitting at the corners, while some are sitting at the exact centre of the sides. E is sitting at one of the corners and to the immediate left of F and immediate right of A. H, G and C are exactly sitting opposite to E, A and F, respectively. D is sitting to the immediate right of C. Who among the following is sitting to the immediate right of B?

**Ans** ☒ A. F  
☒ B. E  
☒ C. G  
☒ D. D

- Q.45** The given bar graph shows the total number of different types of mobile phones J, K, L, M and N (in lakhs) imported by a company in 2020 and 2021. Study the bar graph and answer the question.



Which of the following types of mobile phones has the minimum percentage change (increase or decrease) from 2020 to 2021 in the number of mobile phones imported?

**Ans** ☒ A. J  
☒ B. L  
☒ C. M  
☒ D. N

- Q.46** 1, 2, 3, 4, 5 and 6 are six cakes with different weights in a bakery. Only two cakes are heavier than 4. 2 is heavier than 1 but lighter than 6. 6 is lighter than 4. 3 is not the heaviest cake. Which of the following cakes is the heaviest?

**Ans** ☒ A. 5  
☒ B. 3  
☒ C. 2  
☒ D. 1

- Q.47** Which of the following terms will replace the question mark (?) and complete the given alpha-numeric series?

I2, J3, L7, O16, S32, ?

**Ans** ☒ A. Y60  
☒ B. X57  
☒ C. X60  
☒ D. W55

- Q.48** Seven boxes, A, B, C, D, E, F and G, are kept one over the other, but not necessarily in the same order. G is kept fourth from the bottom and immediately below E and immediately above B. There are three boxes between C and F. D is kept at the bottom-most position. Which among the following can be the number of boxes kept between A and F?

**Ans** ☒ A. Four  
☒ B. Three  
☒ C. Two  
☒ D. Five

**Q.49** This question is based on the five, three-digit numbers given below.  
(Left) 248 382 425 127 335 (Right)

(Example- 697 – First digit = 6, second digit = 9 and third digit = 7)

NOTE - All operations to be done from left to right.

If 3 is added to the first digit of every number, in how many numbers will the first digit be exactly divisible by the second digit?

- Ans**
- ✓ A. 2
  - ✗ B. 3
  - ✗ C. 1
  - ✗ D. 4

**Q.50** Which of the following numbers will replace the question mark (?) in the given series?

3, 8, 14, 30, 58, ?

- Ans**
- ✗ A. 122
  - ✗ B. 116
  - ✗ C. 120
  - ✓ D. 118

**Q.51** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the condition is your answer.

| Number/Symbol | = | \$ | 6 | 8 | < | ? | / | 2 | 5 | ! | @ | 7 | 3 | ^ |
|---------------|---|----|---|---|---|---|---|---|---|---|---|---|---|---|
| Code          | G | L  | F | M | E | N | D | P | C | R | T | B | V | A |

Conditions:

- (i) If the first element is a symbol and the last a number, then the first and last elements are to be coded as © and ¥, respectively.
- (ii) If the first element is an odd number and the last an even number, the codes for these two are to be interchanged.
- (iii) If both the second and third elements are perfect squares, the third element is to be coded as the code for the second element.

How will '5 \$ = 2 ^ 8' be coded?

- Ans**
- ✓ A. MLGPAC
  - ✗ B. CLGPAM
  - ✗ C. ©LGPA¥
  - ✗ D. MGLPAC

**Q.52** Five boxes G, T, Y, R and U are placed one over the other but not necessarily in the same order. Exactly two boxes are placed between T and Y, but T is neither at the bottom nor at the top. What are the probable positions that T can take from the bottom?

- Ans**
- ✗ A. First and Third
  - ✗ B. Second and Third
  - ✗ C. Third and Fourth
  - ✓ D. Second and Fourth

**Q.53** Sheena steps out from her apartment and walks 9 m towards the south. She takes a right turn and walks 43 m. She takes a right turn again and walks 38 m. Again, she takes a right turn and walks 43 m. She takes a right turn again and walks 12 m. Again, she takes a right turn again and walks 26 m. She then takes a left turn and walks 17 m. She takes a left turn again and walks 12 m to reach point A. How far and in which direction is point A from Sheena's apartment? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 14 m, East
  - ☒ B. 14 m, West
  - ☒ C. 17 m, East
  - ☒ D. 17 m, West

**Q.54** Which of the following numbers will replace the question mark (?) in the given series?

15, 21, 33, 51, 75, ?

- Ans**
- ☒ A. 78
  - ☒ B. 95
  - ☒ C. 105
  - ☒ D. 108

**Q.55** Which of the following options is the closest approximate value which will come in place of question mark(?) in the following equation?

$$15.95 - 4.01 + 13.99 \times 5.13 = ?$$

- Ans**
- ☒ A. 77
  - ☒ B. 82
  - ☒ C. 80
  - ☒ D. 75

#### Section : General Science

**Q.56** Periodicity among elements in Newlands Octaves was observed up to \_\_\_\_\_ only.

- Ans**
- ☒ A. C
  - ☒ B. Cr
  - ☒ C. Co
  - ☒ D. Ca

**Q.57** A 2.5-cm-tall object is placed on the principal axis of a concave lens of focal length 16 cm, at a distance of 24 cm. The height of the image formed is \_\_\_\_\_.

- Ans**
- ☒ A. 1.0 cm
  - ☒ B. 1.5 cm
  - ☒ C. 2.0 cm
  - ☒ D. 2.5 cm

**Q.58** The radius of curvature of a convex mirror is 15 cm. Following New Cartesian Sign Convention, the principal focus is located at x = \_\_\_\_\_.

- Ans**
- ☒ A. -7.5 cm
  - ☒ B. 7.5 cm
  - ☒ C. -15 cm
  - ☒ D. 15 cm

**Q.59** A 200 W bulb is connected to a 220 V source. The current through the bulb is:

- Ans**
- ✓ A. 0.91 A
  - ✗ B. 0.45 A
  - ✗ C. 2.2 A
  - ✗ D. 1.1 A

**Q.60** What is the measurement of an ostrich egg?

- Ans**
- ✓ A. 170 mm × 130 mm
  - ✗ B. 170 μm × 130 μm
  - ✗ C. 170 cm × 130 cm
  - ✗ D. 170 m × 130 m

**Q.61** Two coils, A and B, such that A is connected to a battery through a key and B is connected to a galvanometer, are arranged parallel and close to each other. During which of the following duration will the phenomenon of electromagnetic induction be observed?

- (a) Two minutes after closing the key.
- (b) During the interval the key is taken out.

- Ans**
- ✗ A. Only (a)
  - ✓ B. Only (b)
  - ✗ C. Both (a) and (b)
  - ✗ D. Neither (a) nor (b)

**Q.62** Consider the below statements and identify the correct answer.

Statement-I: The chemical formula for washing soda is  $\text{Na}_2\text{CO}_3$ .

Statement-II: It is used for removing permanent hardness of water.

- Ans**
- ✓ A. Both the statements are true.
  - ✗ B. Both the statements are false.
  - ✗ C. Statement-I is true, and Statement-II is false.
  - ✗ D. Statement-II is true, and Statement-I is false.

**Q.63** The number of  $\sigma$ -bonds,  $\pi$ -bonds and the total bonds in benzene molecule, respectively, are:

- Ans**
- ✗ A. 6, 3, 15
  - ✓ B. 12, 3, 15
  - ✗ C. 6, 6, 18
  - ✗ D. 6, 6, 12

**Q.64** Identify the double displacement reaction from the following.

- Ans**
- ✓ A.  $\text{Na}_2\text{SO}_4 (\text{aq}) + \text{BaCl}_2 (\text{aq}) \rightarrow \text{BaSO}_4 (\text{s}) + 2\text{NaCl} (\text{aq})$
  - ✗ B.  $\text{Fe} (\text{s}) + \text{CuSO}_4 (\text{aq}) \rightarrow \text{FeSO}_4 (\text{aq}) + \text{Cu} (\text{s})$
  - ✗ C.  $\text{Zn} (\text{s}) + \text{CuSO}_4 (\text{aq}) \rightarrow \text{ZnSO}_4 (\text{aq}) + \text{Cu} (\text{s})$
  - ✗ D.  $\text{Pb} (\text{s}) + \text{CuCl}_2 (\text{aq}) \rightarrow \text{PbCl}_2 (\text{aq}) + \text{Cu} (\text{s})$



**Q.65** Which of the following metals are more reactive than hydrogen?

Mg, Zn, Hg, Ag, Sn, Pb, Au, Fe, Na

- Ans**
- ☒ A. Mg, Zn, Hg, Pb, Fe, Na
  - ☒ B. Mg, Zn, Sn, Pb, Fe, Na
  - ☒ C. Mg, Zn, Sn, Pb, Au, Na
  - ☒ D. Mg, Zn, Ag, Pb, Fe, Na

**Q.66** Deficiency of which hormone is responsible for diabetes mellitus?

- Ans**
- ☒ A. Oxytocin
  - ☒ B. Adrenalin
  - ☒ C. Insulin
  - ☒ D. Thyroxin

**Q.67** A convex mirror is made from a section of the surface of a sphere of radius 10.0 cm. Its principal focus is at a distance of \_\_\_\_\_ from its pole.

- Ans**
- ☒ A. 40.0 cm
  - ☒ B. 20.0 cm
  - ☒ C. 10.0 cm
  - ☒ D. 5.0 cm

**Q.68** What causes migrating birds to travel to far-off lands?

- Ans**
- ☒ A. They fly to change their habitat.
  - ☒ B. They fly to see their family.
  - ☒ C. They fly to get some exercise.
  - ☒ D. They fly to lay eggs.

**Q.69** A beam of white light passes through a glass prism and a spectrum is obtained. The colour component that bends the least is \_\_\_\_\_.

- Ans**
- ☒ A. yellow
  - ☒ B. red
  - ☒ C. green
  - ☒ D. violet

**Q.71** Which of the following has the maximum electrical resistivity?

Aluminium, Mercury, Glass, Manganin

- Ans**
- ☒ A. Mercury
  - ☒ B. Aluminium
  - ☒ C. Manganin
  - ☒ D. Glass



**Q.72** Without photosynthesis, \_\_\_\_\_ removal is the main exchange activity at night.

- Ans**
- ☐ A. oxygen
  - ☐ B. hydrogen
  - ☒ C. carbon dioxide
  - ☐ D. water

**Q.73** \_\_\_\_\_ can be used for composting.

- Ans**
- ☐ A. E-waste
  - ☒ B. Kitchen waste
  - ☐ C. Industrial waste
  - ☐ D. Medical waste

**Q.74** In which of the following situations will the potential difference induced in the coil be the maximum?

- (a) A bar magnet moving with a speed of 2 m/s towards a stationary coil
- (b) A coil moving with a speed of 2 m/s towards a stationary bar magnet
- (c) A coil and a bar magnet moving in the same direction with the speed of 2 m/s.
- (d) A coil and a bar magnet moving towards each other with the speed of 2 m/s.

- Ans**
- ☐ A. (a)
  - ☐ B. (b)
  - ☐ C. (c)
  - ☒ D. (d)

**Q.75** Shreya adds some calcium hydroxide in a test tube containing concentrated sulphuric acid. The main product of the reaction will be:

- Ans**
- ☐ A. calcium chloride
  - ☐ B. calcium acetate
  - ☐ C. calcium hydroxide
  - ☒ D. calcium sulphate

**Q.76** The total number of shared electrons in  $N_2$  are \_\_\_\_\_.

- Ans**
- ☐ A. 3
  - ☐ B. 4
  - ☒ C. 6
  - ☐ D. 8

**Q.77** The resistance of a wire of length  $L$  and area of cross-section  $A$  is  $0.2\ \Omega$ . The resistance of a wire of the same material, but of length  $2L$  and area of cross-section  $4A$  will be:

- Ans**
- ☒ A.  $0.1\ \Omega$
  - ☐ B.  $0.2\ \Omega$
  - ☐ C.  $0.4\ \Omega$
  - ☐ D.  $10\ \Omega$

**Q.78** What is the excretory product of aquatic animals?

- Ans**
- ☐ A. Urea
  - ☒ B. Ammonia
  - ☐ C. Uric acid
  - ☐ D. Creatinine

**Q.79** Which of the following is/are NOT an endocrine gland in our body?

- Ans**
- ☐ A. Pituitary gland
  - ☐ B. Thyroid gland
  - ☐ C. Adrenal gland
  - ☒ D. Salivary glands

**Q.80** What is the order of K, L and M shells in terms of the total number of electrons?

- Ans**
- ☐ A.  $K > M > L$
  - ☒ B.  $M > L > K$
  - ☐ C.  $L > K > M$
  - ☐ D.  $L > M > K$

Section : General Awareness and Current Affairs

**Q.81** In which sport did the Indian men's team win a medal at the Olympics in 2021?

- Ans**
- ☐ A. Football
  - ☐ B. Volleyball
  - ☒ C. Hockey
  - ☐ D. Handball

**Q.82** The relationship between variable input and output, keeping all other inputs constant is called \_\_\_\_\_.

- Ans**
- ☐ A. marginal product
  - ☒ B. total product of variable input
  - ☐ C. law of variable proportions
  - ☐ D. law of diminishing marginal product

**Q.83** In which of the following states is the Pachmarhi Bio-reserve located?

- Ans**
- ☐ A. Punjab
  - ☒ B. Madhya Pradesh
  - ☐ C. Odisha
  - ☐ D. West Bengal

**Q.84** Identify the language which is declared as a 'classical language' by the Government of India in the year 2005 from following?

- Ans**
- ☐ A. Telugu
  - ☐ B. Odia
  - ☒ C. Sanskrit
  - ☐ D. Tamil

**Q.85** Who among the following is the head of Nuclear Command Authority, NITI Aayog, Appointments Committee of the Cabinet, Department of Atomic Energy, Department of Space and Ministry of Personnel, Public Grievances and Pensions?

- Ans**
- ☐ A. President
  - ☒ B. Prime Minister
  - ☐ C. Vice President
  - ☐ D. Chief Minister

**Q.86** Which of the following terms define the Real National Income?

- Ans**
- ☐ A. GDP at current amount
  - ☐ B. GDP at average price
  - ☐ C. GDP at factors price
  - ☒ D. GDP at constant price

**Q.87** In order to correct the situation of excess demand, which of the following monetary measures can be applied?

- (A) Reduce repo rate.
- (B) Reduce SLR.

- Ans**
- ☐ A. Only A
  - ☐ B. Only B
  - ☐ C. Both A and B
  - ☒ D. Neither A nor B

**Q.88** Who has been awarded the Padma Shri in the year 2022 in the field of Science and Engineering?

- Ans**
- ☐ A. N.V.Ramana
  - ☒ B. Subbanna Ayyappan
  - ☐ C. Dr. Belle Monappa Hegde
  - ☐ D. Virender Gupta

**Q.89** Which of the following movements is also known as the 'Salt Satyagraha'?

- Ans**
- ☐ A. Quit India Movement
  - ☐ B. Non-Cooperation Movement
  - ☒ C. Civil Disobedience Movement
  - ☐ D. Indian Self Rule Movement

**Q.90** Professor Narayan Pradhan has been selected for the 31<sup>st</sup> GD Birla Award as of March 2022 for the Scientific Research for his major contribution in the field of \_\_\_\_\_.

- Ans**
- ☒ A. astrophysics
  - ☒ B. material sciences
  - ☒ C. environmental biology
  - ☒ D. mathematical modelling

**Q.91** Which of the following is the first World Bank supported programme for minority welfare that is being implemented by the Ministry of Minority Welfare, Government of India?

- Ans**
- ☒ A. Padho Pardesh
  - ☒ B. Nai Manzil
  - ☒ C. Nai Udaan
  - ☒ D. Naya Savera

**Q.92** The Bharat Heavy Electricals Limited (BHEL) was incorporated in which year from following?

- Ans**
- ☒ A. 1958
  - ☒ B. 1960
  - ☒ C. 1962
  - ☒ D. 1964

**Q.93** Identify the one which is not consist in the 3-tier system of Panchayati Raj from following-

- Ans**
- ☒ A. Tehsil Level Panchayat
  - ☒ B. District Level Panchayat
  - ☒ C. Block Level Panchayat
  - ☒ D. Village Level Panchayat

**Q.94** Which of the following forests is located in the state of Gujarat?

- Ans**
- ☒ A. Vandalur forest
  - ☒ B. Kukrail forest
  - ☒ C. Gir forest
  - ☒ D. Molai forest

**Q.95** Which Indian player won the Swiss Open 2022?

- Ans**
- ☒ A. PV Sindhu
  - ☒ B. Saina Nehwal
  - ☒ C. Srikanth Kidambi
  - ☒ D. Lakshya Sen

**Q.96** The Fundamental Duties were added in Constitution of India by which of the following amendments?

- Ans**
- ☒ A. 42<sup>nd</sup>
  - ☒ B. 43<sup>rd</sup>
  - ☒ C. 44<sup>th</sup>
  - ☒ D. 45<sup>th</sup>

**Q.98** Which river originates at Mahabaleswar in Maharashtra, passes through Sangli and meets the sea in the Bay of Bengal at Hamasaladevi in Andhra Pradesh?

- Ans**
- ☐ A. Godavari
  - ☐ B. Narmada
  - ☒ C. Krishna
  - ☐ D. Tapti

**Q.99** Which of the following festivals is associated with the state of Odisha?

- Ans**
- ☐ A. Pongtu
  - ☐ B. Ambubachi
  - ☒ C. Raja Parba
  - ☐ D. Porag

**Q.100** Which ministry organised the Second Online National Conclave on 'Sickle Cell Disease in India' in June 2021?

- Ans**
- ☐ A. Ministry of Health and Family Welfare
  - ☐ B. Ministry of Women and Child Development
  - ☒ C. Ministry of Tribal Affairs
  - ☐ D. Ministry of AYUSH



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 29/08/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

Q.1 If the area of a circle is  $196\pi \text{ m}^2$  then the perimeter of the circle is \_\_\_\_\_

- Ans
- ☒ A. 44 m
  - ☒ B. 88 m
  - ☐ C. 76 m
  - ☐ D. 58 m

Q.2 Cost price of a toy is ₹210. What should be its MRP so that after a discount of 5% shopkeeper gains 90%.

- Ans
- ☐ A. ₹480
  - ☐ B. ₹400
  - ☒ C. ₹420
  - ☐ D. ₹450

Q.3 Which of the following quadratic equations has one of its roots as  $2 + \sqrt{5}$ ?

- Ans
- ☐ A.  $x^2 + 5x + 1 = 0$
  - ☐ B.  $x^2 - 5x - 1 = 0$
  - ☒ C.  $x^2 - 4x - 1 = 0$
  - ☐ D.  $x^2 + 4x + 1 = 0$

Q.4 If the age of Ratan is one-third the age of Jatin and the sum of their ages is 84 years, then find the age of Jatin.

- Ans
- ☒ A. 63 years
  - ☐ B. 36 years
  - ☐ C. 52 years
  - ☐ D. 25 years

**Q.5** The median of 9, 11, 15, 17, x, 19, 21 is x, where x is an integer. Which of the following can be the value of x?

- Ans**
- ☒ A. 13
  - ☒ B. 14
  - ☒ C. 16
  - ☒ D. 18

**Q.6** Simplify:  $x(2x - 5) + 6(x^2 - 4) + 18$

- Ans**
- ☒ A.  $8x^2 - 5x + 6$
  - ☒ B.  $8x^2 - 5x - 6$
  - ☒ C.  $8x^2 + 5x - 6$
  - ☒ D.  $8x^2 + 5x + 6$

**Q.7** Simplify:

$$9991 \times 10009 =$$

- Ans**
- ☒ A. 99,999,19
  - ☒ B. 99,999,99
  - ☒ C. 91,999,919
  - ☒ D. 99,999,919

**Q.8** A car travels 80 km at the speed of 20 km/h and the next 30 km at the speed of 30 km/h. What is its average speed?

- Ans**
- ☒ A. 30 km/h
  - ☒ B. 20 km/h
  - ☒ C. 22 km/h
  - ☒ D. 40 km/h

**Q.9** Find the circumference of a circle that circumscribes a square of side 7 cm. (Use  $\pi = \frac{22}{7}$ .)

- Ans**
- ☒ A.  $22\sqrt{2}$  cm
  - ☒ B. 22 cm
  - ☒ C. 44 cm
  - ☒ D.  $44\sqrt{2}$  cm

**Q.10** 10 buckets of water fill a tank when the capacity of each bucket is 14 litres. How many buckets will be needed to fill the same tank, if the capacity of each bucket is 7 litres?

- Ans**
- ☒ A. 15
  - ☒ B. 18
  - ☒ C. 20
  - ☒ D. 23

**Q.11** Which of the following relations would calculate the cost  $x$  of  $m$  notebooks, if the cost of  $n$  notebooks is ₹1,680

**Ans**

☒ A.  $\frac{m}{x} = \frac{1680}{n}$

☒ B.  $\frac{m}{x} = \frac{n}{1680}$

☒ C.  $\frac{x}{m} = \frac{n}{m}$

☒ D.  $x = \frac{1680}{m}$

**Q.12** Find the compound interest on ₹12,500 at 3% per annum for 3 years when interest is compounded annually (correct to the nearest rupees).

**Ans**

☒ A. ₹1,159

☒ B. ₹1,140

☒ C. ₹1,170

☒ D. ₹1,180

**Q.13** Find the positive difference between the roots of the equation  $2x^2 - 7x + 5 = 0$ .

**Ans**

☒ A.  $\frac{3}{2}$

☒ B.  $-\frac{3}{2}$

☒ C.  $\frac{5}{2}$

☒ D.  $-\frac{5}{2}$

**Q.14** The value of  $\frac{0.2 \times 0.2 \times 0.2 - 0.02 \times 0.02 \times 0.02}{2 \times 2 \times 2} =$

**Ans**

☒ A. 0.00999

☒ B. 0.999

☒ C. 0.000999

☒ D. 0.0090

**Q.15** If  $\cos^4 \theta - \sin^4 \theta = k$ , then the value of  $\frac{1+k}{1-k}$  is:

**Ans**

☒ A.  $\sin^2 \theta$

☒ B.  $\operatorname{cosec}^2 \theta$

☒ C.  $\tan^2 \theta$

☒ D.  $\cot^2 \theta$

**Q.16** Which of the given numbers is NOT divisible by 3?

**Ans**

☒ A. 453

☒ B. 687

☒ C. 713

☒ D. 927



**Q.17** Seven men can complete a work in 12 days. They start the work and after 5 days, 3 men leave. In how many days will the remaining work be completed by the remaining men?

**Ans** ☒ A. 14

☒ B.  $13\frac{1}{4}$

☒ C.  $12\frac{1}{4}$

☒ D. 12

**Q.18** Three successive discounts of 4%, 5% and 14% are equal to a single discount of \_\_\_\_\_ (rounded off to two decimal places).

**Ans** ☒ A. 20.57%

☒ B. 22.57%

☒ C. 21.57%

☒ D. 23.57%

**Q.19** The value of

$$\frac{3}{7} + \frac{2}{7} + \frac{1}{14} + \frac{2}{7} - 3 =$$

**Ans** ☒ A.  $\frac{27}{14}$

☒ B.  $\frac{13}{14}$

☒ C.  $-\frac{13}{14}$

☒ D.  $-\frac{27}{14}$

**Q.20** A 1.5 m tall boy is standing at a distance of 3 m from a 4 m high light post. The light from top of post casts his shadow. What is the length of the boy's shadow?

**Ans** ☒ A. 1.8 m

☒ B. 1.62 m

☒ C. 4.4 m

☒ D. 0.91 m

**Q.21** If the sum of two numbers is 54 and the LCM and HCF of these numbers are 84 and 6, respectively, then the sum of the reciprocal of the numbers is:

**Ans** ☒ A.  $\frac{5}{28}$

☒ B.  $\frac{3}{28}$

☒ C.  $\frac{7}{28}$

☒ D.  $\frac{9}{28}$

**Q.22** In a class there are 40 students (only boys and girls). The number of girls is three-sevenths of the number of boys. Find the number of boys in the class.

- Ans**
- ☒ A. 12
  - ☒ B. 32
  - ☒ C. 28
  - ☒ D. 24

**Q.23** Express  $\sin 58^\circ + \cos 82^\circ$  in terms of Trigonometric ratios of angles between  $0^\circ$  and  $45^\circ$ .

- Ans**
- ☒ A.  $\sin 32^\circ + \sin 8^\circ$
  - ☒ B.  $\sin 32^\circ + \cos 8^\circ$
  - ☒ C.  $\cos 32^\circ + \sin 8^\circ$
  - ☒ D.  $\cos 32^\circ + \cos 8^\circ$

**Q.24** Find the value of  $\sqrt{9604}$ .

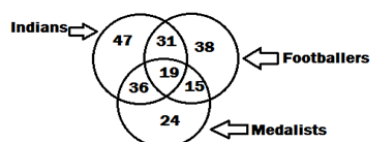
- Ans**
- ☒ A. 74
  - ☒ B. 72
  - ☒ C. 98
  - ☒ D. 89

**Q.25** In an election between two candidates, the winner received 1854 votes and the loser received 618 votes. What percentage of the total number of votes received by the two candidates went in favour of the winning candidate?

- Ans**
- ☒ A. 60
  - ☒ B. 80
  - ☒ C. 70
  - ☒ D. 75

### Section : General Intelligence and Reasoning

**Q.26** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



How many such medallists are there who are also Indians?

- Ans**
- ☒ A. 19
  - ☒ B. 36
  - ☒ C. 50
  - ☒ D. 55

**Q.27** A statement is given followed by two arguments I and II. Read the statement and the arguments carefully and select the appropriate answer from the given options.

**Statement:**

Floods caused widespread damage to crops in Odisha this year.

**Arguments:**

- I. There has been a bumper production of food grains in Odisha this year.
- II. The number of crop insurance claims has seen a significant increase in Odisha this year.

- Ans**
- ✓ **A. Argument I weakens, while argument II strengthens the statement**
  - ✗ **B. Argument II weakens, while argument I strengthens the statement**
  - ✗ **C. Both arguments I and II weaken the statement**
  - ✗ **D. Both arguments I and II strengthen the statement**

**Q.28** FM 25 is related to IJ 125 in a certain way. In the same way, NO 36 is related to QL 216. To which of the following is MP16 related following the same logic?

- Ans**
- ✗ **A. PM 32**
  - ✗ **B. PN 64**
  - ✓ **C. PM 64**
  - ✗ **D. ON 64**

**Q.29** In this question, the statement is followed by two conclusions. Which of the two conclusion(s) is/are true based on the given statement?

Statement:  $T = S \geq N = A \leq U > P < Q$

Conclusions:

- I.  $S > Q$
- II.  $A < T$

- Ans**
- ✗ **A. Only conclusion I is true**
  - ✗ **B. Only conclusion II is true**
  - ✗ **C. Both conclusions I and II are true**
  - ✓ **D. Neither conclusion I nor II is true**

**Q.30** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the condition is your answer.

| Number/Symbol | 2 | < | 4 | 7 | ^ | % | > | 3 | ! | ? | 5 | 8 | \$ | 6 |
|---------------|---|---|---|---|---|---|---|---|---|---|---|---|----|---|
| Code          | A | F | T | J | D | G | E | Z | V | W | K | U | P  | L |

Conditions:

- (i) If the first element is a symbol and the last a number, the codes for these two are to be interchanged.
- (ii) If the first element is an odd number and the last an even number, the first and the last elements are to be coded as O.
- (iii) If both the second and third elements are symbols, the third element is to be coded as the code for the second element.

How will '3 < 5 ! 2' be coded?

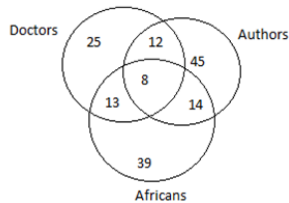
- Ans**
- ✗ **A. ZFKVA**
  - ✗ **B. OFKVA**
  - ✗ **C. OFKWØ**
  - ✓ **D. OFKVØ**

**Q.31** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)  
16 : 2 :: 36 : 3 :: 64 : ?

- Ans**
- ☒ A. 6
  - ☒ B. 3
  - ☒ C. 5
  - ☒ D. 4

**Q.32** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



How many Africans are there who are also authors?

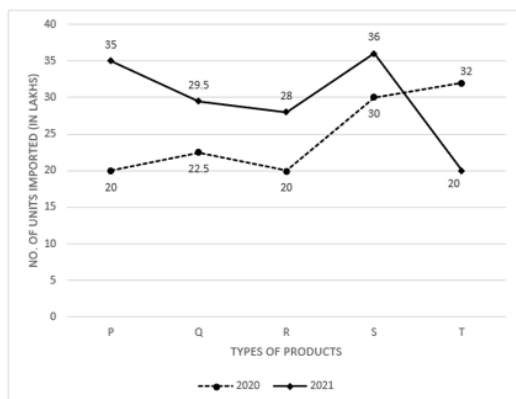
- Ans**
- ☒ A. 22
  - ☒ B. 14
  - ☒ C. 8
  - ☒ D. 45

**Q.33** How many such pairs of letters are there in the word 'DABSTER' (in both forward and backward directions) which have as many letters between them in the word as there are in the English alphabetical order?

- Ans**
- ☒ A. One
  - ☒ B. Two
  - ☒ C. Three
  - ☒ D. More than three

Q.34

The given line graph shows the total number of different cosmetic products P, Q, R, S and T (in lakhs) imported by company 'XYZ' in the years 2020 and 2021. Study the line graph and answer the question.



The average import of Q type of products in both the years 2020 and 2021 was equal to the average import of which type of product in the same years?

Ans

- ☒ A. P
- ☒ B. R
- ☒ C. S
- ☒ D. T

Q.35

What approximate value should come in place of the question mark (?) in the following equation?

$$30.01\% \text{ of } 199.99 + 35.023\% \text{ of } 550.045 = ? - 540.078$$

Ans

- ☒ A. 890
- ☒ B. 790
- ☒ C. 640
- ☒ D. 580

Q.36

If 2 is added to each odd digit and 3 is subtracted from each even digit in the number 835647, what will be the sum of the digits that are second from the left and second from the right in the new number thus formed?

Ans

- ☒ A. 14
- ☒ B. 6
- ☒ C. 8
- ☒ D. 10

Q.37

Five students - 1, 2, 3, 4 and 5 - are sitting around a circular table facing away from the centre. 3 is sitting second to the right of 4 and to the immediate left of 5. 3 and 4 are immediate neighbours of 1. Which of the following statements is true?

Ans

- ☒ A. 2 is sitting second to the right of 1.
- ☒ B. 1 and 2 are the immediate neighbours of 4.
- ☒ C. 1 is sitting third to the left of 5.
- ☒ D. 2 is sitting to the immediate left of 5.

Q.38

Arun starts from his office and drives 5 km towards the east. He then takes a right turn, drives 4 km, turns right and drives 5 km. He then takes a right turn and drives 3 km and stops at a shop. Which direction should he drive now in order to reach his office from that shop? (All turns are  $90^\circ$  turns only.)

Ans

- ☒ A. North
- ☒ B. South
- ☒ C. North-east
- ☒ D. North-west

- Q.39** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the condition is your answer.

| Number/Symbol | 8 | = | / | & | 3 | 7 | @ | \$ | 2 | < | % | 6 | + | 4 |
|---------------|---|---|---|---|---|---|---|----|---|---|---|---|---|---|
| Code          | F | R | D | S | Z | B | P | K  | U | H | Y | X | T | G |

Conditions:

- If the first element is a symbol and the last a number, the first element is to be coded as the code for the last element.
- If the first element is a number that is completely divisible by 3, it is to be coded as Ø.
- If both the second and third elements are perfect squares, the third element is to be coded as the code for the second element.

How will '6 @ & 4 =' be coded?

- Ans** ☒ A. Ø P S G R  
☒ B. X P S G R  
☒ C. T K Z G R  
☒ D. Ø P S T D

- Q.40** Nine people, 1 to 9, are sitting in a straight row, facing the south. 8 is sitting in the middle of the row and his immediate left and right neighbours are 5 and 1, respectively. 9 is sitting at one of the extreme ends and his immediate right neighbour is 2. Only five people are there between 2 and 3. 3 is sitting between 7 and 4. 1 and 7 are immediate neighbours. If 7 and 6 exchange their positions, then who among the following will be the immediate left neighbour of 7?

- Ans** ☒ A. 5  
☒ B. 2  
☒ C. 3  
☒ D. 1

- Q.41** Each of R, S, T, U, V, W and X has a duty as a cleaning agent on a different day of a week, starting from Monday to Sunday of the same week. X has duty on a day immediately before U. S and T have duties on one of the days before X. Only W has duty on the day between S and T. V has duty on Tuesday. Who has duty on Monday?

- Ans** ☒ A. S  
☒ B. X  
☒ C. R  
☒ D. U

- Q.42** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding / subtracting / multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(14, 60, 16)

(25, 80, 15)

- Ans** ☒ A. (21, 120, 15)  
☒ B. (15, 45, 30)  
☒ C. (20, 30, 40)  
☒ D. (19, 80, 21)

**Q.43** Three statements are followed by three conclusions numbered I, II and III. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts. Decide which of the given conclusions logically follow(s) from the given statement.

Statements:

All lamps are lanterns.

All lanterns are torches.

All torches are candles.

Conclusions:

(I) Some candles are lamps

(II) All lanterns are lamps

(III) No lantern is a lamp

- Ans**
- ✓ **A. Only conclusion I follows**
  - ✗ **B. Only conclusion II follows**
  - ✗ **C. Only conclusion I and III follows**
  - ✗ **D. None of the conclusions follow**

**Q.44** H, I, J, K, L, M and N are seven boxes that are kept one over the other but not necessarily in the same order. K is kept on one of the positions above L. Only one box is kept between K and L. J is kept immediately above M. H is kept immediately below L. Only two boxes are kept between M and H. Only one box is kept between L and N. How many boxes are kept between N and K?

- Ans**
- ✗ **A. One**
  - ✗ **B. Two**
  - ✓ **C. Three**
  - ✗ **D. Four**

**Q.45** Which of the following interchanges of numbers would make the given equation correct?

$$2 \times 10 \div 8 + 6 - 4 = 9$$

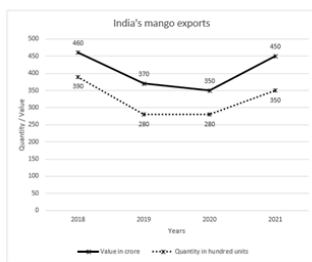
- Ans**
- ✓ **A. 2, 4**
  - ✗ **B. 6, 8**
  - ✗ **C. 9, 10**
  - ✗ **D. 2, 8**

**Q.46** Which of the following terms will replace the question mark (?) and complete the given alpha-numeric series?

15M, 17P, 20S, 25V, ?

- Ans**
- ✗ **A. 31Z**
  - ✗ **B. 37Y**
  - ✓ **C. 32Y**
  - ✗ **D. 32Z**

- Q.47** The given line graph shows the data of Mango exports in India from year 2018 to 2021. Study the given line graph and answer the question.



In which year was the value per hundred units the minimum?

- Ans** ☒ A. 2018  
☒ B. 2019  
☒ C. 2020  
☒ D. 2021

- Q.48** Which of the following numbers will replace the question mark (?) in the given series?

40, 66, 100, 142, ?

- Ans** ☒ A. 192  
☒ B. 190  
☒ C. 194  
☒ D. 198

- Q.49** Refer to the following letter and symbol series and answer the question.

(Left) E # R & H & @ J & M N # B & V & & D # P @ W % & Q & A % & # E & (Right)

How many such letters are there in the series which are immediately preceded and immediately followed by the symbol '&'?

- Ans** ☒ A. Two  
☒ B. Three  
☒ C. Four  
☒ D. Five

- Q.50** In this question, a statement is followed by two conclusions. Which of the two conclusions is/are true with respect to the statement?

Statement:  $D < Y > E \geq A < O < C$

Conclusions:

I.  $D < O$

II.  $E > C$

- Ans** ☒ A. Only conclusion I is true  
☒ B. Only conclusion II is true  
☒ C. Both conclusions I and II are true  
☒ D. Neither conclusion I nor II is true



**Q.51** Dev walks 23 m towards the west from his hostel gate. He takes a left turn and walks 14 m. Then he takes a right turn and walks 63 m. Then he takes a left turn and walks 32 m. He takes a left turn again and walks 86 m. Again, he takes a left turn and walks 16 m to reach a canteen. How far and in which direction is the canteen from Dev's hostel gate? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 16 m, North
  - ☒ B. 16 m, South
  - ☒ C. 30 m, North
  - ☒ D. 30 m, South

**Q.52** All 30 students of a class are standing in a straight row facing the north. Ashok is 16<sup>th</sup> from the right end, while Aruna is 19<sup>th</sup> from the left end. How many students stand between Ashok and Aruna?

- Ans**
- ☒ A. One
  - ☒ B. Two
  - ☒ C. Three
  - ☒ D. Four

**Q.53** If 5 January 2016 was a Tuesday, then what day of the week was 8 November 2015?

- Ans**
- ☒ A. Sunday
  - ☒ B. Saturday
  - ☒ C. Thursday
  - ☒ D. Friday

**Q.54** Refer to the following letter, number, symbol series and answer the question.

(Left) & X Y # F K & 3 T & \* 8 W % % ^ D U G S € o S S @ J (Right)

How many such numbers are there which are immediately preceded by a symbol and immediately followed by a consonant?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.55** Which of the following numbers will replace the question mark (?) in the given series?

4, 22, 43, 69, 102, 144, ?

- Ans**
- ☒ A. 197
  - ☒ B. 179
  - ☒ C. 199
  - ☒ D. 177

#### Section : General Science

**Q.56** Which of the following is NOT necessary for autotrophic nutrition?

- Ans**
- ☒ A. Light
  - ☒ B. Chlorophyll
  - ☒ C. Carbon dioxide
  - ☒ D. Oxygen

**Q.57** From where do the roots of the plants take in oxygen?

- Ans**
- ☐ A. From the water present in the soil
  - ☒ B. From the air spaces in between the soil particles
  - ☐ C. The oxygen taken by stomata reaches the roots
  - ☐ D. Roots do not need oxygen

**Q.58** Which of the following has the maximum electrical resistivity?

Silver, Copper, Iron, Nichrome

- Ans**
- ☐ A. Copper
  - ☒ B. Nichrome
  - ☐ C. Iron
  - ☐ D. Silver

**Q.59** An object is placed at 40 cm in front of a converging mirror having focal length 20 cm. The magnification of the image is:

- Ans**
- ☒ A. -1
  - ☐ B. +1
  - ☐ C. -0.5
  - ☐ D. +0.5

**Q.60**  $C_3H_6$  belongs to the homologous series of:

- Ans**
- ☐ A. alkane
  - ☒ B. alkene
  - ☐ C. alkyne
  - ☐ D. cycloalkane

**Q.61** Consider the following statements about the force acting on a current-carrying straight conductor placed in a magnetic field:

- (a) The direction of the force does not depend on the direction of current in the conductor.
- (b) The direction of the force depends on the direction of the magnetic field in which the conductor is placed.

Which of the above statements is/are correct?

- Ans**
- ☐ A. Only (a)
  - ☒ B. Only (b)
  - ☐ C. Neither (a) nor (b)
  - ☐ D. Both (a) and (b)

**Q.62** An object is placed in front of a concave mirror at a point between its focus F and pole P. The image is formed at a point \_\_\_\_\_ and is \_\_\_\_\_.

- Ans**
- ☐ A. behind the mirror, diminished
  - ☒ B. behind the mirror, enlarged
  - ☐ C. between F and C, diminished
  - ☐ D. between F and C, enlarged

**Q.63** Consider the below statements and identify the correct answer.

Statement I: According to Newland's assumption, only 56 elements existed in the nature.

Statement II: Newland found that every eighth element had properties similar to that of the first.

- Ans**
- ☒ A. Statement I is correct, Statement II is incorrect.
  - ☒ B. Statement II is correct, Statement I is incorrect.
  - ☒ C. Both statements are correct.
  - ☒ D. Both statements are incorrect.

**Q.64** During puberty, a woman's first menstrual flow is known as \_\_\_\_\_.

- Ans**
- ☒ A. menopause
  - ☒ B. menarche
  - ☒ C. amenorrhea
  - ☒ D. menorrhagia

**Q.65** Consider the following statements about magnetic field due to a current-carrying straight conductor:

(a) The magnetic field at a distance  $r$  from the wire is in the form of a concentric circle.

(b) The radius of the concentric circle increases as the distance from the conductor increases.

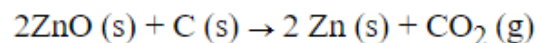
Which of the above statements is/are correct?

- Ans**
- ☒ A. Neither (a) nor (b)
  - ☒ B. Both (a) and (b)
  - ☒ C. Only (b)
  - ☒ D. Only (a)

**Q.66** How many double bonds are there in a structure of benzene?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.67** Which of the statements about the reaction below is/are correct?



- (i) Zinc is getting reduced
- (ii) Carbon is getting oxidised
- (iii) Zinc is getting oxidized.
- (iv) Carbon is getting reduced

- Ans**
- ☒ A. only (i)
  - ☒ B. only (ii)
  - ☒ C. Both (i) and (ii)
  - ☒ D. All (i), (iii), (iv)

- Q.68** The primary excretory product of \_\_\_\_\_ is uric acid.
- Ans** ☒ A. fish  
☒ B. birds  
☒ C. cows  
☒ D. humans
- Q.69** In which Indian state do 'Ahars', a type of water harvesting system, exist?
- Ans** ☒ A. Bihar  
☒ B. Madhya Pradesh  
☒ C. Rajasthan  
☒ D. Kerala
- Q.70** The 'Urea Cycle' takes place in the human \_\_\_\_\_.
- Ans** ☒ A. liver  
☒ B. kidney  
☒ C. lungs  
☒ D. pancreas
- Q.71** An object is placed on the principal axis of a convex lens, at a point between  $F_1$  and  $2F_1$ . Its image formed is \_\_\_\_\_.
- Ans** ☒ A. real and of the same size  
☒ B. real and enlarged  
☒ C. virtual and of the same size  
☒ D. virtual and enlarged
- Q.72** We, on an individual basis, can help to reduce the production of waste by following certain practices. Which of the following will however cause increase in waste?
- Ans** ☒ A. Using cloth or jute bags for shopping  
☒ B. Donating used goods  
☒ C. Using tin foil, plastic wraps, paper towels and plastic zip bags  
☒ D. Reusing empty containers and bottles
- Q.73** Two resistors, A ( $10\ \Omega$ ) and B ( $15\ \Omega$ ), are connected in parallel. The combination is connected to a 3 V battery. The current through the battery is:
- Ans** ☒ A. 0.12 A  
☒ B. 0.25 A  
☒ C. 0.3 A  
☒ D. 0.50 A
- Q.74** Monohybrid cross is the combining of two plants with \_\_\_\_\_ different versions of a trait.
- Ans** ☒ A. two  
☒ B. four  
☒ C. six  
☒ D. eight

**Q.75** There are four elements P, Q, R and S and their atomic numbers are 2, 6, 13 and 18, respectively. Which of the following pairs has elements having similar valency?

- Ans**
- ☒ A. P and Q
  - ☒ B. R and S
  - ☒ C. P and S
  - ☒ D. Q and S

**Q.76** An object is placed on the principal axis of a lens of power 4.0 D, at a distance of 30 cm. The image formed is \_\_\_\_\_.

- Ans**
- ☒ A. real and erect
  - ☒ B. virtual and erect
  - ☒ C. real and inverted
  - ☒ D. virtual and inverted

**Q.77** When solutions of lead (II) nitrate and potassium iodide are mixed together, which of the following observations will be true?

- Ans**
- ☒ A. No reaction will occur.
  - ☒ B. A white precipitate of lead iodide will be formed.
  - ☒ C. A yellow precipitate of lead iodide will be formed.
  - ☒ D. A white precipitate of potassium nitrate will be formed.

**Q.78** Consider the below statements and identify the correct answer.

Statement-I: Plaster of Paris has a very remarkable property of setting into hard mass on wetting with water.

Statement-II: Plaster of Paris is used in chemistry laboratories for sealing air gaps in apparatus where air tight arrangement is required.

- Ans**
- ☒ A. Both the statements are true.
  - ☒ B. Both the statements are false.
  - ☒ C. Statement-I is true, and Statement-II is false.
  - ☒ D. Statement-II is true, and Statement-I is false.

**Q.79** Three identical bulbs are connected in parallel to a battery of 6 V. If the current in the circuit is 0.6 A, the power dissipated by the battery is:

- Ans**
- ☒ A. 5 W
  - ☒ B. 10 W
  - ☒ C. 3.6 W
  - ☒ D. 0.1 W

**Q.80** Which of the following is/are NOT use(s) of washing soda?

- (i) Manufacture of glass, soap and paper
- (ii) In soda-acid fire extinguisher
- (iii) For removing permanent hardness of water

- Ans**
- ☒ A. Only i
  - ☒ B. Only ii
  - ☒ C. Only iii
  - ☒ D. i and iii

**Q.81** Which of the following is an overhead expense in a production cost?

- Ans**
- ☐ A. Raw materials
  - ☐ B. Labour
  - ☐ C. Consumable manufacturing supplies
  - ☒ D. Insurance

**Q.82** In May 2022, the Supreme Court has restrained the state and central governments from invoking which charges, under Section 124A of the Indian Penal Code, against anybody?

- Ans**
- ☐ A. Homicide
  - ☒ B. Sedition
  - ☐ C. Bankruptcy
  - ☐ D. Inchoate

**Q.83** India's first Artificial Intelligence and Robotics Technological Park was launched in \_\_\_\_\_ in March 2022.

- Ans**
- ☐ A. Chandigarh
  - ☐ B. Bhopal
  - ☐ C. Chennai
  - ☒ D. Bengaluru

**Q.84** How many pillars are the core beliefs and practices of Islam?

- Ans**
- ☐ A. 3
  - ☒ B. 5
  - ☐ C. 7
  - ☐ D. 9

**Q.85** Who has been appointed as a full-time member of the Economic Advisory Council to the Prime Minister of India in February 2022?

- Ans**
- ☐ A. Shashank Saksena
  - ☐ B. Ravi Mittal
  - ☐ C. Anuradha Guru
  - ☒ D. Sanjeev Sanyal

Q.86

In which of the following cities is the Headquarters of the Ministry of Panchayati Raj located?

Ans

✓ A. New Delhi

✗ B. Pune

✗ C. Chennai

✗ D. Jaipur

Q.87

In which year was The Indian Toll Act passed?

Ans

✗ A. 1864

✓ B. 1851

✗ C. 1853

✗ D. 1861

Q.88

In India, which vegetation has dominating species i.e., teak, sal and shisham?

Ans

✓ A. Tropical Deciduous Forests

✗ B. Tropical Evergreen Forests

✗ C. Tropical Thorn Forests and Scrubs

✗ D. Mangrove Forests

Q.89

Which of the following language institutes is located in Maharashtra?

Ans

✗ A. Rashtriya Sanskrit Vidyapeetha

✗ B. Maulana Azad National Urdu University

✗ C. English and Foreign Languages University

✓ D. Mahatma Gandhi Antarrashtriya Hindi VishwaVidyalaya

Q.90

The second five-year plan gave high priority to industrial development aimed at setting up a number of heavy industries such as steel plants, capital goods industries, etc., for which direct government participation and state involvement was needed and hence the \_\_\_\_\_ was launched.

Ans

✗ A. Industrial Policy Resolution 1948

✓ B. Industrial Policy Resolution 1956

✗ C. Industrial Policy Statement 1977

✗ D. Industrial Policy Statement 1980



**Q.91** Every year on 2<sup>nd</sup> October, the Prime Minister of India pays homage to Mahatma Gandhi at \_\_\_\_\_.

- Ans**
- ☒ A. Amar Jawan Jyoti
  - ☒ B. Raj Ghat
  - ☒ C. India Gate
  - ☒ D. Vijay Ghat

**Q.92** The section on Fundamental Duties in the Indian Constitution has been adopted from \_\_\_\_\_.

- Ans**
- ☒ A. USA
  - ☒ B. Germany
  - ☒ C. England
  - ☒ D. USSR

**Q.93** In the Rajya Sabha, how many members are nominated by the President of India?

- Ans**
- ☒ A. 12
  - ☒ B. 15
  - ☒ C. 5
  - ☒ D. 2

**Q.94** In October 2021, which country signed a five-year partnership agreement with India to implement a 'Green Strategic Partnership' for strengthening scientific and technology collaboration?

- Ans**
- ☒ A. Denmark
  - ☒ B. America
  - ☒ C. Russia
  - ☒ D. Israel

**Q.95** What is the usual shape for an average fixed cost curve?

- Ans**
- ☒ A. Horizontal line
  - ☒ B. U-shaped
  - ☒ C. Inverted V-shaped
  - ☒ D. Rectangular hyperbola

**Q.96** As per the new format, IPL 2022 was played among how many teams in total?

- Ans**
- ☒ A. 7
  - ☒ B. 9
  - ☒ C. 10
  - ☒ D. 12

**Q.97** \_\_\_\_\_ is the climate at the centre of large landmasses, typified by a large annual range in temperature, with precipitation most likely in the summer.

- Ans**
- ☒ A. Extreme Climate
  - ☒ B. Maritime Climate
  - ☒ C. Temperate Climate
  - ☒ D. Continental climate



**Q.98** Which football player was the highest goal scorer in the 3<sup>rd</sup> edition of the SAFF U-18 Women's Football Championship held at Jamshedpur in March 2022?

- Ans**
- ☒ A. Ritu Devi
  - ☒ B. Lynda Kom
  - ☒ C. Purnima Kumari
  - ☒ D. Babina Devi

**Q.99** The Nubra and the Shyok are the tributaries of River .....

- Ans**
- ☒ A. Narmada
  - ☒ B. Kaveri
  - ☒ C. Indus
  - ☒ D. Sutlej

**Q.100** Which of the following bills is NOT passed by both Houses, Parliament of India, during Winter Session: 29 November 2021 to 22 December 2021?

- Ans**
- ☒ A. The Prohibition of Child Marriage (Amendment) Bill, 2021
  - ☒ B. The Farm Laws Repeal Bill, 2021
  - ☒ C. The Narcotic Drugs and Psychotropic Substances (Amendment) Bill, 2021
  - ☒ D. The Surrogacy (Regulation) Bill, 2021



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 29/08/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** A trader owes a merchant ₹8,000 due in one year. The trader wants to settle the account after 2 months. If the rate of interest is 9% per annum, then how much should he pay (rounded off value)?

- Ans**
- ☒ A. ₹7,244
  - ☒ B. ₹7,424
  - ☒ C. ₹7,442
  - ☒ D. ₹4,774

**Q.2** A train crosses a platform 90 metres long in 60 seconds at a speed of 54 km/h. Find the time the train will take to cross an electric pole.

- Ans**
- ☒ A. 60 seconds
  - ☒ B. 48 seconds
  - ☒ C. 54 seconds
  - ☒ D. 58 seconds

**Q.3** Simplify:  $2\left(\frac{3}{2}x^2 - 24x + 12\right) - 3(x^2 + 4x - 13)$ .

- Ans**
- ☒ A.  $60x + 63$
  - ☒ B.  $-60x + 63$
  - ☒ C.  $-60x - 63$
  - ☒ D.  $60x - 63$

**Q.4** Two numbers are in the ratio 3 : 2. Their LCM and HCF are 24 and 4, respectively. The greater of the two numbers is:

- Ans**
- ☒ A. 8
  - ☒ B. 10
  - ☒ C. 12
  - ☒ D. 14

**Q.5** If the mean and the mode of a particular data set are 36 and 63, respectively, then, using an empirical relation, find the value of the median of the same data set.

- Ans**
- ☒ A. 39
  - ☒ B. 40
  - ☒ C. 45
  - ☒ D. 55

**Q.6** What is the nature of the roots of  $\sqrt{3}x^2 + 6x - \sqrt{3} = 0$  ?

- Ans**
- ☒ A. The roots are real and equal.
  - ☒ B. The roots are real and distinct.
  - ☒ C. The roots are real and more than 2.
  - ☒ D. There are no real roots.

**Q.7** The ratio of the number of boys to that of the girls in a school is 7 : 9. If the number of girls in the school is 189, then the number of boys in that school is:

- Ans**
- ☒ A. 147
  - ☒ B. 168
  - ☒ C. 126
  - ☒ D. 105

**Q.8** The roots of the quadratic equation  $2x^2 - x - 3 = 0$  are:

- Ans**
- ☒ A.  $1, \frac{3}{2}$
  - ☒ B.  $1, -\frac{3}{2}$
  - ☒ C.  $-1, \frac{3}{2}$
  - ☒ D.  $-1, -\frac{3}{2}$

**Q.9** The sum of two natural numbers, x and y, is 320 and the HCF of x and y is 20. If  $x > y$ , how many such possible pairs of x and y are there?

- Ans**
- ☒ A. 4
  - ☒ B. 6
  - ☒ C. 2
  - ☒ D. 8

**Q.10** If the volume of a cube is  $729 \text{ cm}^3$ , then the edge of the cube is:

- Ans**
- ☒ A. 3 cm
  - ☒ B. 9 cm
  - ☒ C. 12 cm
  - ☒ D. 24 cm

**Q.11** Find the mode of the observations 23, 27, 38, 42, 27, 58, 69, 71, 45.

- Ans**
- ☒ A. 27
  - ☒ B. 42
  - ☒ C. 45
  - ☒ D. 71

**Q.12** If a regular polygon has 65 diagonals, then the sum of its interior angles is:

- Ans**
- ☐ A.  $1440^\circ$
  - ☐ B.  $1620^\circ$
  - ☐ C.  $1800^\circ$
  - ☒ D.  $1980^\circ$

**Q.13** A car can cover a distance of 25 km per litre of petrol. The driver of the car filled the tank with  $5\frac{1}{2}$  litres of petrol. After travelling how much distance (in km) will the car stop?

- Ans**
- ☐ A. 125.5
  - ☐ B. 135.5
  - ☒ C. 137.5
  - ☐ D. 140.5

**Q.14** Aditya bought a flat for ₹5,50,000. He spent ₹25,000 on its painting and repair. If he sold it for ₹5,37,625, then his loss percentage is:

- Ans**
- ☒ A. 6.5%
  - ☐ B. 7.5%
  - ☐ C. 5.5%
  - ☐ D. 4.5%

**Q.15** If the total surface area of a closed cube is  $1014\text{ cm}^2$ , then the length of each edge of this cube is:

- Ans**
- ☒ A. 13 cm
  - ☐ B. 12 cm
  - ☐ C. 14 cm
  - ☐ D. 16 cm

**Q.16** The value of  $143 - 144 \div 16 \times 3 - 1$  is:

- Ans**
- ☐ A. 139
  - ☒ B. 115
  - ☐ C. 133
  - ☐ D. 123

**Q.17** If  $12 : x :: x : 27$ , and  $25 : y :: y : 36$ , when x and y are both positive numbers, find x : y.

- Ans**
- ☐ A. 5 : 6
  - ☒ B. 3 : 5
  - ☐ C. 4 : 7
  - ☐ D. 7 : 9

**Q.18** Raj invested ₹14,000 at 10% p.a. for 1 year at compound interest, compounded half-yearly. The amount received by him is:

- Ans**
- ☐ A. ₹14,354
  - ☐ B. ₹13,542
  - ☐ C. ₹14,765
  - ☒ D. ₹15,435

**Q.19** Two trains P and Q, having lengths of 300 m and 340 m respectively, are running towards each other. If P and Q are running at speeds of 35 m/s and 45 m/s, respectively, then how long will they take to cross each other?

- Ans**
- ☒ A. 7 sec
  - ☒ B. 8 sec
  - ☒ C. 8.5 sec
  - ☒ D. 9 sec

**Q.20** If  $a + b = 25$  and  $a - b = 13$ , find the value of  $(a + b)^2$ .

- Ans**
- ☒ A. 625
  - ☒ B. 525
  - ☒ C. 225
  - ☒ D. 496

**Q.21** If  $\sin\theta > \cos\theta$ , then the value of  $\frac{\sqrt{1-2\sin\theta\cos\theta} + \sqrt{1+2\sin\theta\cos\theta}}{2\tan\theta}$  is:

- Ans**
- ☒ A.  $\cos\theta$
  - ☒ B.  $\cot\theta$
  - ☒ C.  $\tan\theta$
  - ☒ D.  $\sin\theta$

**Q.22** A son's present age is two-fifth of the age of his mother. After 5 years, his age will be half the age of his mother. How old is his mother at present?

- Ans**
- ☒ A. 25 years
  - ☒ B. 32 years
  - ☒ C. 36 years
  - ☒ D. 40 years

**Q.23** A is two years older than B, who is twice as old as C. If the total of their ages is 32, then what is the age of B?

- Ans**
- ☒ A. 7 years
  - ☒ B. 8 years
  - ☒ C. 12 years
  - ☒ D. 14 years

**Q.24** If one angle of a triangle is equal to the sum of the other two angles, then the triangle is:

- Ans**
- ☒ A. a right-angle triangle
  - ☒ B. an isosceles triangle
  - ☒ C. an equilateral triangle
  - ☒ D. an obtuse angle triangle

Q.25  $7.44... + 3.77... - 2.55... =$

- Ans
- ☒ A.  $\frac{74}{9}$
  - ☒ B.  $\frac{78}{9}$
  - ☒ C.  $\frac{83}{9}$
  - ☒ D.  $\frac{124}{9}$

Section : General Intelligence and Reasoning

Q.26 Which of the following numbers will replace the question mark (?) in the given series?

18, 19, 28, 53, 102, ?

- Ans
- ☒ A. 183
  - ☒ B. 138
  - ☒ C. 1389
  - ☒ D. 198

Q.27 In the given question, the statement is followed by two conclusions. Which of the two conclusion(s) is/are true based on the given statement?

Statement:  $S < \# = \& \leq @ > * = /$

Conclusions: I.  $* > \&$

II.  $\# < /$

- Ans
- ☒ A. Only conclusion I is true
  - ☒ B. Only conclusion II is true
  - ☒ C. Both conclusions I and II are true
  - ☒ D. Neither conclusion I nor II is true

Q.28 Which of the following numbers will replace the question mark (?) in the given series?

28, 32, 39, 52, 74, ?

- Ans
- ☒ A. 110
  - ☒ B. 108
  - ☒ C. 100
  - ☒ D. 112

Q.29 Each consonant in the word 'COMPARE' is changed to the letter following it in the English alphabetical order, and each vowel is changed to the letter preceding it in the English alphabetical order. Which of the following letters will appear twice in the group of letters thus formed?

- Ans
- ☒ A. Only D
  - ☒ B. Only N
  - ☒ C. Only Q
  - ☒ D. D and N

**Q.30** Veronica started from a point and walked 25 m towards the west, she then turned right and walked for 5 m. From there she turned right and walked for 15 m, turned right again, and walked for 5 m. Which side should she turn now and how much distance should she walk for in order to reach the starting point?

(All turns are 90 degree turns only)

- Ans**
- ☒ A. Left, 15 m
  - ☒ B. Right, 10 m
  - ☒ C. Left, 10 m
  - ☒ D. Right, 15 m

**Q.31** Study the given arrangement carefully and answer the question that follows.

(Left) £ & 6 @ 4 ♣ 2 4 % 1 3 ^ 3 ¥ @ 8 8 % 7 (Right)

How many such symbols are there in the above arrangement each of which is immediately followed by a number and immediately preceded by a symbol?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.32** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding / subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(7, 150, 23)

(14, 100, 6)

- Ans**
- ☒ A. (15, 140, 13)
  - ☒ B. (9, 80, 11)
  - ☒ C. (8, 90, 11)
  - ☒ D. (4, 108, 16)

**Q.33** Q, R, S, T, U, V and W are seven boxes, kept one over the other but not necessarily in the same order. Only one box is kept between Q and R. W is kept immediately above Q. Only one box is kept between R and U. T is kept immediately below R. How many boxes are kept between T and W?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

- Q.34** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the condition is your answer.

| Number/Symbol | 7 | 4 | & | @ | ? | 8 | < | # | 2 | % | ! | 5 | = | 6 |
|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code          | Q | S | R | T | U | P | W | Y | A | V | C | X | D | H |

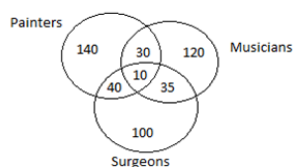
Conditions:

- If the first element is a symbol and the last a number, the codes for these two are to be interchanged.
- If the first element is an odd number and the last an even number, the first and the last elements are to be coded as Ø.
- If both the first and third elements are numbers, the third element is to be coded as the code for the first element.

How will '2 @ 7 # = 5' be coded?

- Ans** ☒ A. ATAYDX  
☒ B. ATQYDX  
☒ C. QTQYDC  
☒ D. QTAYDC

- Q.35** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons living in a village.



How many surgeons are living in the village?

- Ans** ☒ A. 185  
☒ B. 100  
☒ C. 150  
☒ D. 35

- Q.36** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

POT : UPQ

EST : UTF

- Ans** ☒ A. PTU : VUV  
☒ B. MEN : NFO  
☒ C. CAT : UBD  
☒ D. TOW : UPU

- Q.37** This question is based on the following 3-letter words.  
 (left) MAT CRY NIB DON (right)

If in each of the words, each letter is changed to the next letter in the English alphabetical order, how many words thus formed will have no vowel ?

- Ans** ☒ A. One  
☒ B. Two  
☒ C. Three  
☒ D. Four



**Q.38** In a certain code language, 'ASSURED' is written as 'TTBUEFS' and 'BENEFIT' is written as 'OFCEUJG'. How will 'CABINET' be written in that language?

- Ans**
- ☒ A. CBDJUFO
  - ☒ B. DBCIOFU
  - ☒ C. CBDIUFO
  - ☒ D. CBDIUUFU

**Q.39** How will quarter to eight be indicated in the 24-hour format?

- Ans**
- ☒ A. 19:45 hours
  - ☒ B. 20:15 hours
  - ☒ C. 19:15 hours
  - ☒ D. 20:45 hours

**Q.40** Seven people with the initials of their names G, H, I, J, K, L and M were sipping their tea, sitting around a circular table, facing the centre. They were equidistant to one another. K was sitting to the immediate right of I. Only H was sitting between M and J. L was an immediate neighbour of M. G was sitting third to the right and fourth to the left of J. Who were the immediate neighbours of G?

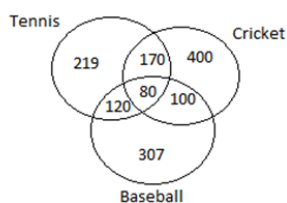
- Ans**
- ☒ A. L and I
  - ☒ B. K and M
  - ☒ C. M and I
  - ☒ D. K and L

**Q.41** What approximate value should come in place of the question mark (?) in the following equation?

$$444.033 \div 15.998 \div 37.02 \times 11.992 = ?$$

- Ans**
- ☒ A. 9
  - ☒ B. 81
  - ☒ C. 125
  - ☒ D. 243

**Q.42** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons who like different sports.



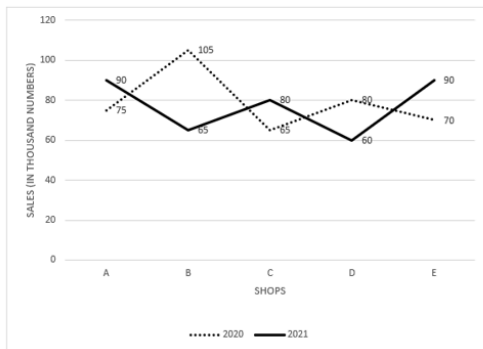
How many people like both cricket and baseball?

- Ans**
- ☒ A. 80
  - ☒ B. 100
  - ☒ C. 180
  - ☒ D. 210

**Q.43** Six persons, P, Q, R, S, T and U, were born in different months of the same year, viz. January, February, March, April, May and June. U was born in the immediate next month of Q's birth month. R was born in May. P was not born in January. S was not born in April. Only one person was born between the months of P and R's birth months. In which month was T born?

- Ans**
- ☒ A. February
  - ☒ B. March
  - ☒ C. April
  - ☒ D. June

**Q.44** The given line graph shows the sales of a product X (in thousand numbers) from five different shops A, B, C, D and E in the years 2020 and 2021. Study the line graph and answer the question.



What is the average sale from all the shops (in thousand numbers) for the year 2020?

- Ans**
- ☒ A. 82
  - ☒ B. 85
  - ☒ C. 79
  - ☒ D. 80

**Q.45** Select the option that represents the letters that, when placed from left to right in the same sequence in the blanks below, will complete the letter series.

B \_ A \_ B \_ \_ B \_ \_ BA \_ B \_ MB \_

- Ans**
- ☒ A. MABBAABAAB
  - ☒ B. ABAMAABBM
  - ☒ C. AMBBMBAMM
  - ☒ D. BMABAMBAA

**Q.46** Five boxes G, T, Y, R and U are placed one over the other but not necessarily in the same order. Exactly two boxes are placed between T and Y, but T is neither at the bottom nor at the top and not at any position above Y. What is the position of T from the bottom?

- Ans**
- ☒ A. Second
  - ☒ B. Third
  - ☒ C. Fourth
  - ☒ D. First

- Q.47** The given table shows the details of the number of boys and girls from four different departments of a recognised university who got campus placements over the years. Study the table and answer the question.

| Dept<br>Year | Department A |       | Department B |       | Department C |       | Department D |       |
|--------------|--------------|-------|--------------|-------|--------------|-------|--------------|-------|
|              | Boys         | Girls | Boys         | Girls | Boys         | Girls | Boys         | Girls |
| 2017         | 150          | 200   | 200          | 150   | 180          | 200   | 110          | 120   |
| 2018         | 100          | 80    | 100          | 100   | 150          | 140   | 100          | 120   |
| 2019         | 150          | 130   | 120          | 140   | 100          | 80    | 200          | 150   |
| 2020         | 100          | 120   | 160          | 120   | 90           | 100   | 180          | 160   |

What is the difference between the number of boys and girls from all the departments who got campus placements in the year 2018?

- Ans** ☒ A. 10  
☒ B. 15  
☒ C. 20  
☒ D. 25

- Q.48** S, T, U, V, W, X, Y and Z were eight ministers, sitting around a circular table, facing the centre. They were equidistant to one another. Only V was sitting between S and X. Only T was sitting between Z and W. Y was sitting fourth to the left of W, while S was sitting fourth to the left of T. Z was sitting second to the left of Y. Which minister was sitting fourth to the left of X?

- Ans** ☒ A. Only V  
☒ B. Only Z  
☒ C. Only U  
☒ D. Either U or V

- Q.49** A statement is given followed by two possible underlying assumptions I and II. Read all the information carefully and decide which of the given assumptions can be assumed by the given statement.

**Statement:**

Following Country G's decision, which was taken a decade ago to control pollution, Country N has also decided to keep a cap on the number of cars in the country. So, now if someone in Country N wants to buy a car, they will have to wait until someone in the country sells their car or a car is registered as completely non-functional and is scrapped.

**Assumptions:**

I. The other transport options in Country N are enough to cater to the 'non-car owning' population of the country.

II. The decision was most likely successful in Country G in controlling pollution.

- Ans** ☒ A. Only I can be assumed  
☒ B. Only II can be assumed  
☒ C. Both I and II can be assumed  
☒ D. Neither I nor II can be assumed

- Q.50** Rekha, from point A, walks 41 m towards the west. She takes a right turn and walks 84 m. She takes a right turn again and walks 92 m. Again, she takes a right turn and walks 84 m. She takes a right turn again and walks 19 m to reach point B. How far and in which direction is point B from point A? (All turns are 90 degree turns only)

- Ans** ☒ A. 32 m, East  
☒ B. 32 m, West  
☒ C. 30 m, East  
☒ D. 30 m, West

**Q.51** Which of the following options is the closest approximate value which will come in place of question mark(?) in the following equation?

$$(\sqrt{142} + 52 \div 26 \times 5 - \sqrt{80}) \times 2 = ?$$

- Ans**
- ☒ A. 20
  - ☒ B. 26
  - ☒ C. 30
  - ☒ D. 32

**Q.52** In the given question, the statement is followed by two conclusions. Which of the two conclusion(s) is/are true based on the given statement?

Statement:  $U = L > Y \leq C = I > G$

Conclusions: I.  $U \leq C$

II.  $C > G$

- Ans**
- ☒ A. Only conclusion I is true
  - ☒ B. Only conclusion II is true
  - ☒ C. Both conclusions I and II are true
  - ☒ D. Neither conclusion I nor II is true

**Q.53** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

(3, 5, 21)

(4, 2, 14)

- Ans**
- ☒ A. (5, 2, 19)
  - ☒ B. (6, 3, 12)
  - ☒ C. (8, 4, 28)
  - ☒ D. (7, 1, 23)

**Q.54** Three statements are followed by three conclusions numbered I, II and III. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts. Decide which of the given conclusions logically follow(s) from the given statement.

Statements:

Few mice are rats

Most rats are vultures

All vultures are hawks

Conclusions:

(I) Few mice are vultures

(II) Some hawks are mice

(III) Some rats are hawks

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion III follows
  - ☒ C. Only conclusion I and III follow
  - ☒ D. All conclusions I, II and III follow

**Q.55** If 2 is added to each odd digit and 2 is subtracted from each even digit in the number given below, what will be the difference in the digits that are third from the left and third from the right in the new number thus formed?

(Left) 32578641 (Right)

- Ans**
- ☒ A. 2
  - ☒ B. 3
  - ☒ C. 4
  - ☒ D. 5

Section : General Science

**Q.56** Identify the correct statement from the ones given below based on the way Mendel conducted his experiments.

- Ans**
- ☒ A. Only cross-fertilisation was performed.
  - ☒ B. Only self-fertilisation was performed.
  - ☒ C. Cross-fertilisation of plants was performed initially, followed by self-fertilisation.
  - ☒ D. Self-fertilisation of plants was performed initially, followed by cross-fertilisation.

**Q.57** You have prepared a temporary slide of Rhoeo leaf in water. What change will you observe when you put a strong solution of sugar on the slide?

- Ans**
- ☒ A. No change will be seen
  - ☒ B. Cells of the leaf will take in water and swell
  - ☒ C.

Cells will lose water and there will be shrinkage of contents of the cell away from the cell wall

- ☒ D. Some cells will take in water; others will lose water

**Q.58** The magnitude of the magnetic field due to a current-carrying circular coil varies with the number of turns  $n$  as \_\_\_\_\_.

- Ans**
- ☒ A.  $\frac{1}{n}$
  - ☒ B.  $\frac{1}{n^2}$
  - ☒ C.  $n$
  - ☒ D.  $n^2$

**Q.59** Consider the below statements and identify the correct answer.

Statement I: Metals are electropositive in nature.

Statement II: Metals tend to lose electrons while forming bonds.

- Ans**
- ☒ A. Both statements are correct. Statement II is correct explanation of Statement I.
  - ☒ B. Both Statements are correct. Statement I is correct explanation of Statement II.
  - ☒ C. Only Statement I is correct.
  - ☒ D. Only Statement II is correct.

**Q.60** Which of the following sterilisation methods is permanent?

- Ans**
- ☐ A. Use of condom
  - ☐ B. Use of copper-T
  - ☐ C. Use of birth control pills
  - ☒ D. Surgical methods

**Q.61** In which state/UT of India can we find the Indira Gandhi Canal?

- Ans**
- ☐ A. West Bengal
  - ☐ B. New Delhi
  - ☒ C. Rajasthan
  - ☐ D. Kerala

**Q.62** Consider the magnitudes and directions of the induced potential difference in the following situations:

- (a) A current-carrying straight wire moving with a speed of 1.5 m/s towards a stationary coil.
- (b) The same current-carrying straight wire moving away with a speed of 1.5 m/s from the same stationary coil.

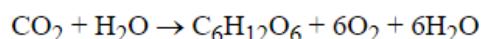
The induced potential differences are of \_\_\_\_\_ magnitude(s) and have \_\_\_\_\_ sign(s) in the above two cases.

- Ans**
- ☐ A. different, opposite
  - ☐ B. different, the same
  - ☐ C. the same, the same
  - ☒ D. the same, opposite

**Q.63** Which digestive enzyme is present in saliva?

- Ans**
- ☒ A. Amylase
  - ☐ B. Peptidase
  - ☐ C. Enterokinase
  - ☐ D. Lipase

**Q.64** For the following reaction, balance the chemical equation with state symbols.



- Ans**
- ☐ A.  $\text{CO}_2(\text{g}) + 6\text{H}_2\text{O}(\text{l}) \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 + 6\text{H}_2\text{O}$
  - ☐ B.  $\text{CO}_2(\text{g}) + 12\text{H}_2\text{O}(\text{l}) \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 + 6\text{H}_2\text{O}$
  - ☐ C.  $6\text{CO}_2(\text{aq}) + 12\text{H}_2\text{O}(\text{l}) \rightarrow \text{C}_6\text{H}_{12}\text{O}_6(\text{aq}) + 6\text{O}_2(\text{aq}) + 6\text{H}_2\text{O}(\text{l})$
  - ☒ D.  $6\text{CO}_2(\text{g}) + 12\text{H}_2\text{O}(\text{l}) \rightarrow \text{C}_6\text{H}_{12}\text{O}_6(\text{aq}) + 6\text{O}_2(\text{g}) + 6\text{H}_2\text{O}(\text{l})$

**Q.65** Select the option that correctly indicates which of the following statements are true.

When a strip of zinc metal is placed in copper sulphate solution:

- (i) zinc displaces copper from copper sulphate
- (ii) the blue colour of copper sulphate solution does not fade
- (iii) a blue deposit of copper metal is formed on the zinc strip
- (iv) it is an example of combination reaction

**Ans** ✓ A. i

✗ B. ii

✗ C. iii

✗ D. iv

**Q.66** Why do the root's water-absorbing epidermal cells frequently have long hair-like parts?

**Ans** ✗ A. For locomotion

✗ B. To reduce the amount of surface area available for photosynthesis

✓ C. To enhance the amount of surface area available for absorption

✗ D. To enhance the amount of surface area available for transpiration

**Q.67** A particular locality is focusing on three R's — Recycle, Reuse and Reduce — to decrease the production of non-biodegradable waste. What will be the correct sequence to follow them?

**Ans** ✗ A. Reuse, Recycle, Reduce

✓ B. Reduce, Reuse, Recycle

✗ C. Recycle, Reduce, Reuse

✗ D. Recycle, Reuse, Reduce

**Q.68** Consider the following statements:

(a) The particles in clouds are larger than the wavelength of different colours in white light coming from the sun.

(b) All colours of white light are scattered by approximately the same amount.

Which of the above statements help(s) us to understand the white colour of clouds during sunshine?

**Ans** ✗ A. Only (a)

✗ B. Only (b)

✓ C. Both (a) and (b)

✗ D. Neither (a) nor (b)

**Q.69** Which of the following is a property of combustion reaction?

**Ans** ✓ A. An element burns in the presence of oxygen.

✗ B. In the presence of sunlight, reaction occurs.

✗ C. The reaction happens with absorption of heat.

✗ D. The reaction happens with absorption of light.



**Q.70** A bulb draws a current of 3 A when connected to a battery of 12 V. The power of the bulb is:

- Ans**
- ✓ A. 36 W
  - ✗ B. 18 W
  - ✗ C. 12 W
  - ✗ D. 4 W

**Q.71** Decomposition reaction is when:

- Ans**
- ✓ A. one reactant breaks down to give simpler products
  - ✗ B. one element displaces another to give product
  - ✗ C. two or more reactants give one product
  - ✗ D. one reactant breaks down to simple products and energy released

**Q.72** Baking powder is a mixture of:

- Ans**
- ✓ A. baking soda and mild edible acid
  - ✗ B. sodium carbonate and tartaric acid
  - ✗ C. baking soda and washing soda
  - ✗ D. baking soda and bleaching powder

**Q.73** A battery is connected to a conductor, and a current  $I$  passes through it. If the resistance of the conductor is made four times, the current \_\_\_\_\_.

- Ans**
- ✓ A. becomes  $\left(\frac{I}{4}\right)$
  - ✗ B. becomes  $\left(\frac{I}{2}\right)$
  - ✗ C. becomes  $4I$
  - ✗ D. remains  $I$

**Q.74** An object is placed in front of a concave mirror of focal length 15 cm and its image is formed on the same side as the object, at a distance of 45 cm. The distance of the object from the mirror is:

- Ans**
- ✗ A. 11.25 cm
  - ✓ B. 22.5 cm
  - ✗ C. 33.75 cm
  - ✗ D. 45 cm

**Q.75** You get cramps after participating in a 400 m race. Which option best explains the reason for the same?

- Ans**
- ✓ A. Lack of oxygen and pyruvate converted to lactic acid
  - ✗ B. Lack of oxygen and pyruvate is converted to ethanol
  - ✗ C. Enough oxygen and pyruvate converted to lactic acid
  - ✗ D. Lack of oxygen and pyruvate is converted to glucose

**Q.76** Which of the following is NOT an appropriate reason for the need of classification of elements?

- Ans**
- ✗ A. To understand the periodicity in properties of elements.
  - ✗ B. To understand the specific position of an element in the periodic table.
  - ✓ C. To give the elements positions according to their colour.
  - ✗ D. To correlate the properties of different elements.



**Q.77** A conductor is connected to a battery of 2V. Let  $V_1$  be the potential difference across the conductor. When a battery of 4 V is connected, the potential difference becomes  $V_2$ . The ratio( $V_1/V_2$ ) is:

**Ans**

☒ A.  $\frac{1}{4}$

☒ B.  $\frac{1}{2}$

☒ C. 2

☒ D. 4

**Q.78** Substance X, which is used as an antacid, reacts with dilute hydrochloric acid to produce a gas Y, which is used in one type of fire-extinguisher. The substance X and gas Y, respectively, are:

**Ans**

☒ A.  $\text{NaHCO}_3$ ,  $\text{CO}_2$

☒ B.  $\text{NaOH}$ ,  $\text{CO}_2$

☒ C.  $\text{NaCl}$ ,  $\text{CO}_2$

☒ D.  $\text{NaHCO}_3$ , CO

**Q.79** An object is placed in front of a convex mirror of focal length 10 cm, at a distance of 15 cm. Its image is formed at a distance of \_\_\_\_\_ and is \_\_\_\_\_.

**Ans**

☒ A. 6 cm, real

☒ B. 6 cm, virtual

☒ C. 30 cm, real

☒ D. 30 cm, virtual

**Q.80** The colour of scattered light depends on the size of the scattering particles. Very fine particles scatter mainly the \_\_\_\_\_ light.

**Ans**

☒ A. green

☒ B. blue

☒ C. red

☒ D. yellow

#### Section : General Awareness and Current Affairs

**Q.81** Which language among the following is a Sino-Tibetan language spoken by people of north- east India?

**Ans**

☒ A. Santhali

☒ B. Maithili

☒ C. Bodo

☒ D. Dogri

**Q.82** In which state/UT was the first Khelo India National Ranking Women Archery held in April 2022?

**Ans**

☒ A. Haryana

☒ B. Jharkhand

☒ C. Himachal Pradesh

☒ D. Delhi

**Q.83** Fundamental Rights are described from Article 12 to \_\_\_\_\_ in the Indian Constitution.

- Ans**
- ✓ A. Article 35
  - ✗ B. Article 38
  - ✗ C. Article 40
  - ✗ D. Article 42

**Q.84** Identify the world's second longest glacier located outside the polar region in Nubra Valley?

- Ans**
- ✗ A. Baltaro
  - ✗ B. Batura
  - ✓ C. Siachen
  - ✗ D. Hispar

**Q.85** In Hinduism, which of the following Gods is considered to be the creator?

- Ans**
- ✗ A. Mahesh
  - ✗ B. Vishnu
  - ✓ C. Brahma
  - ✗ D. Ganesh

**Q.86** The \_\_\_\_\_ of Constitution of India is related to Panchayati Raj Institutions.

- Ans**
- ✗ A. Part-V
  - ✗ B. Part-IV
  - ✓ C. Part-IX
  - ✗ D. Part-III

**Q.87** What is constant along an isoquant?

- Ans**
- ✓ A. Level of output
  - ✗ B. Level of labour
  - ✗ C. Level of utility
  - ✗ D. Level of capital

**Q.88** Which party was recognised as a national political party by the Election Commission in 2016, whose official election symbol is Jora Ghas Phool (Grass with two flowers)?

- Ans**
- ✗ A. Bahujan Samaj Party (BSP)
  - ✗ B. Communist Party of India (CPI)
  - ✗ C. Nationalist Congress Party (NCP)
  - ✓ D. All India Trinamool Congress (AITC)

**Q.89** Pradhan Mantri Awaas Yojana–Gramin (PMAY-G), launched on 20 November 2016, envisages 'Housing for All' by the year \_\_\_\_\_.

- Ans**
- ✓ A. 2022
  - ✗ B. 2023
  - ✗ C. 2024
  - ✗ D. 2025

**Q.90**

In February 2022, CBI detected India's biggest bank fraud of ₹22,842 crore with 28 banks. Who was booked by CBI for this fraud?

**Ans**

- ☐ A. Goa Shipyard Limited
- ☐ B. Hindustan Shipyard Limited
- ☐ C. Sea Blue Shipyard Limited
- ☒ D. ABG Shipyard

**Q.91**

In February 2021, who launched the ICMR/DHR Policy along with Dr. Bharti Pravin Pawar on Biomedical Innovation and Entrepreneurship to bring modern health technologies to the people through research and innovations related to diagnosis, treatment methods and vaccines for prevention?

**Ans**

- ☐ A. Dr. Pradeep Kumar Vyas
- ☒ B. Dr. Mansukh Mandaviya
- ☐ C. Dr. Harsh Vardhan
- ☐ D. Dr. Maninder Kaur Dwivedi

**Q.92**

Which incident prompted Mahatma Gandhi to end his non-cooperation agitation in February 1922?

**Ans**

- ☐ A. Jallianwala Bagh massacre
- ☒ B. Chauri-Chaura incident
- ☐ C. Rowlatt Act endorsement
- ☐ D. Khilafat Movement

**Q.93**

The Nabakalebara festival is celebrated in which of the following states?

**Ans**

- ☐ A. Haryana
- ☐ B. Tamil Nadu
- ☒ C. Odisha
- ☐ D. Karnataka

**Q.94**

Which tributary of Ganga is known as the 'sorrow of Bihar'?

**Ans**

- ☒ A. Kosi
- ☐ B. Damodar
- ☐ C. Gaumukh
- ☐ D. Alaknanda

**Q.95**

Which of the following wrestlers won gold in the Asian wrestling championship-2022?

**Ans**

- ☒ A. Ravi K Dahiya
- ☐ B. Anshu Malik
- ☐ C. Deepak Punia
- ☐ D. Radhika

- Q.96** Which of the following is/are the characteristic(s) of Monopoly market?
- (i) There is a single producer of a particular commodity.
  - (ii) No other commodity works as a substitute for this commodity.
  - (iii) There are no restrictions to prevent any other firm from entering the market and to start selling the same commodity.

**Ans** ☒ A. Only i  
☒ B. Only i and ii  
☒ C. Only ii and iii  
☒ D. Only i and iii

- Q.97** Which of the following expenses is a part of 'fixed cost' in production of surgical garments?

**Ans** ☒ A. Electricity  
☒ B. Waste disposal  
☒ C. Workers' salary  
☒ D. Water

- Q.98** Which river system enters Indian territory in Jammu and Kashmir by forming a picturesque gorge?

**Ans** ☒ A. Indus River System  
☒ B. Brahmaputra River System  
☒ C. Narmada River System  
☒ D. Godavari River System

- Q.99** Which of the following State/UT governments has formulated a policy for the welfare of street children in light of the COVID-19 pandemic situation in July 2021?

**Ans** ☒ A. Delhi  
☒ B. Haryana  
☒ C. Puducherry  
☒ D. Uttar Pradesh

- Q.100** What is the name of India's first Green Hydrogen Fuel Cell Electric Vehicle (FCEV), launched by Union Minister Nitin Gadkari in March 2022?

**Ans** ☒ A. Toyota Urban  
☒ B. Toyota Yaris  
☒ C. Toyota Mirai  
☒ D. Toyota Greed



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

## सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 30/08/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** The point of intersection of the medians of a triangle is called:

- Ans**
- ☒ A. Circumcentre
  - ☒ B. Centroid
  - ☒ C. Orthocentre
  - ☒ D. incentre

**Q.2** Bharat borrowed a sum of ₹10,000 at a certain rate of simple interest for 2 years. If he paid an interest of ₹2,000 at the end of the period, then find the rate of interest per annum.

- Ans**
- ☒ A. 25%
  - ☒ B. 15%
  - ☒ C. 10%
  - ☒ D. 20%

**Q.3** Lakshman and Bharath start a business by investing ₹48,000 and ₹72,000, respectively. What is Bharath's share out of an annual profit of ₹6,530?

- Ans**
- ☒ A. ₹2,612
  - ☒ B. ₹3,918
  - ☒ C. ₹2,450
  - ☒ D. ₹3,080

**Q.4** Simplify:  $125 \div 25 \times 6 + [3 + (8 - 2)] \div 3$ .

- Ans**
- ☒ A. 30
  - ☒ B. 39
  - ☒ C. 45
  - ☒ D. 33

Q.5 Simplify  $\frac{2.46 \times 2.46 - 1.46 \times 1.46}{2.46 - 1.46}$ , giving your answer as a fraction.

- Ans ☒ A.  $\frac{392}{100}$   
☐ B.  $\frac{392}{10000}$   
☐ C.  $\frac{392}{1000}$   
☐ D.  $\frac{392}{10}$

Q.6 A 725 m long train passes through a 235 m long tunnel in 48 sec. Find the speed of the train.

- Ans ☒ A. 72 km/h  
☐ B. 82 km/h  
☐ C. 54 km/h  
☐ D. 66 km/h

Q.7 If two interior angles on the same side of a transversal intersecting two parallel lines are in the ratio 2: 3, then the greater of the two angles is:

- Ans ☐ A.  $54^\circ$   
☒ B.  $108^\circ$   
☐ C.  $120^\circ$   
☐ D.  $136^\circ$

Q.8 If the surface area of a sphere is  $2124\frac{4}{7} \text{ cm}^2$ , then what is the radius of that sphere? [Use  $\pi = \frac{22}{7}$ ]

- Ans ☐ A. 14 cm  
☒ B. 13 cm  
☐ C. 12 cm  
☐ D. 11 cm

Q.9 The average age of a family of father, mother and 2 children is 26 years. If the sum of the ages of the father and the children is 62 years, find the age of the mother.

- Ans ☐ A. 26 years  
☐ B. 30 years  
☒ C. 42 years  
☐ D. 45 years

Q.10 Find the LCM of 84, 105 and 140.

- Ans ☒ A. 420  
☐ B. 240  
☐ C. 360  
☐ D. 120

**Q.11** A dishonest shopkeeper pretends to sell his goods at cost price, but uses a false weight on which 984 gm is written but which actually weighs much less. Using this false weight the shopkeeper actually makes a gain of 23%. Find the actual measure of the weight used.

- Ans**
- ✓ A. 800 gm
  - ✗ B. 900 gm
  - ✗ C. 850 gm
  - ✗ D. 935 gm

**Q.12** Which of the following can be expressed in the form of a standard quadratic equation?

- Ans**
- ✗ A.  $(2x + 3)^2 + 4x - 5 = (2x + 1)(2x - 3)$
  - ✓ B.  $\sqrt{2x^2 + 3x - 4} - 2x + 5 = 0$
  - ✗ C.  $(x + 1)(x + 2) = x^2 - 16$
  - ✗ D.  $(2x - 1)^3 = x^2 - 3x + 2$

**Q.13** The value of  $\frac{\sin 16^\circ}{\cos 74^\circ} + \frac{\tan 14^\circ}{\cot 76^\circ} =$  is:

- Ans**
- ✗ A. 0
  - ✗ B. 1
  - ✓ C. 2
  - ✗ D. 3

**Q.14** Two train engines of same length are running in the same direction with speeds of 18 km/h and 36 km/h. If the faster engine crosses the slower one in 8 sec, what is the length of each train engine?

- Ans**
- ✗ A. 10 m
  - ✓ B. 20 m
  - ✗ C. 25 m
  - ✗ D. 30 m

**Q.15** Which of the following is reducible to a quadratic equation?

A.)  $(m + 1) - \frac{1}{m + 1} = 65$

B.)  $x^3 + 3x = 2x^3 - 4x^2$

C.)  $(a + b)^2 = \frac{3}{b}$

D.)  $x + (3x - 2) = \frac{1}{x^2} - 6$

- Ans**
- ✓ A. A
  - ✗ B. B
  - ✗ C. C
  - ✗ D. D

Q.16 The value of

$$(18 \div 9) \times (-7 + 9) - 7 \times 2 =$$

- Ans ☒ A. -10  
☐ B. -12  
☐ C. -6  
☐ D. -13

Q.17 The present age of a father is  $1\frac{1}{2}$  times the sum of the present ages of his two sons. Six years hence, the ratio of his age to the sum of the ages of his sons will be 6 : 5. The present age of the father is:

- Ans ☐ A. 50 years  
☐ B. 45 years  
☒ C. 42 years  
☐ D. 36 years

Q.18 Ramu used to spend 72% of his income. His income is increased by 12% and he increases his expenditure by 5%. If Ramu earlier saved ₹y and after the increases he now saves ₹x, then what is the value of  $(\frac{x-y}{y} \times 100)\%$ ?

- Ans ☐ A. 22%  
☐ B. 25%  
☐ C. 27%  
☒ D. 30%

Q.19 The table here gives the yield of wheat per hectare of 100 farmers of a village. What is the cumulative frequency of the class preceding the median class?

| Production yield (Qui/Hec) | Number of farmers |
|----------------------------|-------------------|
| 30-40                      | 5                 |
| 40-50                      | 18                |
| 50-60                      | 15                |
| 60-70                      | 22                |
| 70-80                      | 27                |
| 80-90                      | 13                |

- Ans ☐ A. 43  
☒ B. 38  
☐ C. 35  
☐ D. 29

Q.20 The shopkeeper offers 3 successive discounts on a washing machine that costs ₹58,000, so that the price gets reduced to ₹42,000. If 5%, 10% and x% are the respective discounts, find the value of x.

- Ans ☐ A. 12  
☒ B. 15.3  
☐ C. 9  
☐ D. 10

Q.21 If X is the greatest number that can divide 3808, 4798 and 5128 leaving the same remainder 13, then the sum of digits in X is:

- Ans ☒ A. 12  
☐ B. 14  
☐ C. 16  
☐ D. 18



**Q.22** There are two classrooms A and B having a certain number of students. If 5 students are shifted from A to B, then B has twice the number of students as A. If 1 student is sent from B to A, then both classrooms will have the same number of students. How many students are there in A?

- Ans**
- ☐ A. 19
  - ☐ B. 26
  - ☒ C. 17
  - ☐ D. 22

**Q.23** Find the perimeter of a rhombus whose diagonals are of lengths 5 cm and 12 cm.

- Ans**
- ☐ A. 20 cm
  - ☒ B. 26 cm
  - ☐ C. 25 cm
  - ☐ D. 24 cm

**Q.24** If  $a + b = 27$  and  $ab = 140$ , then what is the value of  $a^3 + b^3$ ?

- Ans**
- ☒ A. 8343
  - ☐ B. 8433
  - ☐ C. 11340
  - ☐ D. 19683

**Q.25** The numerator of a fraction is one less than the denominator. If 6 is added to the numerator, the fraction will be equal to  $\frac{5}{4}$ . Find the fraction.

- Ans**
- ☐ A.  $-\frac{21}{20}$
  - ☐ B.  $-\frac{20}{21}$
  - ☐ C.  $\frac{20}{21}$
  - ☒ D.  $\frac{19}{20}$

#### Section : General Intelligence and Reasoning

**Q.26** If 1 is added to each odd digit and 1 is subtracted from each even digit in the number 58132745, what will be the sum of the digits which are second from the left and third from the right?

- Ans**
- ☐ A. 5
  - ☒ B. 15
  - ☐ C. 8
  - ☐ D. 10

**Q.27** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding / subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(12, 112, 9)

(6, 28, 4)

- Ans**
- ☒ A. (11, 99, 9)
  - ☒ B. (13, 55, 4)
  - ☒ C. (18, 94, 5)
  - ☒ D. (12, 149, 12)

**Q.28** A certain number of people are sitting in a row, facing north. K sits to the immediate left of G. L sits to the immediate right of P. P is fourth to the right of G. L is fourth to the left of H. If no other person is sitting in the row, what is the total number of persons seated?

- Ans**
- ☒ A. 10
  - ☒ B. 11
  - ☒ C. 12
  - ☒ D. 13

**Q.29** Refer to the following letter series and answer the question.

P Q S D A B U E H I R I A A Y E J S B R X M F G U A B U E H I R

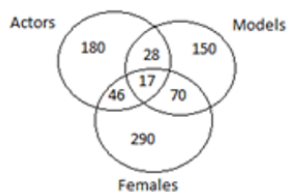
How many such vowels are there in the series each of which is immediately preceded by a consonant and also immediately followed by a consonant?

- Ans**
- ☒ A. 2
  - ☒ B. 3
  - ☒ C. 4
  - ☒ D. 5

**Q.30** Eight clowns I, J, K, L, M, N, O and P were sitting around a square table, facing the centre. Some of them were sitting at the corners, while some were sitting at the exact centre of the sides. K was sitting to the immediate left of O. J was sitting to the immediate right of M. P was sitting second to the right of L. J was sitting fourth to the left of P. N was sitting fourth to the left of K. O was sitting to the immediate left of M. M is sitting at one of the corners. Who was sitting fourth to the left of I?

- Ans**
- ☒ A. O
  - ☒ B. L
  - ☒ C. M
  - ☒ D. P

**Q.31** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons working in a film industry.



How many female actors are also models?

- Ans**
- ☒ A. 28
  - ☒ B. 46
  - ☒ C. 70
  - ☒ D. 17

- Q.32** The given table shows the production of food grains (in tonnes) in a certain state of India for the period 2016-2020. Study the table and answer the question.

| Food grains<br>Year | Wheat | Maize | Rice | Pulses | Beans |
|---------------------|-------|-------|------|--------|-------|
| 2016                | 410   | 680   | 500  | 390    | 280   |
| 2017                | 500   | 700   | 550  | 400    | 250   |
| 2018                | 550   | 500   | 580  | 380    | 300   |
| 2019                | 510   | 750   | 560  | 500    | 260   |
| 2020                | 600   | 800   | 600  | 510    | 300   |

In the year 2018, the total production of rice and beans is approximately what percentage of the total production of rice and beans in the year 2020?

- Ans** ☒ A. 97.8%  
☐ B. 85.5%  
☐ C. 89.3%  
☐ D. 90.5%

- Q.33** Which of the following numbers will replace the question mark (?) in the given series?

6, 8, 15, 37, 104, ?

- Ans** ☒ A. 306  
☐ B. 308  
☐ C. 310  
☐ D. 312

- Q.34** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

**Statements:**

- I. All B's are G's.  
II. Some G's are S's.  
III. Some S's are A's.

**Conclusions:**

- I. All B's are S's.  
II. Some A's are B's.

- Ans** ☐ A. Only conclusion I follows  
☐ B. Only conclusion II follows  
☒ C. Neither conclusion I nor II follows  
☐ D. Both conclusions I and II follow

- Q.35** If the time in the mirror image of a 12-hour clock is 5:40, what is the actual time?

- Ans** ☒ A. 6:20  
☐ B. 6:10  
☐ C. 2:50  
☐ D. 2:10

- Q.36** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

MON : PLQ

KIT : NFW

- Ans** ☒ A. LPG : OMK  
☒ B. PEN : SBQ  
☒ C. PET : SIW  
☒ D. TAP : WYS

- Q.37** If '+' means '-', '-' means '×', '×' means '+' and '+' means '+', what will come in place of the question mark (?) in the following equation?

$$100 + 136 \times 17 - 12 \div 6 = ?$$

- Ans** ☒ A. 4  
☒ B. 8  
☒ C. 10  
☒ D. 14

- Q.38** Six students - 1, 2, 3, 4, 5 and 6 - are sitting around a circular table facing the centre. 4 is sitting to the immediate right of 5 and immediate left of 6. 5 is sitting second to the right of 3. 6 and 3 are the immediate neighbours of 1. Who among the following is sitting to the immediate left of 2?

- Ans** ☒ A. 3  
☒ B. 6  
☒ C. 5  
☒ D. 4

- Q.39** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the condition is your answer.

| Number/Symbol | 6 | # | 4 | 9 | @ | % | > | 2 | ! | ? | 5 | 8 | \$ | 3 |
|---------------|---|---|---|---|---|---|---|---|---|---|---|---|----|---|
| Code          | C | H | T | J | D | G | M | X | V | W | K | U | N  | L |

Conditions:

- (i) If the first element is a symbol and the last, a number, the codes for these two are to be interchanged.  
(ii) If the first element is an odd number and the last, an even number, the first and last elements are to be coded as £.  
(iii) If both second and third elements are perfect squares, the third element is to be coded as the code for the second element.

How will 'S # 9 4 @ 3' be coded?

- Ans** ☒ A. NHJTDL  
☒ B. LHJTDN  
☒ C. £HJTD£  
☒ D. LHDTGN

- Q.40** In a certain code language, 'PUNCH' is written as 'OWMEG' and 'SHAWL' is written as 'RJZYK'. How will 'KARMA' be written in that language?

- Ans** ☒ A. JCQOZ  
☒ B. KZQPY  
☒ C. JZQOZ  
☒ D. KZQPZ

**Q.41** If each of the digits in the number given below is arranged in the ascending order from left to right, the position of how many digits will remain unchanged as compared to that in the original number?

(Left) 6352897 (Right)

- Ans**
- ☒ A. None
  - ☒ B. One
  - ☒ C. Two
  - ☒ D. Three

**Q.42** Starting from point A, Jagdish walks 98 m towards the west. He takes a left turn and walks 54 m. He takes a left turn again and walks 112 m. Again, he takes a left turn and walks 54 m to reach point B. How far and in which direction is point A from point B? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 14 m, East
  - ☒ B. 14 m, West
  - ☒ C. 16 m, East
  - ☒ D. 16 m, West

**Q.43** This question is based on the five, three-digit numbers given below.  
(Left) 248 382 415 127 335 (Right)

(Example- 697 – First digit = 6, second digit = 9 and third digit = 7)

NOTE - All operations to be done from left to right.

What will be the resultant if the first digit of the second smallest number is multiplied with the second digit of the largest number?

- Ans**
- ☒ A. 2
  - ☒ B. 4
  - ☒ C. 6
  - ☒ D. 8

**Q.44** A certain number of people are sitting in a row, facing north. D sits to the immediate left of F. Only six people sit between S and D. K sits third to the right of F. S sits at the extreme left end of the row. If no other person is sitting in the row, what is the total number of persons seated?

- Ans**
- ☒ A. 10
  - ☒ B. 11
  - ☒ C. 12
  - ☒ D. 13

**Q.45** A statement is given, followed by four conclusions given in the options. Find out which conclusion is true based on the given statement.

Statement:  $L = U > V > E < Z < Q$

- Ans**
- ☒ A.  $L < V$
  - ☒ B.  $U > E$
  - ☒ C.  $E = L$
  - ☒ D.  $Q > V$

**Q.46** Seven boxes J, K, L, M, N, O and P are kept one over the other but not necessarily in the same order. Only five boxes are kept between K and J. L is kept immediately above P. M is kept immediately below N. O is kept at one of the positions above J. N is kept immediately below K. How many boxes are kept between N and J?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.47** Refer to the following number series and answer the question.

5 6 2 6 5 8 5 3 5 0 2 6 3 8 2 5 6 9 3 7

How many such odd numbers are there each of which is immediately preceded by an even number and also immediately followed by an even number?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.48** A statement is given below, followed by four conclusions given in the options. Find out which conclusion is true based on the given statement.

Statement:  $F = U \geq P = M \leq K < W < T$

- Ans**
- ☒ A.  $M > F$
  - ☒ B.  $T < K$
  - ☒ C.  $P \geq K$
  - ☒ D.  $F \geq P$

**Q.49** Three statements are followed by three conclusions numbered I, II and III. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts. Decide which of the given conclusions logically follow(s) from the given statements.

Statements:

Some tablets are mobile phones

All mobile phones are telephones

Some laptops are tablets

Conclusions:

(I) Some laptops are mobile phones

(II) Some telephones are laptops

(III) All tablets are telephones

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Only conclusion I and III follows
  - ☒ D. None of the conclusions follow

**Q.50** Which of the following terms will replace the question mark (?) and complete the given alpha-numeric series?

25LN, 26OQ, 29RT, ? 41XZ

- Ans**
- ☒ A. 31UW
  - ☒ B. 30UV
  - ☒ C. 34UW
  - ☒ D. 34VW

**Q.51** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

25 : 49 :: 42 : 36 :: 74 : ?

- Ans**
- ☒ A. 122
  - ☒ B. 120
  - ☒ C. 118
  - ☒ D. 121

**Q.52** To reach point Q from point S, a person has to walk 83 m towards the west. He must then take a right turn and walk 240 m. He must take another right turn and walk 147 m. He must take another right turn and walk 240 m to reach the destination. How far and in which direction is point Q from point S? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 59 m, East
  - ☒ B. 59 m, West
  - ☒ C. 64 m, East
  - ☒ D. 64 m, West

**Q.53** Which of the following numbers will replace the question mark (?) in the given series?

87, 66, 53, 46, 43, ?

- Ans**
- ☒ A. 40
  - ☒ B. 41
  - ☒ C. 42
  - ☒ D. 44

**Q.54** A statement is given followed by two possible underlying assumptions I and II. Read all the information carefully and decide which of the given assumptions can be assumed by the given statement.

**Statement:**

Recent marketing trends suggest that words like 'premium', 'exquisite', 'priority' are considered prestigious by consumers of the middle income group and hence increase the chances of sale of any product advertised with these words.

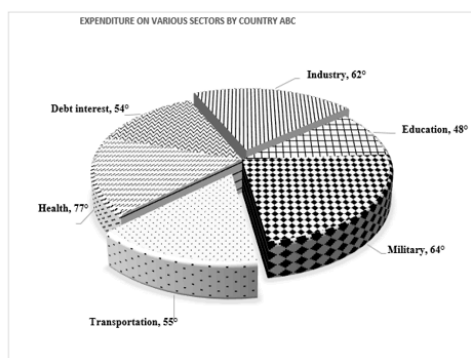
**Assumptions:**

I. The products advertised with the said 'prestigious' words definitely cost higher than those which are not advertised with such words.

II. Such prestigious words have no impact on sales among the lower income group.

- Ans**
- ☒ A. Only I can be assumed
  - ☒ B. Only II can be assumed
  - ☒ C. Both I and II can be assumed
  - ☒ D. Neither I nor II can be assumed

- Q.55** The given circle graph shows the annual spending of country 'ABC' on various sectors during a particular year (in the form of central angle). Study the circle graph and answer the question.



If the amount spent on industry and transportation during a year was \$10 million, then what was the total approximate amount spent on all the various sectors by the country in that year?

- Ans**
- ☒ A. \$20.5 million
  - ☒ B. \$50 million
  - ☒ C. \$45.5 million
  - ☒ D. \$30.8 million

#### Section : General Science

- Q.56** Consider the V-I graphs for wires of material A and material B as described below:

Material A: It is a straight line passing through origin and is inclined at  $20^\circ$  to the current I axis.

Material B: It is a straight line passing through origin and is inclined at  $60^\circ$  to the current I axis.

Which of the following options is correct?

- Ans**
- ☒ A. Both A and B follow Ohm's law.
  - ☒ B. Neither A nor B follow Ohm's law.
  - ☒ C. A follows Ohm's law but B does not.
  - ☒ D. B follows Ohm's law but A does not.
- Q.57** Propanone has \_\_\_\_\_ carbons and \_\_\_\_\_ functional group.

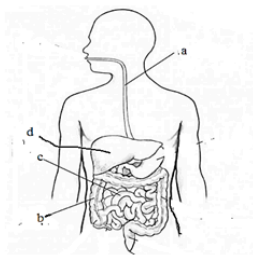
- Ans**
- ☒ A. 4, ketone
  - ☒ B. 3, ketone
  - ☒ C. 4, aldehyde
  - ☒ D. 3, aldehyde

- Q.58** Which of the following is a precipitation reaction?

- Ans**
- ☒ A.  $\text{CuSO}_4 (\text{aq}) + \text{BaCl}_2 (\text{aq}) \rightarrow \text{BaSO}_4 (\text{s}) + \text{CuCl}_2 (\text{aq})$
  - ☒ B.  $\text{Fe} (\text{s}) + \text{CuSO}_4 (\text{aq}) \rightarrow \text{FeSO}_4 (\text{aq}) + \text{Cu} (\text{s})$
  - ☒ C.  $2\text{Al}_2\text{O}_3 (\text{l}) \rightarrow 4\text{Al} (\text{l}) + 3\text{O}_2 (\text{g})$
  - ☒ D.  $\text{CuO} + \text{H}_2 \rightarrow \text{H}_2\text{O} + \text{Cu}$



- Q.59** The diagram of the human alimentary canal is given below. Select the option that shows the correct matching of Column I with Column II.



| Column I | Column II                                    |
|----------|----------------------------------------------|
| a        | i) Villi absorb water from food              |
| b        | ii) Length depends on food the organism eats |
| c        | iii) Helps in emulsification of fats         |
| d        | iv) No digestion                             |

- Ans**
- ☒ A. a-i, b-ii, c-iii, d-iv
  - ☒ B. a-ii, b-iii, c-iv, d-i
  - ☒ C. a-iii, b-ii, c-i, d-iv
  - ☒ D. a-iv, b-i, c-ii, d-iii

- Q.60** If carbon will form  $C^{4-}$ , then the number of electrons and protons in the carbon ion will be \_\_\_\_\_ and \_\_\_\_\_, respectively.

- Ans**
- ☒ A. 4; 2
  - ☒ B. 10; 6
  - ☒ C. 2; 4
  - ☒ D. 6; 10

- Q.61** A litmus paper was used to check the pH of a solution. The solution turns blue litmus red, its pH is likely to be:

- Ans**
- ☒ A. 7
  - ☒ B. 9
  - ☒ C. 8
  - ☒ D. 5

- Q.62** The radius of curvature of a concave mirror is 12 cm. Following New Cartesian Sign Convention, the principal focus is located at x = \_\_\_\_\_.

- Ans**
- ☒ A. 6 cm
  - ☒ B. 12 cm
  - ☒ C. -6 cm
  - ☒ D. -12 cm

- Q.63** Which option is correct regarding the movement of water and mineral ions in the root cells of a plant from the soil?

- Ans**
- ☒ A. Ions and water are absorbed together
  - ☒ B. Water moves in first by diffusion, followed by active transport of ions
  - ☒ C. Ions move in first by active transport, followed by water along the concentration gradient
  - ☒ D. Ions move in first by passive transport, followed by water by active transport

**Q.64** A chemical that contributes to the depletion of the ozone layer is:

- Ans**
- ✓ A. chlorofluorocarbon
  - ✗ B. carbon tetrachloride
  - ✗ C. methane
  - ✗ D. phosphorus pentoxide

**Q.65** Which of the following statements is NOT a myth?

- Ans**
- ✗ A. If a girl looks at boys while menstruating, she becomes pregnant.
  - ✗ B. The mother is ultimately accountable for her child's sexual orientation.
  - ✗ C. During menstruation, a girl should not be permitted to work in the kitchen.
  - ✓ D.

Foods like chips and canned snacks are low in nutrition and should be avoided during adolescence/reproductive phase

**Q.66** The refractive indices of mediums 1, 2 and 3 are 1.46, 1.65 and 1.31, respectively. If the speed of light in the mediums are  $v_1$ ,  $v_2$  and  $v_3$ , respectively, which of the following relations between them is correct?

- Ans**
- ✗ A.  $v_1 = v_2 = v_3$
  - ✗ B.  $v_1 > v_2 > v_3$
  - ✗ C.  $v_2 > v_3 > v_1$
  - ✓ D.  $v_3 > v_1 > v_2$

**Q.67** Some functions of lymph are given below. Select the option with the correct functions.

- a) Carries digested and absorbed fat from intestine
- b) Carries  $\text{CO}_2$  to lungs
- c) Carries RBCs to the lymph nodes
- d) Drains excess fluid from extracellular space back into blood

- Ans**
- ✗ A. a and b
  - ✗ B. b and c
  - ✗ C. c and d
  - ✓ D. a and d

**Q.68** The valency of group 17 elements will be:

- Ans**
- ✓ A. 1
  - ✗ B. 2
  - ✗ C. 5
  - ✗ D. 8

**Q.69** If any person is affected by a bee-sting attack, which chemical would be helpful for him to get some relief from pain?

- Ans**
- ✗ A. Curd
  - ✗ B. Common salt
  - ✓ C. Baking soda
  - ✗ D. Vinegar

**Q.70** In an electric generator, \_\_\_\_\_ energy is used to rotate a conductor in a \_\_\_\_\_ field to produce electricity.

- Ans**
- ☒ A. electrical, electric
  - ☒ B. electrical, magnetic
  - ☒ C. mechanical, magnetic
  - ☒ D. mechanical, electric

**Q.71** Which of the following elements has valency 3?

- Ans**
- ☒ A. Mg
  - ☒ B. S
  - ☒ C. Al
  - ☒ D. C

**Q.72** A 1100 W electric toaster operates at 220 V. The resistance of its coil is:

- Ans**
- ☒ A. 11  $\Omega$
  - ☒ B. 22  $\Omega$
  - ☒ C. 44  $\Omega$
  - ☒ D. 88  $\Omega$

**Q.73** The focus of a concave mirror is at a distance of 16 cm from its pole. Its centre of curvature will be at a distance of \_\_\_\_\_ from the pole.

- Ans**
- ☒ A. 8 cm
  - ☒ B. 16 cm
  - ☒ C. 24 cm
  - ☒ D. 32 cm

**Q.74** Some of the advantages of transpiration to plants are mentioned below. Select the option that is a disadvantage.

- Ans**
- ☒ A. Provides water to leaf for photosynthesis
  - ☒ B. Helps in transporting mineral ions
  - ☒ C. causes cooling of plants by evaporation
  - ☒ D. can cause wilting of plants

**Q.75** Consider the following statements about an electric motor:

- (a) An electric motor uses split rings.
- (b) The direction of the force on the motor's coil can be found using Fleming's right-hand rule.

Which of the above statements is/are correct?

- Ans**
- ☒ A. Only (a)
  - ☒ B. Only (b)
  - ☒ C. Both (a) and (b)
  - ☒ D. Neither (a) nor (b)

**Q.76** A nichrome wire AB is made of three parts, AC, CD and DB of resistances in the ratio of 1 : 2 : 3. The wire is connected to a battery. If  $V_1$ ,  $V_2$  and  $V_3$  are the potential drops across AC, CD and DB, respectively, then which of the following is correct?

- Ans**
- ✓ **A.**  $V_1 : V_2 : V_3 = 1 : 2 : 3$
  - ✗ **B.**  $V_1 : V_2 : V_3 = 2 : 3 : 1$
  - ✗ **C.**  $V_1 : V_2 : V_3 = 3 : 2 : 1$
  - ✗ **D.**  $V_1 : V_2 : V_3 = 1 : 1 : 1$

**Q.77** Which of the following is/are advantage(s) of building dams?

- i) Stores water for irrigation
- ii) No equitable distribution of water
- iii) Stores water for generating electricity
- iv) Canals from dams help in transferring water to great distances
- v) Benefits only to a few people

- Ans**
- ✗ **A.** Only ii
  - ✓ **B.** i, iii and iv
  - ✗ **C.** Only v
  - ✗ **D.** ii and v

**Q.78** The refractive indices of ice and glass are 1.31 and 1.52, respectively. A ray of light passes from ice to glass. The refractive index of glass with respect to ice is \_\_\_\_\_ and the ray bends \_\_\_\_\_ the normal in glass.

- Ans**
- ✗ **A.** 0.86, towards
  - ✗ **B.** 0.86, away from
  - ✓ **C.** 1.16, towards
  - ✗ **D.** 1.16, away from

**Q.79** Which of the following is NOT a part of the female reproductive system?

- Ans**
- ✗ **A.** Ovaries
  - ✗ **B.** Uterus
  - ✓ **C.** Urethra
  - ✗ **D.** Fallopian tubes

**Q.80** Consider the below statements and identify the correct answer.

Statement-I: Sodium hydroxide is prepared by chlor-alkali process.

Statement-II: Three products chlorine gas, hydrogen gas and sodium hydroxide are produced in this process.

- Ans**
- ✓ **A.** Both the statements are true.
  - ✗ **B.** Both the statements are false.
  - ✗ **C.** Statement-I is true, and Statement-II is false.
  - ✗ **D.** Statement-II is true, and Statement-I is false.

**Q.81** Which of the following languages has NOT been mentioned in the 8<sup>th</sup> Schedule of the Indian Constitution?

- Ans**
- ☐ A. Maithili
  - ☐ B. Odia
  - ☐ C. Dogri
  - ☒ D. Awadhi

**Q.82** Who is the Chairman of Rajya Sabha? (As of August 12, 2022)?

- Ans**
- ☐ A. Shri Rajnath Singh
  - ☐ B. Shri Om Birla
  - ☐ C. Shri Harivansh
  - ☒ D. Shri Jagdeep Dhankhar

**Q.83** Which was the first state of India to adopt the Panchayati Raj system in the year 1959?

- Ans**
- ☐ A. Karnataka
  - ☒ B. Rajasthan
  - ☐ C. Odisha
  - ☐ D. Bihar

**Q.84** The Khelo India University Games 2021 was organised in \_\_\_\_\_.

- Ans**
- ☐ A. Patna
  - ☒ B. Bengaluru
  - ☐ C. Jaipur
  - ☐ D. Hyderabad

**Q.85** The prayers on \_\_\_\_\_ are supposed to be in the community mosque, and are known as the Jumma Namaz.

- Ans**
- ☐ A. Tuesday
  - ☐ B. Wednesday
  - ☐ C. Thursday
  - ☒ D. Friday

**Q.86** In May 2021, who was appointed as the Head Coach of Indian Women's National Cricket Team?

- Ans**
- ☐ A. Woorkeri Raman
  - ☒ B. Ramesh Powar
  - ☐ C. Rahul Dravid
  - ☐ D. Gary Kirsten

**Q.87** Which of the following was declared a Fundamental Right in 2017 by the Supreme Court of India?

- Ans**
- ☐ A. Right against Exploitation
  - ☐ B. Right to Freedom of Religion
  - ☒ C. Right to Privacy
  - ☐ D. Right to Constitutional Remedies

**Q.88** When is the primary deficit zero in the Government of India budget?

- Ans**
- ☒ A. When the revenue deficit is zero
  - ☒ B. When the net interest payments is equal to the revenue deficit
  - ☒ C. When the fiscal deficit is equal to the interest payment
  - ☒ D. When the fiscal deficit is equal to the revenue deficit

**Q.89** Which of the following journals was published for the purpose of social-religious reforms among the Parsis in 1851?

- Ans**
- ☒ A. Bombay Herald
  - ☒ B. Somaprakash
  - ☒ C. Bombay Post
  - ☒ D. Rast Goftar

**Q.90** India Plastics Pact, a joint initiative between which trade organisation and World-Wide Fund for Nature-India (WWF India), was launched in September 2021?

- Ans**
- ☒ A. Indian Association of Amusement Parks and Industries
  - ☒ B. Cellular Operators Association of India
  - ☒ C. Confederation of Indian Industry
  - ☒ D. Engineering Exports Promotion Council

**Q.91** \_\_\_\_\_ is the first 'Made in India' Petascale Supercomputer installed at IIT Roorkee under the National Supercomputing Mission (NSM) in 2022.

- Ans**
- ☒ A. PARAM Ganga
  - ☒ B. PARAM Siddhi-AI
  - ☒ C. PARAM Pravega
  - ☒ D. PARAM seva

**Q.92** The maximum concentration of iron and steel industry is found in which region in India from following?

- Ans**
- ☒ A. Malwa Plateau
  - ☒ B. Chhotanagpur plateau
  - ☒ C. Bundelkhand Plateau
  - ☒ D. Baghelkhand Plateau

**Q.93** What is the age group of the people benefitted under the Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY) (As of July 2022)?

- Ans**
- ☒ A. 18 to 50 years
  - ☒ B. 15 to 60 years
  - ☒ C. 25 to 60 years
  - ☒ D. 14 to 50 years

**Q.94** As per the Union Budget of India 2022-23, how many kilometres wide corridor will be formed along the river Ganga for promotion of chemical free natural farming?

- Ans**
- ☒ A. 2.5 km
  - ☒ B. 5 km
  - ☒ C. 7.5 km
  - ☒ D. 10 km



**Q.95** What kind of anti-viral face mask was being developed under the 'Nano mission project' to fight against the Covid-19 pandemic in February 2022?

- Ans**
- ☒ A. Non-biodegradable anti-viral face mask
  - ☒ B. Copper-based nanoparticle coated anti-viral face mask
  - ☒ C. Self-disinfecting, non-biodegradable face mask
  - ☒ D. Biodegradable but non-washable anti-viral face mask

**Q.96** Through which of the following places does the Standard Meridian of India pass?

- Ans**
- ☒ A. Jaunpur
  - ☒ B. Mirzapur
  - ☒ C. Kannauj
  - ☒ D. Agra

**Q.97** Which is the most commonly used measure for the size of the economy?

- Ans**
- ☒ A. Net domestic product (NDP)
  - ☒ B. Gross domestic product (GDP)
  - ☒ C. Gross Net product (GNP)
  - ☒ D. Nation Net product (NNP)

**Q.98** In Which state of India experiences winter rainfall due to retreating monsoon?

- Ans**
- ☒ A. Gujarat
  - ☒ B. Madhya Pradesh
  - ☒ C. West Bengal
  - ☒ D. Tamil Nadu

**Q.99** In which one of the following regions will you find 'Bari Doab'?

- Ans**
- ☒ A. Between Beas and Sutlej
  - ☒ B. Between Beas and Ravi
  - ☒ C. Between Ravi and Chenab
  - ☒ D. Between Chenab and Jhelum

**Q.100** Which of the following festivals is associated with the state of Assam?

- Ans**
- ☒ A. Bihu
  - ☒ B. Pongal
  - ☒ C. Onam
  - ☒ D. Baisakhi



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 30/08/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

## Section : Mathematics

**Q.3** Find the volume of a cylinder whose radius of base is 5 cm and height is 7 cm.

- Ans**
- ☐ A.  $517\pi \text{ cm}^3$
  - ☐ B.  $715\pi \text{ cm}^3$
  - ☒ C.  $175\pi \text{ cm}^3$
  - ☐ D.  $157\pi \text{ cm}^3$

**Q.22** A pair of parallel lines is intersected by a transversal such that  $\angle 1$  and  $\angle 2$  form a pair of alternate interior angles. If  $m\angle 1 = 35^\circ$ , what is the measure of  $\angle 2$ ?

- Ans**
- ☐ A.  $145^\circ$
  - ☐ B.  $55^\circ$
  - ☒ C.  $35^\circ$
  - ☐ D.  $65^\circ$

**Q.25** If the ratio of two interior angles on the same side of a transversal line intersecting the two parallel lines is 3 : 7, then what is the positive difference between the measures of these two interior angles?

- Ans**
- ☐ A.  $54^\circ$
  - ☐ B.  $64^\circ$
  - ☒ C.  $72^\circ$
  - ☐ D.  $80^\circ$

## Section : General Intelligence and Reasoning

**Q.41** Study the given letter series and answer the question that follows.

LEAPKXOZMTYWUDQFH

Which set of 3 letters will fall exactly in the middle of the series if the letters are arranged in alphabetical order?

- Ans**
- ☐ A. LMO
  - ☒ B. MOP
  - ☐ C. OPQ
  - ☐ D. PQT



**Q.51** If each of the digits in the number 684912753 is arranged in ascending order from left to right, the position of how many digits will remain unchanged as compared to that in the original number?

- Ans** ☒ A. 1  
☐ B. 2  
☐ C. 3  
☐ D. 4

**Q.52** In a code language, 'we prefer green' is written as 'yo ha ni', 'green peas grow' is written as 'ki mi yo', and 'we grow herbs' is written as 'zu ha mi'. What is the code for the word 'prefer' in that language?

- Ans** ☒ A. ni  
☐ B. yo  
☐ C. mi  
☐ D. ha

**Q.53** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

**Statements:**

All fingers are thumbs.

Some thumbs are trees.

Some angles are trees.

**Conclusions:**

- I. Some angles are thumbs.  
II. Some trees are fingers.

- Ans** ☐ A. Only conclusion I follows  
☐ B. Only conclusion II follows  
☐ C. Either conclusion I or II follows  
☒ D. Neither conclusion I nor II follows

**Q.54** Three statements are followed by three conclusions numbered I, II and III. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts. Decide which of the given conclusions logically follow(s) from the given statement.

**Statements:**

All hats are caps

All caps are gloves

Some hats are goggles

**Conclusions:**

- (I) Some goggles are caps  
(II) Some gloves are goggles  
(III) No goggle is a glove

- Ans** ☒ A. Only conclusions I and II follow  
☐ B. Only conclusions II and III follow  
☐ C. Only conclusion I and III follows  
☐ D. None of the conclusions follow

Section : General Science

**Q.56** The number of valence electrons in a group \_\_\_\_\_ when we are moving down.

- Ans**
- ☒ A. increases
  - ☒ B. decreases
  - ☒ C. remains constant
  - ☒ D. first increases, then decreases

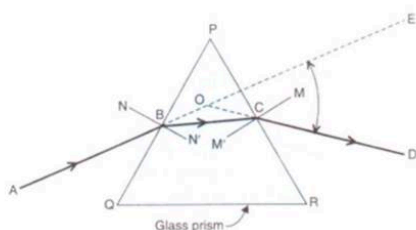
**Q.59** In which of the following groups do all the hydrocarbons NOT belong to the same homologous series?

- Ans**
- ☒ A.  $C_2H_4$ ,  $C_3H_6$ ,  $C_4H_8$
  - ☒ B.  $CH_4$ ,  $C_2H_6$ ,  $C_3H_6$
  - ☒ C.  $C_3H_6$ ,  $C_5H_{10}$ ,  $C_7H_{14}$
  - ☒ D.  $C_2H_2$ ,  $C_3H_4$ ,  $C_4H_6$

**Q.60** An object is placed in front of a concave mirror at a distance thrice its focal length ( $3f$ ). The image is formed at:

- Ans**
- ☒ A. C
  - ☒ B. a point between F and C
  - ☒ C. a point beyond C
  - ☒ D. a point behind the mirror

**Q.62** The figure below shows the path of a ray of light through a triangular glass prism. The angle of incidence and angle of deviation in the respective order are given by:



- Ans**
- ☒ A.  $\angle ABN$  and  $\angle EOD$
  - ☒ B.  $\angle ABN$  and  $\angle OBC$
  - ☒ C.  $\angle ABC$  and  $\angle EOD$
  - ☒ D.  $\angle NBC$  and  $\angle MCD$

**Q.64** Two coils, A and B, such that A is connected to a battery through a key and B is connected to a galvanometer, are arranged parallel and close to each other. During which of the following duration will the phenomenon of electromagnetic induction be observed?

- (a) During the time the key is closed.
- (b) Two minutes after the key is closed.

- Ans**
- ☒ A. Only (a)
  - ☒ B. Only (b)
  - ☒ C. Both (a) and (b)
  - ☒ D. Neither (a) nor (b)

**Q.65** When an acid is allowed to react with a base to form salt and water, this chemical reaction is named as:

- Ans**
- ☒ A. acid-base reaction
  - ☒ B. neutralisation reaction
  - ☒ C. redox reaction
  - ☒ D. combination reaction

**Q.66** Washing soda is \_\_\_\_\_ in nature.

- Ans**
- ☒ A. acidic
  - ☒ B. basic
  - ☒ C. edible
  - ☒ D. sour

**Q.67** The focal length of a concave mirror is 24 cm. Following New Cartesian Sign Convention, its centre of curvature is located at:

- Ans**
- ☒ A. -24 cm
  - ☒ B. 24 cm
  - ☒ C. -48 cm
  - ☒ D. 48 cm

**Q.68** In animals such as snails, individuals can change their sex. What does this signify?

- Ans**
- ☒ A. Sex is determined by genes.
  - ☒ B. Sex is determined by temperature.
  - ☒ C. Sex is not genetically determined.
  - ☒ D. Sex may be determined by any of the environmental factor.

**Q.69** Olfactory receptors aid in \_\_\_\_\_ perception.

- Ans**
- ☒ A. taste
  - ☒ B. smell
  - ☒ C. touch
  - ☒ D. sound

**Q.70** A current of 0.2 A is maintained in a resistor of 10  $\Omega$ . The heat produced in the resistor in 1 second is:

- Ans**
- ☒ A. 0.2 J
  - ☒ B. 0.4 J
  - ☒ C. 25 J
  - ☒ D. 50 J

**Q.71** Consider the following statements about magnetic field due to a bar magnet:

- (a) The field lines inside a bar magnet are directed from its south pole to the north pole.
- (b) The magnetic field lines exist only outside the bar magnet.

Which of the above statements is/are correct?

- Ans**
- ☒ A. Both (a) and (b)
  - ☒ B. Neither (a) nor (b)
  - ☒ C. Only (a)
  - ☒ D. Only (b)

**Q.74** Which of the following was the main drawback of the Doberiner's triads?

- Ans**
- ☒ A. He found some periodicity in the properties of triads.
  - ☒ B. The elements of a triad have some similarities in their properties.
  - ☒ C. He was unable to make more than three triads of the elements.
  - ☒ D. He arranged three element according to their increasing atomic mass.

**Q.75** How is the chromosome number maintained from one generation to another in sexually reproducing organisms?

- Ans**
- ☒ A. Doubling of chromosomes during zygote formation
  - ☒ B. Halving of chromosomes during gamete formation
  - ☒ C. Doubling of chromosomes during gamete formation
  - ☒ D. Halving of chromosomes during zygote formation

**Q.77** Which of the following are uses of bleaching powder?

- (i) For disinfecting drinking water supply.
- (ii) For the manufacture of chloroform.
- (iii) For making wool unshrinkable.

- Ans**
- ☒ A. i, ii and iii
  - ☒ B. i and ii
  - ☒ C. i and iii
  - ☒ D. ii and iii

**Q.78** The power of a lens is  $-5\text{ D}$ . Its focal length is:

- Ans**
- ☒ A. 50 cm
  - ☒ B.  $-50\text{ cm}$
  - ☒ C. 20 cm
  - ☒ D.  $-20\text{ cm}$

**Q.79** Identify the FALSE statement.

- Ans**
- ☒ A. Photosynthesis produces oxygen as a by-product.
  - ☒ B. Transpiration is the mechanism by which a plant eliminates surplus water.
  - ☒ C. Numerous waste products from plants are stored in centrioles.
  - ☒ D. Gum is an excretory product of plants.

**Q.80** In most of the vertebrate groups, there is double circulation of blood. However, one of the groups is an exception. Identify the group from the options below.

- Ans**
- ☒ A. Amphibians
  - ☒ B. Aves
  - ☒ C. Reptiles
  - ☒ D. Pisces

**Q.81** Which of the following is FALSE regarding the unitary features of the Indian Constitution?

- Ans**
- ☒ A. Strong centre
  - ☒ B. All India services
  - ☒ C. No equality of representation
  - ☒ D. No flexibility of constitution

**Q.84** In November 2021, which of the following programmes or schemes launched India's first virtual science lab for children, connecting students with scientists across the country?

- Ans**
- ☒ A. CSIR Jigyasa
  - ☒ B. National Education Alliance for Technology
  - ☒ C. Kushal Bharat
  - ☒ D. Youth Undertaking Visit for Acquiring Knowledge (YUVAK)

**Q.86** Hardy shrubs and trees that thrive in salt water and have specialised adaptations so that they can survive the volatile energies of intertidal zones along marine coasts are characteristics of \_\_\_\_\_ forests.

- Ans**
- ☒ A. Dry Deciduous
  - ☒ B. Tropical Evergreen
  - ☒ C. Mangrove
  - ☒ D. Dry and Thorny

**Q.90** Which of the following is true for Aggregate Demand (AD)?

- Ans**
- ☒ A.  $AD = C + I - G$
  - ☒ B.  $AD = C + S + I + G$
  - ☒ C.  $AD = S + I - G$
  - ☒ D.  $AD = C + I + G$

**Q.92** Preventive detention is part of which Article in the Indian Constitution?

- Ans**
- ☒ A. 22
  - ☒ B. 25
  - ☒ C. 26
  - ☒ D. 28

**Q.97** In March 2022, National Informatics Centre (NIC) organised Tech Conclave 2022 specially focused on emerging technologies applied in e-Governance. What is the theme of that event?

- Ans**
- ☒ A. Next-Gen Technologies for Digital Government
  - ☒ B. Technologies for Next-Gen Governance
  - ☒ C. Technologies for Upskilling government
  - ☒ D. Next-Gen Skill Technologies for Digitisation of Government

**Q.98** Which of the following is equal to primary deficit?

- Ans**
- ☒ A. Fiscal deficit plus interest payment
  - ☒ B. Fiscal deficit minus interest payment
  - ☒ C. Revenue deficit plus interest payment
  - ☒ D. Revenue deficit minus interest payment



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 30/08/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** Find the volume of a sphere whose diameter is 42 m.

- Ans**
- ✓ A.  $38,808 \text{ m}^3$
  - ✗ B.  $23,437 \text{ m}^3$
  - ✗ C.  $13,416 \text{ m}^3$
  - ✗ D.  $42,137 \text{ m}^3$

**Q.2** Aditya and Bhaskar undertake to do a piece of work for ₹15,000. Aditya alone can do it in 15 days while Bhaskar alone can do it in 18 days. With the help of Chandra, they finish it in 6 days. What is Chandra's share?

- Ans**
- ✓ A. ₹4,000
  - ✗ B. ₹5,000
  - ✗ C. ₹6,000
  - ✗ D. ₹7,000

**Q.3** Two trains start from P and Q, respectively, at the same time and run towards each other at a speed of 40 km/h and 30 km/h, respectively. By the time they meet, the first train has covered 80 km more than the other train. Find the distance between P and Q.

- Ans**
- ✓ A. 560 km
  - ✗ B. 630 km
  - ✗ C. 660 km
  - ✗ D. 240 km

**Q.4** If 7, 12, 21 and x are in proportion, the value of x is:

- Ans**
- ✗ A. 27
  - ✗ B. 35
  - ✗ C. 24
  - ✓ D. 36



**Q.5** If X represents the smallest prime number multiplied by 4 and added to the least common multiple of 5 and 10; Y represents the smallest odd prime number multiplied by 5 and added to the 2<sup>nd</sup> smallest odd prime, then which of the following is true?

- Ans**
- ☐ A. X is greater than Y.
  - ☐ B.  $X + Y = 10$ .
  - ☐ C. X and Y are equal.
  - ☒ D. The difference of Y and X is 2.

**Q.6** The owner loses 20% when he sells a plot for ₹19,50,000. At what price must he sell the plot in order to gain a profit of 20%?

- Ans**
- ☐ A. ₹21,00,000
  - ☐ B. ₹22,50,000
  - ☐ C. ₹25,95,000
  - ☒ D. ₹29,25,000

**Q.7** If the HCF and LCM of two numbers are 7 and 245, respectively, then their product is:

- Ans**
- ☒ A. 1715
  - ☐ B. 1517
  - ☐ C. 1175
  - ☐ D. 1751

**Q.8** The average of ten numbers is 8. If each number is divided by 2, then find the average of the new set of numbers.

- Ans**
- ☐ A. 8
  - ☐ B. 6
  - ☒ C. 4
  - ☐ D. 10

**Q.9** If the volume of a cylinder is  $256\pi \text{ cm}^3$  and the radius of its base is 8 cm, then find the height of the cylinder.

- Ans**
- ☐ A. 3 cm
  - ☒ B. 4 cm
  - ☐ C. 5 cm
  - ☐ D. 6 cm

**Q.10** A trader owes a merchant ₹10,500 due in one year. The trader wants to settle the account after four months. If the rate of interest is 6% per annum, then how much should he pay (rounded off value)?

- Ans**
- ☐ A. ₹ 11,096
  - ☐ B. ₹ 10,069
  - ☐ C. ₹ 11,069
  - ☒ D. ₹ 10,096

**Q.11** The value of  $\tan \theta + \frac{1}{\tan \theta}$  is:

- Ans**
- ☐ A.  $\cos \theta \sec \theta$
  - ☒ B.  $\operatorname{cosec} \theta \sec \theta$
  - ☐ C.  $\operatorname{cosec} \theta \sin \theta$
  - ☐ D.  $\operatorname{cosec} \theta \cot \theta$



Q.12 The value of  $\sqrt{1.0201} =$

- Ans
- ☐ A. 10.1
  - ☒ B. 1.01
  - ☐ C. 1.02
  - ☐ D. 101

Q.13 One-third of a certain distance was covered by a car at a speed of 30 km/h and the remaining distance was covered by the car at 20 km/h. How much distance was covered by the car in 4 hours?

- Ans
- ☐ A. 30 km
  - ☐ B. 60 km
  - ☒ C. 90 km
  - ☐ D. 95 km

Q.14 Simplify:  $x^3 - 3x^2 + 9x - 12 - x^3 - 7x^2 - 8x - 16$ .

- Ans
- ☐ A.  $10x^2 - x - 28$
  - ☐ B.  $-10x^2 + x + 28$
  - ☐ C.  $10x^2 + x - 28$
  - ☒ D.  $-10x^2 + x - 28$

Q.15 Find the sum of the roots of  $\sqrt{2}x^2 - 2\sqrt{5}x + \sqrt{3} = 0$ .

- Ans
- ☐ A.  $-2\sqrt{5}$
  - ☒ B.  $\sqrt{10}$
  - ☐ C.  $5\sqrt{2}$
  - ☐ D.  $-\sqrt{10}$

Q.16 Which of the following is NOT a property of similar triangles?

- Ans
- ☐ A. Ratio of areas of two similar triangles = Ratio of squares of corresponding altitudes
  - ☐ B. Ratio of areas of two similar triangles = Ratio of squares of corresponding medians
  - ☐ C. Ratio of areas of two similar triangles = Ratio of squares of corresponding segments obtained by corresponding angle bisectors.
  - ☒ D. Ratio of areas of two similar triangles = Ratio of corresponding segments obtained by corresponding angle bisectors.

Q.17 For which positive value of b does the equation  $x^2 + bx + 9 = 0$  have equal roots?

- Ans
- ☐ A. 2
  - ☐ B. 3
  - ☐ C. 4
  - ☒ D. 6

Q.18 Geetha, Latha and Madhuri's ages are in the ratio 5 : 6 : 3. If their average age is 42 years, then find Latha's age.

- Ans
- ☐ A. 35 years
  - ☐ B. 27 years
  - ☐ C. 45 years
  - ☒ D. 54 years

**Q.19** In a parallelogram PQRS, the bisectors of consecutive angles of P and Q intersect at T. What is the measure of  $\angle PTQ$ ?

- Ans**
- ☐ A.  $50^\circ$
  - ☐ B.  $80^\circ$
  - ☐ C.  $70^\circ$
  - ☒ D.  $90^\circ$

**Q.20**  $\frac{a^{10} \times b^{-7} \times c^{-4}}{a^{-5} \times b^2 \times c^5}$  in simplified form is:

- Ans**
- ☒ A.  $a^{15} \times b^{-9} \times c^{-9}$
  - ☐ B.  $a^{15} \times b^9 \times c^9$
  - ☐ C.  $a^5 \times b^9 \times c^{-9}$
  - ☐ D.  $a^5 \times b^{-9} \times c^{-9}$

**Q.21** The value of  $121.12 \times 0.121$  is:

- Ans**
- ☐ A. 146.5552
  - ☐ B. 1.465552
  - ☒ C. 14.65552
  - ☐ D. 1465.552

**Q.22** A vessel is one-fourth full of water. After adding 10 cups of water to it, the vessel gets three-fourth full. Find the capacity of the vessel in cups.

- Ans**
- ☒ A. 20
  - ☐ B. 22
  - ☐ C. 25
  - ☐ D. 27

**Q.23** The marked price of an article is ₹1,200. The shopkeeper offered two successive discounts of 10% and 5% respectively to a customer. At what price did the customer purchase the article?

- Ans**
- ☐ A. ₹1,062
  - ☐ B. ₹1,206
  - ☒ C. ₹1,026
  - ☐ D. ₹1,602

**Q.24** Find Compound Interest on ₹11,000 in 2 years at 4% p.a., interest compounded yearly.

- Ans**
- ☐ A. ₹906.50
  - ☐ B. ₹786.60
  - ☒ C. ₹897.60
  - ☐ D. ₹875.80

**Q.25** For what value of  $k$  do the pair of linear equations  $2x + 3y - 1 = 0$  and  $4x + ky + 2 = 0$  have no solution?

- Ans**
- ☒ A. 6
  - ☐ B. 5
  - ☐ C. 4
  - ☐ D. 3

- Q.26** The given table shows the number of candidates who appeared for the interview and the number of candidates who got selected for the post of Assistant Professor in XYZ university, from different states over the years. Study the table and answer the question.

| Year \ State | 2020        |          | 2021        |          | 2022        |          |
|--------------|-------------|----------|-------------|----------|-------------|----------|
|              | Interviewed | Selected | Interviewed | Selected | Interviewed | Selected |
| A            | 1200        | 800      | 1500        | 700      | 1800        | 1000     |
| B            | 1500        | 600      | 1600        | 800      | 2000        | 1120     |
| C            | 2000        | 680      | 2200        | 900      | 1800        | 1100     |
| D            | 1600        | 700      | 1500        | 950      | 1800        | 1200     |
| E            | 1500        | 490      | 1100        | 400      | 1300        | 800      |

In the year 2020, the total number of candidates who got selected from different states is approximately what percentage of the total number of candidates who appeared for the interview from different states in the same year?

- Ans**
- ☒ A. 45.5%
  - ☒ B. 55%
  - ☒ C. 50%
  - ☒ D. 41.9%

- Q.27** C, J, H, Q and W contested in an election and each of them got different number of votes. H got more votes than J but less than W. W got less votes than only one person. C got the least number of votes. Who among the following got the highest number of votes?

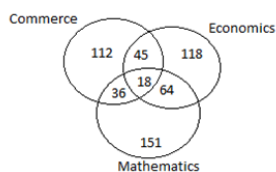
- Ans**
- ☒ A. Q
  - ☒ B. H
  - ☒ C. J
  - ☒ D. W

- Q.28** B, C, D, E, F and G are six team members who joined a team on different days of the same month, viz. 2nd, 4th, 5th, 8th, 10th and 11th of January.

C joined on one of the days before F, E and G. B joined immediately before F. D joined immediately before C. E joined on one of the days after B and before G. Who joined the team on 10th of January?

- Ans**
- ☒ A. F
  - ☒ B. G
  - ☒ C. B
  - ☒ D. E

- Q.29** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of students enrolled in different programmes in a university.



How many students are enrolled in both commerce and economics but NOT mathematics?

- Ans**
- ☒ A. 18
  - ☒ B. 63
  - ☒ C. 45
  - ☒ D. 56

**Q.30** Seven teachers A, B, C, D, E, F and G are sitting in a straight row, facing north. Only one person sits to the left of G. Only E sits between C and F. A sits to the immediate right of D. F and D are immediate neighbours. Who sits at the extreme left end of the row?

**Ans** ☒ A. A  
☒ B. B  
☒ C. C  
☒ D. D

**Q.31** Three statements are followed by three conclusions numbered I, II and III. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts. Decide which of the given conclusions logically follow(s) from the given statement.

Statements:

Few envelopes are papers

All papers are pulps

All pulps are leaves

Conclusions:

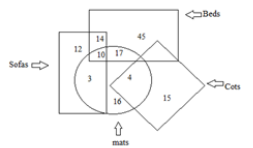
(I) Some leaves are papers

(II) Some pulps are papers

(III) All papers are leaves

**Ans** ☒ A. Only conclusion I follows  
☒ B. Only conclusion II follows  
☒ C. Only conclusion I and III follows  
☒ D. All conclusions I, II and III follow

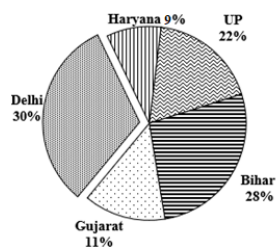
**Q.32** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of units.



How many such sofas are there that are either beds or mats but not both?

**Ans** ☒ A. 22  
☒ B. 12  
☒ C. 17  
☒ D. 10

- Q.33** The given pie-chart shows the percentage distribution of the number of people from different provinces migrating to USA upon getting their Green Card. Study the pie-chart and answer the question.



What is the central angle of the sector corresponding to the number of people migrating from Delhi?

- Ans**
- ☒ A.  $32.4^\circ$
  - ☒ B.  $100.8^\circ$
  - ☒ C.  $40^\circ$
  - ☒ D.  $108^\circ$

- Q.34** In this question, a group of letters is coded using numbers as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Letter/<br>Symbol | I | M | H | R | D | C | E | V |
|-------------------|---|---|---|---|---|---|---|---|
| Code              | 4 | 8 | 0 | 1 | 3 | 5 | 7 | 9 |

Conditions:

- (i) If the first element is a vowel and the last, a consonant, the codes for these two (the first and the last elements) are to be interchanged.
- (ii) If the first element is a consonant and the last, an vowel, the first and last elements are to be coded as 2.
- (iii) If the middle letter is a vowel, then it is to be coded as 6.

Question: DRIVE

- Ans**
- ☒ A. 21492
  - ☒ B. 31679
  - ☒ C. 21692
  - ☒ D. 31967

- Q.35** The position of how many letters will remain unchanged if each of the letters in the word 'CONFIRM' is arranged in alphabetical order?

- Ans**
- ☒ A. None
  - ☒ B. One
  - ☒ C. Two
  - ☒ D. Three

- Q.36** The position of how many letters will remain unchanged if each of the letters in the word COMPUTE is arranged in alphabetical order?

- Ans**
- ☒ A. None
  - ☒ B. One
  - ☒ C. Two
  - ☒ D. Three

- Q.37** Which of the following interchanges of signs would make the given equation correct?

$$4 - 10 \div 8 + 3 \times 2 = 6$$

- Ans**
- ☒ A.  $\times, +$
  - ☒ B.  $\div, \times$
  - ☒ C.  $\div, -$
  - ☒ D.  $\times, -$

**Q.38** Which of the following numbers will replace the question mark (?) in the given series?

65, 90, 107, 116, 121, ?

**Ans** ✓ A. 122

✗ B. 123

✗ C. 124

✗ D. 125

**Q.39** Starting from point X, Aditya walked 30 m towards the south. He then took a left turn and walked 20 m. Then, he took a right turn and walked 10 m. He then took another right turn and walked 40 m. Finally, he took one last right turn and walked another 40 m to reach point Y. How far and in which direction is point X from point Y? (All turns are 90 degree turns only)

**Ans** ✓ A. 20 m, East

✗ B. 20 m, West

✗ C. 40 m, East

✗ D. 40 m, West

**Q.40** A certain number of people are sitting in a row, facing north. Only P sits to the left of Q. Only three people sit between T and R. Only three people sit between Q and R. S sits to the immediate right of R. P sits at one of the extreme ends of the row. If no other person is sitting in the row, what is the total number of persons seated?

**Ans** ✗ A. 7

✗ B. 8

✗ C. 9

✓ D. 10

**Q.41** Jaya, from point A, walks 349 m towards the south. She takes a left turn and walks 129 m. She takes a left turn again and walks 349 m. She then takes a right turn and walks 94 m to reach point B. How far and in which direction is point A from point B? (All turns are 90 degree turns only)

**Ans** ✗ A. 110 m, East

✗ B. 203 m, East

✗ C. 129 m, West

✓ D. 223 m, West

**Q.42** In a certain code language, 'SUPERIOR' is written as 'SNHSDQTT' and 'STUNNING' is written as 'HOHOOTUT'. How will 'STRATEGY' be written in that language?

**Ans** ✗ A. TUSZUDHZ

✗ B. ZH DUASUT

✓ C. ZH DUZSUT

✗ D. ZHCUZSUT

**Q.43** Based on the given statement, four conclusions are drawn. Find out which conclusion is true based on the statement.

Statement:  $M \geq D \leq N < J < F = E$

**Ans** ✗ A.  $M > N$

✗ B.  $F < M$

✓ C.  $N < E$

✗ D.  $E = D$

**Q.44** How will quarter past 4 be indicated in the 24-hour format?

- Ans**
- ☐ A. 14:45 hours
  - ☐ B. 14:15 hours
  - ☒ C. 16:15 hours
  - ☐ D. 16:45 hours

**Q.45** A statement is given followed by two possible underlying assumptions I and II. Read all the information carefully and decide which of the given assumptions can be assumed by the given statement.

**Statement:**

"If we promote our play in all the local newspapers before the end of this week, we will sell more tickets for our play this weekend." — play director in City D.

**Assumptions:**

- I. The newspaper companies in City D take less than a week to finalise advertisements and publish them.
- II. Not many people in City D prefer watching plays.

- Ans**
- ☒ A. Only I can be assumed
  - ☐ B. Only II can be assumed
  - ☐ C. Both I and II can be assumed
  - ☐ D. Neither I nor II can be assumed

**Q.46** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

LUN : PXP

WXP : AAR

- Ans**
- ☐ A. JUG : NYJ
  - ☐ B. TIN : XLQ
  - ☐ C. NOT : RQV
  - ☒ D. NIB : RLD

**Q.47** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding / subtracting / multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(21, 225, 9)

(4, 25, 6)

- Ans**
- ☐ A. (11, 18, 7)
  - ☐ B. (13, 81, 6)
  - ☒ C. (14, 64, 2)
  - ☐ D. (15, 54, 3)

**Q.48** Six friends, G, H, I, J, K, and L have marriage anniversaries in different months of the same year viz. January, March, July, August, September and December but not necessarily in the same order.

H has an anniversary immediately after K. Only I has an anniversary before G. J has an anniversary in September. Who among them has an anniversary in December?

- Ans**
- ☒ A. L
  - ☐ B. H
  - ☐ C. G
  - ☐ D. K

**Q.49** Refer to the following number series and answer the question.

5 3 6 8 2 6 3 2 8 0 3 8 5 6 7 2 5 0 9 6

How many such odd numbers are there each of which is immediately preceded by an odd number and immediately followed by an even number?

- Ans**
- ☒ A. None
  - ☒ B. One
  - ☒ C. Two
  - ☒ D. Three

**Q.50** Which of the following terms will replace the question mark (?) in the given series to make it logically complete ?

T8, N16, H32, B64, V128, ?

- Ans**
- ☒ A. Q256
  - ☒ B. P256
  - ☒ C. P228
  - ☒ D. P512

**Q.51** Which of the following interchanges of numbers would make the given equation correct?

$$7 \times 10 \div 6 + 3 - 2 = 10$$

- Ans**
- ☒ A. 3, 7
  - ☒ B. 2, 6
  - ☒ C. 6, 10
  - ☒ D. 3, 6

**Q.52** Each of the digits in the number 26397145 is arranged in ascending order from left to right. The position of how many digits will remain unchanged as compared to that in the original number?

- Ans**
- ☒ A. None
  - ☒ B. 1
  - ☒ C. 2
  - ☒ D. 3

**Q.53** Which of the following numbers will replace the question mark (?) in the given series?

11, 20, 23, 44, 47, 92, 95, ?

- Ans**
- ☒ A. 189
  - ☒ B. 198
  - ☒ C. 188
  - ☒ D. 199

**Q.54** Eight classmates J, K, L, M, N, O, P and Q were sitting around a circular table, facing the centre. They were equidistant to one another. N was sitting fourth to the left of L. P was sitting fourth to the left of J. O was sitting to the immediate right of N. K was sitting second to the left of P. Only J was sitting between L and M. Which classmate was sitting fourth to the left of M?

- Ans**
- ☒ A. Only Q
  - ☒ B. Only K
  - ☒ C. Only O
  - ☒ D. Either K or O



**Q.55** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

13 : 234 :: 9 : 126 :: 7 : ?

- Ans**
- ☒ A. 126
  - ☒ B. 98
  - ☒ C. 84
  - ☒ D. 106

Section : General Science

**Q.56** The focal length of a convex mirror is 15 cm. Following New Cartesian Sign Convention, its centre of curvature is located at:

- Ans**
- ☒ A. 15 cm
  - ☒ B. -15 cm
  - ☒ C. 30 cm
  - ☒ D. -30 cm

**Q.57** In a science book, two solenoids, P and Q, of the same average radius and the same length are shown. The number of field lines drawn inside Q is twice of that drawn inside P. If the number of turns in the two solenoids is the same, the current in solenoid P is \_\_\_\_\_ times the current in solenoid Q.

- Ans**
- ☒ A.  $\frac{1}{4}$
  - ☒ B.  $\frac{1}{2}$
  - ☒ C. 2
  - ☒ D. 4

**Q.58** The power of a convex lens of focal length 40 cm is \_\_\_\_\_.

- Ans**
- ☒ A. 0.25 D
  - ☒ B. -0.25 D
  - ☒ C. 2.5 D
  - ☒ D. -2.5 D

**Q.59** Aerobic respiration requires the presence of \_\_\_\_\_.

- Ans**
- ☒ A. carbon dioxide
  - ☒ B. oxygen
  - ☒ C. hydrogen
  - ☒ D. nitrogen

**Q.60** Three wires, A, B and C, of the same length and the same thickness have resistances of 1  $\Omega$ , 0.5  $\Omega$  and 0.25  $\Omega$ , respectively. Their resistivities are \_\_\_\_\_.

- Ans**
- ☒ A. in the ratio of 4 : 2 : 1
  - ☒ B. in the ratio of 1 : 2 : 4
  - ☒ C. in the ratio of 2 : 4 : 1
  - ☒ D. equal

**Q.61** How many electrons are present in an L-Shell of a carbon atom?

- Ans**
- ☐ A. 2
  - ☒ B. 4
  - ☐ C. 6
  - ☐ D. 8

**Q.62** For a healthy society, what should be the distribution of males and females in a given population?

- Ans**
- ☒ A. Equal number of males and females
  - ☐ B. More females than males
  - ☐ C. More males than females
  - ☐ D. More aged than young

**Q.63** Newlands compared his Octave with \_\_\_\_\_.

- Ans**
- ☐ A. historical events
  - ☒ B. musical notes
  - ☐ C. computer language codes
  - ☐ D. Hindi rhymes

**Q.64** Consider the below statements and identify the correct answer.

Statement-I: The p in pH stands for 'potenz' in German, meaning power.

Statement-II: On the pH scale we can measure pH generally from 0 to 16.

- Ans**
- ☐ A. Both the statements are true.
  - ☐ B. Both the statements are false.
  - ☒ C. Statement-I is true, and Statement-II is false.
  - ☐ D. Statement-I is false, and Statement-II is true.

**Q.65** Urine is composed of \_\_\_\_\_ water.

- Ans**
- ☐ A. 68%
  - ☐ B. 79%
  - ☐ C. 83%
  - ☒ D. 95%

**Q.66** Consider the statements below and identify the correct answer.

Statement-I: Isotopes of all elements posed a challenge to Medeleev's periodic law.

Statement-II: No fixed position can be given to hydrogen in the periodic table.

- Ans**
- ☐ A. Statement I is correct, Statement II is incorrect.
  - ☐ B. Statement II is correct, Statement I is incorrect.
  - ☒ C. Both statements are correct.
  - ☐ D. Both statements are incorrect.

**Q.67** Plaster of Paris is NOT used:

- Ans**
- ☐ A. for supporting fractured bones
  - ☐ B. for making toys
  - ☒ C. for cooking food
  - ☐ D. as building material

**Q.68** Which mineral is required for the formation of the hormone thyroxine?

- Ans**
- ☐ A. Iron
  - ☒ B. Iodine
  - ☐ C. Calcium
  - ☐ D. Potassium

**Q.69** When the terminal phosphate linkage in ATP is broken using water, what is the amount of energy released?

- Ans**
- ☒ A. 30.5 kJ/mol
  - ☐ B. 32 kJ/mol
  - ☐ C. 32.5 kJ/mol
  - ☐ D. 33 kJ/mol

**Q.70** Oxygen has \_\_\_\_\_ electrons in its outermost \_\_\_\_\_ shell.

- Ans**
- ☐ A. 8, M
  - ☒ B. 6, L
  - ☐ C. 8, K
  - ☐ D. 6, M

**Q.71** An object is placed on the principal axis of a lens of power  $-10$  D, at a distance of 15 cm. The image formed is \_\_\_\_\_.

- Ans**
- ☒ A. virtual and erect
  - ☐ B. real and erect
  - ☐ C. virtual and inverted
  - ☐ D. real and inverted

**Q.72** An object is placed in front of a concave mirror at a distance twice its focal length ( $2f$ ). The image is formed at a distance of:

- Ans**
- ☐ A.  $f$
  - ☐ B.  $1.5f$
  - ☒ C.  $2f$
  - ☐ D.  $4f$

**Q.73** Consider the following statements about an electric generator:

- (a) After every half rotation, the current in the respective arms of the coil reverses its direction.
- (b) The direction of the induced current in the coil can be found using Fleming's right-hand rule.

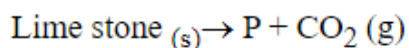
Which of the above statements is/are correct?

- Ans**
- ☒ A. Neither (a) nor (b)
  - ☒ B. Both (a) and (b)
  - ☐ C. Only (a)
  - ☐ D. Only (b)

**Q.74** A device of 30 W is connected to a 12 V battery. The current in the device is:

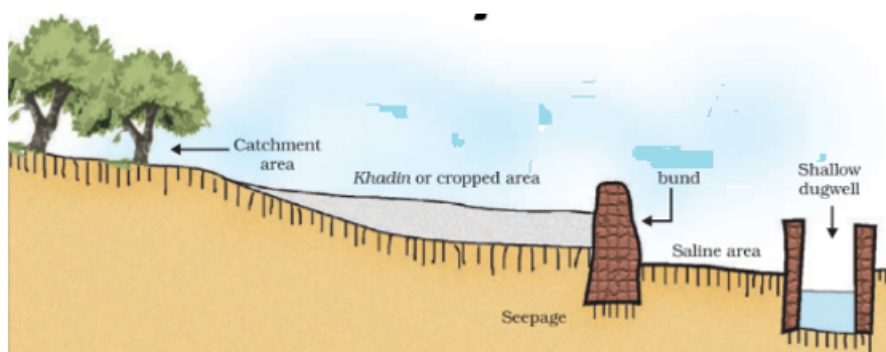
- Ans**
- ☒ A. 2.5 A
  - ☐ B. 1.25 A
  - ☐ C. 0.4 A
  - ☐ D. 0.2 A

**Q.75** Identify the product (P) in the following reaction:



- Ans**
- ☒ A. CaO (s)
  - ☐ B. CaCO<sub>3</sub>(s)
  - ☐ C. Ca(OH)<sub>2</sub> (l)
  - ☐ D. CaO(s) + O<sub>2</sub>(g)

**Q.76** Identify the water harvesting structure shown below.



- Ans**
- ☐ A. Kattas
  - ☐ B. Bandharas
  - ☒ C. Khadin System
  - ☐ D. Tank

**Q.77** Which blood group is referred to as the 'Universal Donor'?

- Ans**
- ☐ A. A
  - ☐ B. B
  - ☐ C. AB
  - ☒ D. O

Q.78 Which of the following is a displacement reaction?

- (i)  $\text{ZnCO}_3 (\text{s}) \rightarrow \text{ZnO} (\text{s}) + \text{CO}_2 (\text{g})$
- (ii)  $\text{Fe} (\text{s}) + \text{CuSO}_4(\text{aq}) \rightarrow \text{FeSO}_4(\text{aq}) + \text{Cu}(\text{s})$
- (iii)  $2\text{H}_2 (\text{g}) + \text{O}_2 (\text{g}) \rightarrow 2\text{H}_2\text{O}(\text{l})$
- (iv)  $\text{CaCO}_3 (\text{s}) \rightarrow \text{CaO}(\text{s}) + \text{CO}_2 (\text{g})$

Ans ☒ A. (i)  
☒ B. (ii)  
☒ C. (iii)  
☒ D. (iv)

Q.79 Exposure to excessive amounts of UV rays results in \_\_\_\_\_.

Ans ☒ A. lung cancer  
☒ B. skin cancer  
☒ C. blood cancer  
☒ D. liver cancer

Q.80 Consider two wires, A and B, of same thickness but lengths L and 4L, respectively. If the resistances of A and B are 0.5  $\Omega$  and 2.0  $\Omega$ , respectively, the ratio of the resistivity of A to the resistivity of B is:

Ans ☒ A.  $\frac{1}{4}$   
☒ B.  $\frac{1}{2}$   
☒ C. 1  
☒ D. 4

Section : General Awareness and Current Affairs

Q.81 As long as marginal utility of a commodity is \_\_\_\_\_, an individual will always prefer more of that commodity.

Ans ☒ A. negative  
☒ B. positive  
☒ C. constant  
☒ D. fluctuating

Q.82 Workers from which of the following sectors produce goods which are NOT tertiary?

Ans ☒ A. Sugar mill  
☒ B. Banking  
☒ C. Transportation  
☒ D. Communication

**Q.83** The famous 'Khetri' mines is located in which state of India?

- Ans**
- ☒ A. Rajasthan
  - ☐ B. Chhattisgarh
  - ☐ C. Jharkhand
  - ☐ D. Madhya Pradesh

**Q.84** Which India women cricket player was named the ICC Women's Cricketer of the Year for her incredible run of form across all formats in 2021?

- Ans**
- ☐ A. Mithali Raj
  - ☐ B. S Meghana
  - ☒ C. Smriti Mandhana
  - ☐ D. Pooja Vastrakar

**Q.85** Which was the theme state in the 35<sup>th</sup> Suraj Kund Crafts fair held in March-April 2022?

- Ans**
- ☒ A. Jammu and Kashmir
  - ☐ B. Rajasthan
  - ☐ C. Gujarat
  - ☐ D. Haryana

**Q.86** Who among the following won the Asian Billiards title for the 8<sup>th</sup> time at the 19<sup>th</sup> Asian 100 UP Billiards Championship 2022?

- Ans**
- ☐ A. Dhruv Sitwala
  - ☐ B. Aditya Mehta
  - ☒ C. Pankaj Advani
  - ☐ D. Geet Sethi

**Q.87** In the Union Budget 2022-23, a scheme named PM-DevINE launched to fund infrastructure and social development projects in \_\_\_\_\_ India.

- Ans**
- ☐ A. North
  - ☐ B. North-West
  - ☐ C. West
  - ☒ D. North-East

**Q.88** How many development and welfare subjects have been moved from the state to the Panchayati raj institution through the Constitutional amendments in the Indian constitution?

- Ans**
- ☐ A. 21
  - ☐ B. 28
  - ☒ C. 29
  - ☐ D. 27

**Q.89** Identify the goods whose demand falls due to the fall in their price.

- Ans**
- ☐ A. Normal goods
  - ☐ B. Inferior goods
  - ☒ C. Giffen goods
  - ☐ D. Substitute goods

**Q.90** Which app has been released first time by the Ministry of Education to learn spoken sentences in 22 languages?

- Ans**
- ☒ A. SARATHI
  - ☒ B. Bhasha Sangam
  - ☒ C. ENGLISH PRO
  - ☒ D. IEPFA

**Q.91** Which of the following languages is spoken by the people in the Union territories of Dadra and Nagar Haveli and Daman and Diu?

- Ans**
- ☒ A. Gujarati
  - ☒ B. Malayalam
  - ☒ C. Bengali
  - ☒ D. Tamil

**Q.92** Which battle was the decisive victory of the British East India Company over the Nawab of Bengal on 23 June 1757?

- Ans**
- ☒ A. Battle of Buxar
  - ☒ B. Battle of Imphal
  - ☒ C. Battle of Saragarhi
  - ☒ D. Battle of Plassey

**Q.93** How many stages of life did early Hindu philosophy determine?

- Ans**
- ☒ A. two
  - ☒ B. three
  - ☒ C. four
  - ☒ D. five

**Q.94** A forest area that belongs to private individuals and communities is classified as \_\_\_\_\_.

- Ans**
- ☒ A. reserved forest
  - ☒ B. protected forest
  - ☒ C. unclassed forest
  - ☒ D. permanent forest

**Q.95** Which of the following trade policies did India adopt in its first seven (five-year) plans?

- Ans**
- ☒ A. Export promotion
  - ☒ B. Import substitution
  - ☒ C. Restricted imports
  - ☒ D. International cooperation and multilateral mechanism

**Q.96** Who plays the role of an intermediary between the state government and the municipal corporation?

- Ans**
- ☒ A. Municipal Councillors
  - ☒ B. Mahapaur
  - ☒ C. Aldermen
  - ☒ D. Municipal Commissioner



**Q.97** Which of the following technologies was used for the first time in February 2022 by astronomers from NCRA-TIFR to map the distribution of atomic hydrogen gas in the galaxy?

- Ans**
- ✓ **A. Giant Meter wave Radio Telescope (GMRT)**
  - ✗ **B. Multislit Solar Explorer (MUSE)**
  - ✗ **C. INSPIRESAT-1**
  - ✗ **D. Helioswarm**

**Q.98** What is the total number of Fundamental Duties present in Part IV A of the Indian Constitution?

- Ans**
- ✓ **A. 11**
  - ✗ **B. 12**
  - ✗ **C. 13**
  - ✗ **D. 14**

**Q.99** Which of the following rivers is called the 'Dakshin Ganga'?

- Ans**
- ✗ **A. Periyar**
  - ✗ **B. Tapi**
  - ✗ **C. Narmada**
  - ✓ **D. Godavari**

**Q.100** The National Anti-Doping Bill, 2021, passed by Lok Sabha in July 2022 seeks to create a statutory framework for which of the following agencies?

- Ans**
- ✗ **A. Anti-Doping Agency of India (ADAI)**
  - ✓ **B. National Anti-Doping Agency (NADA)**
  - ✗ **C. Indian Anti-Doping Agency (IADA)**
  - ✗ **D. Anti-Doping National Agency (ADNA)**





# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 01/09/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** Rani stitches a gown in 3 hours while Padma stitches an identical gown in 2 hours. Each of them works for 6 hours per day. If they have a bulk order of 52 such gowns to stitch, in how many days will they complete the task if they work on alternate days, starting with Rani?

- Ans**
- ☒ A. 10 days
  - ☒ B. 11 days
  - ☒ C. 20 days
  - ☒ D. 21 days

**Q.2** Which of the following quadratic equations satisfies that the roots are 3 and -2?

- Ans**
- ☒ A.  $x^2 - x + 6 = 0$
  - ☒ B.  $x^2 + x - 6 = 0$
  - ☒ C.  $x^2 + x + 6 = 0$
  - ☒ D.  $x^2 - x - 6 = 0$

**Q.3** If John travels a distance of 90 km at a speed of 30 km/h and returns at a speed of 60 km/h, his average speed is:

- Ans**
- ☒ A. 30 km/h
  - ☒ B. 40 km/h
  - ☒ C. 45 km/h
  - ☒ D. 60 km/h

**Q.4** Find the LCM of 24, 42 and 56.

- Ans**
- ☒ A. 618
  - ☒ B. 186
  - ☒ C. 168
  - ☒ D. 816

Q.5 Simplify  $\frac{5^3 \times 27 \times 10^3}{5^6 \times 3^2 \times 4}$

Ans ☐ A. 8

☐ B.  $\frac{3}{2}$

☐ C.  $\frac{1}{2}$

☒ D. 6

Q.6 The sum of the ages of Sarala and Kishore is 26 years. If 3 years ago, Kishore was  $\frac{3}{2}$  times as old as the Sarala, then the present age of the Sarala is:

Ans ☐ A. 9 years

☐ B. 10 years

☒ C. 11 years

☐ D. 12 years

Q.7 The roots of  $(x - 5)^2 = 5x + 11$  are \_\_\_\_

Ans ☐ A. 3 and 12

☐ B. 5 and 7

☒ C. 1 and 14

☐ D. 2 and -13

Q.8 Simplify:  $3(9x^3 - 6x^2 + 30) - 9(3x^3 - 2x + 30)$ .

Ans ☐ A.  $18(x^2 + x + 10)$

☐ B.  $18(x^2 + x - 18)$

☐ C.  $18(x^2 + x - 10)$

☒ D.  $-18(x^2 - x + 10)$

Q.9 If the diameter and the height of a cylinder are 12 cm and 10.5 cm, respectively, then using  $\pi = \frac{22}{7}$ , find the volume of the cylinder.

Ans ☐ A.  $1281 \text{ cm}^3$

☐ B.  $1313 \text{ cm}^3$

☐ C.  $1288 \text{ cm}^3$

☒ D.  $1188 \text{ cm}^3$

Q.10 Seven times a number reduced by 14 is equal to the sum of 5 times the number and 6. Find the number.

Ans ☐ A. 20

☒ B. 10

☐ C. 15

☐ D. 5

Q.11 Find the value of  $x$ , if  $6^{x+4} = 6^7$ .

- Ans
- ☐ A. 2
  - ☒ B. 3
  - ☐ C. 4
  - ☐ D. 5

Q.12 Arun borrowed a sum of ₹9,000 from Jayanthi at 10% rate of compound interest per annum, compounded annually. Find the total amount paid by Arun after 2 years to clear all dues.

- Ans
- ☒ A. ₹10,890
  - ☐ B. ₹10,980
  - ☐ C. ₹10,089
  - ☐ D. ₹10,098

Q.13 8 men and 6 women can complete a piece of work in 5 days while 6 men and 8 women can also complete the same work in 5 days. In how many days will 7 men and 7 women complete the same work?

- Ans
- ☐ A. 2 days
  - ☐ B. 3 days
  - ☐ C. 6 days
  - ☒ D. 5 days

Q.14 The value of

$$\left(-\frac{5}{3}\right) \times \left(\frac{9}{25}\right) + \left(\frac{1}{5} - 2\right) =$$

- Ans
- ☒ A.  $-\frac{12}{5}$
  - ☐ B.  $\frac{9}{5}$
  - ☐ C.  $-\frac{4}{5}$
  - ☐ D. 0

Q.15 Two numbers are in the ratio 5 : 8. If the first number increases by 40% and second number decreases by 15%, the new ratio becomes \_\_\_\_\_

- Ans
- ☐ A. 12 : 17
  - ☐ B. 37 : 39
  - ☐ C. 23 : 26
  - ☒ D. 35 : 34

Q.16 Find the capacity of a spherical container of thickness 2 cm and external radius 9 cm. (Rounded off to 2 decimal places.)  
(Use  $\pi = \frac{22}{7}$ .)

- Ans
- ☐ A. 1590.48 cm<sup>3</sup>
  - ☐ B. 1050.67 cm<sup>3</sup>
  - ☐ C. 1241.14 cm<sup>3</sup>
  - ☒ D. 1437.33 cm<sup>3</sup>

**Q.17** If the manufacturer gains 12%, the wholesale dealer gains 15% and the retailer gains 20%, then find the cost of production of a table, the retail price of which is ₹15,456.

- Ans**
- ✓ A. ₹10,000
  - ✗ B. ₹12,000
  - ✗ C. ₹15,000
  - ✗ D. ₹20,000

**Q.18** There are two sets of data A and B. The mean of both sets is same. The median of data B is twice the median of data A. The relation between the modes of sets A and B is

- Ans**
- ✓ A. Mode B – Mode A = 3 median A
  - ✗ B. Mode B + Mode A = 3 median A
  - ✗ C. Mode B – Mode A =  $(\frac{3}{2})$  median A
  - ✗ D. Mode B – Mode A =  $(\frac{3}{4})$  median A

**Q.19** Which of the following is RHS of the equation

$$\frac{\sin^2 A}{1 - \cos A} =$$

- Ans**
- ✓ A.  $\cos A + 1$
  - ✗ B.  $\tan A$
  - ✗ C.  $\operatorname{cosec} A$
  - ✗ D.  $\sec A + \tan A$

**Q.20** In triangle ABC, if the angles are in the ratio 4 : 3 : 5, find the angles.

- Ans**
- ✗ A.  $20^\circ, 50^\circ, 70^\circ$
  - ✗ B.  $20^\circ, 15^\circ, 25^\circ$
  - ✗ C.  $40^\circ, 30^\circ, 50^\circ$
  - ✓ D.  $60^\circ, 45^\circ, 75^\circ$

**Q.21** X placed an order for 20 shirts marked for ₹750 each. The shopkeeper offered 20% discount on purchase of 20 shirts. He allowed a further discount of ₹500, as the payment was made in cash. Find the final selling price of each shirt, if the selling price of each shirt is the same?

- Ans**
- ✗ A. ₹650
  - ✗ B. ₹625
  - ✓ C. ₹575
  - ✗ D. ₹550

**Q.22** If  $18\% \text{ of } 200 = x$ , then  $x = ?$

- Ans**
- ✓ A. 36
  - ✗ B. 63
  - ✗ C. 72
  - ✗ D. 27

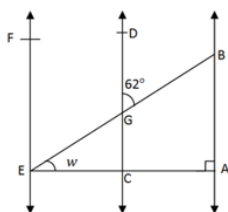
**Q.23** The sum of a two-digit number and the number obtained by reversing the digits is 99. If the digits of the number differ by 5, then the two-digit number can be:

- Ans** ☒ A. 27  
☐ B. 18  
☐ C. 83  
☐ D. 16

**Q.24** The product of the LCM and HCF of two numbers is 48. If the two numbers differ by 13, then find the numbers.

- Ans** ☒ A. 3 and 16  
☐ B. 4 and 17  
☐ C. 11 and 24  
☐ D. 12 and 25

**Q.25** In the adjoining figure  $AB \parallel CD$  and  $CD \parallel EF$ . Also,  $EA \perp AB$ . If  $\angle BGD = 62^\circ$ , then the value of  $w$  is:



- Ans** ☐ A.  $118^\circ$   
☒ B.  $28^\circ$   
☐ C.  $62^\circ$   
☐ D.  $108^\circ$

#### Section : General Intelligence and Reasoning

**Q.26** The following question is based on the given seven, 3-digit numbers.

(Left) 621, 443, 227, 316, 625, 118, 231 (Right)

(For example, 456: 6 = digit in unit's place, 5 = digit in ten's place, 4 = digit in hundred's place)

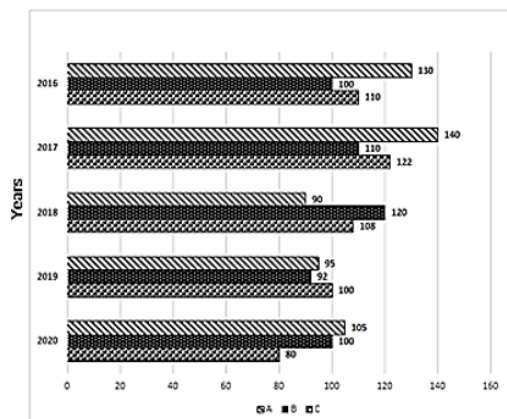
NOTE - All operations to be done from left to right.

If 5 is added to the digit in ten's place of each number and 1 is subtracted from the digit in unit's place of each number, which digit will be repeated the greatest number of times in the transformed number series thus formed?

- Ans** ☐ A. 4  
☒ B. 6  
☐ C. 7  
☐ D. 2

Q.27

The given bar graph shows the data of the number of students who were called for an interview by a company 'XYZ' from three different institutes A, B and C over the years. Study the bar graph and answer the question.



What is the ratio of the average number of students called for an interview from institute C in the period 2018 to 2020 to the average number of students called for an interview from institute B in the same period?

- Ans
- ☒ A. 14 : 15
  - ☒ B. 13 : 12
  - ☒ C. 12 : 13
  - ☒ D. 1 : 3

Q.28 If 28 March 2017 was a Tuesday, then what day of the week was 12 February 2017?

- Ans
- ☒ A. Sunday
  - ☒ B. Thursday
  - ☒ C. Saturday
  - ☒ D. Friday

Q.29 Select the option that represents the letters that, when placed from left to right in the same sequence in the blanks below, will complete the letter series.

I \_ L O \_ R U V X \_ B \_ G

- Ans
- ☒ A. JRAD
  - ☒ B. JPAD
  - ☒ C. JPXD
  - ☒ D. JPAG

Q.30 Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of different types of juices containing different fruit flavours which are manufactured by a juice company.



How many types of juices does the company make that contain both Apple and Strawberry flavours?

- Ans
- ☒ A. 41
  - ☒ B. 8
  - ☒ C. 10
  - ☒ D. 18

**Q.31** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

49 : 13 :: 56 : 11 :: 39 : ?

- Ans**
- ☒ A. 14
  - ☒ B. 12
  - ☒ C. 15
  - ☒ D. 16

**Q.32** Which of the following interchanges of numbers would make the given equation correct?

$$25 \div 5 \times 2 + 25 - 11 = 24$$

- Ans**
- ☒ A. 24, 25
  - ☒ B. 5, 25
  - ☒ C. 11, 24
  - ☒ D. 2, 5

**Q.33** If 'A' means ( $\times$ ), 'B' means (+), 'C' means ( $-$ ), and 'D' means ( $\div$ ), then what will be the value of the following expression?

(102 D 17) B (5 A 3)

- Ans**
- ☒ A. 17
  - ☒ B. 20
  - ☒ C. 21
  - ☒ D. 25

**Q.34** Which of the following interchanges of signs would make the given equation correct?

$$3 - 6 \div 9 + 6 \times 2 = 6$$

- Ans**
- ☒ A. + and  $\times$
  - ☒ B.  $\div$  and +
  - ☒ C.  $-$  and  $\times$
  - ☒ D.  $\div$  and  $\times$

**Q.35** Six houses, K, L, M, N, O and P, are located in the same colony. P is 400 m to the west of K. M is 200 m to the east of L. O is 300 m to the north of K. N is 150 m to the south of L. L is 250 m to the south of K. What is the straight distance between O and N?

- Ans**
- ☒ A. 600 m
  - ☒ B. 700 m
  - ☒ C. 350 m
  - ☒ D. 400 m

**Q.36** Study the given letter series and answer the question that follows.

LEAPKXOZAEYWUDOADSLYRKEVUL

How many consonants are immediately preceded and immediately followed by a vowel, and which consonant is repeated the most number of times in the series?

- Ans**
- ☒ A. 3, D respectively
  - ☒ B. 2, K respectively
  - ☒ C. 3, L respectively
  - ☒ D. 2, Y respectively

**Q.37** GMT 3 is related to IPY 30 in a certain way. In the same way, EXP 5 is related to GAU 130. To which of the following is TXN 4 related following the same logic?

- Ans**
- ☐ A. VAU 68
  - ☐ B. VAT 70
  - ☒ C. VAS 68
  - ☐ D. VAT 68

**Q.38** A statement is given followed by two arguments I and II. Read the statement and the arguments carefully and select the appropriate answer from the given options.

**Statement:**

Use of re-usable cloth bags for shopping will help in reducing pollution caused by indiscriminate use of plastic bags.

**Arguments:**

- I. The government has banned the use of single-use plastic from 1 July 2022.
- II. Cloth bags are eco-friendly since they are re-usable and can be made from scrap fabric that would otherwise go to landfills.

- Ans**
- ☐ A. Argument I weakens, while argument II strengthens the statement
  - ☐ B. Argument II weakens, while argument I strengthens the statement
  - ☐ C. Both arguments I and II weaken the statement
  - ☒ D. Both arguments I and II strengthen the statement

**Q.39** A, B, C, D, E, F and G were seven kings, sitting around a circular table, facing the centre. They were equidistant to one another. Only E was sitting between F and C. A was third to the left of G. Only D was sitting between A and B. G was sitting to the immediate left of C. Which king was sitting to the immediate left of G?

- Ans**
- ☐ A. A
  - ☒ B. B
  - ☐ C. D
  - ☐ D. F

**Q.40** Refer to the following letter, number, symbol series and answer the question.

(Left) W # 2 ∞ D @ 4 Y 3 D Ω R 7 & S F @ 6 ^ < X 2 2 (Right)

How many such symbols are there each of which is immediately preceded by a letter and immediately followed by a number?

- Ans**
- ☐ A. 1
  - ☐ B. 2
  - ☒ C. 3
  - ☐ D. 4

**Q.41** Eight classmates D, E, F, G, H, I, J and K are sitting in a straight row, facing north. J is at the extreme right end of the row. D and I are immediate neighbours. There are only two classmates sitting between H and D. Only E sits between I and G. K sits to the immediate left of D. Who sits at the second position from the left end of the row?

- Ans**
- ☐ A. D
  - ☐ B. K
  - ☒ C. F
  - ☐ D. H



- Q.42** In this question, a group of letters is coded using numbers as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Letter | B | L | M | H | Y | O | C | E | N |
|--------|---|---|---|---|---|---|---|---|---|
| Code   | 4 | 6 | 8 | 0 | 1 | 3 | 5 | 7 | 9 |

Conditions:

- If the first element is a vowel and the last, a consonant, the codes for these two (the first and the last elements) are to be interchanged.
- If the first element is a consonant and the last, a vowel, the first and last elements are to be coded as 2.
- If both the second and the fourth elements are vowels, the fourth element is to be coded as the code for the third element and vice-versa.

Question: LEMON

- Ans**
- ☒ A. 97836
  - ☒ B. 67839
  - ☒ C. 23872
  - ☒ D. 63879

- Q.43** Which of the following numbers will replace the question mark (?) in the given series?

3, 4, 10, 33, 136, ?

- Ans**
- ☒ A. 684
  - ☒ B. 685
  - ☒ C. 688
  - ☒ D. 700

- Q.44** In this question, a statement is followed by two conclusions. Which of the two conclusions is/are true with respect to the statement?

Statement:  $C = U < F \leq H > G = I > R$

Conclusions:

I.  $H > R$

II.  $H > C$

- Ans**
- ☒ A. Only conclusion I is true
  - ☒ B. Only conclusion II is true
  - ☒ C. Neither conclusion I nor II is true
  - ☒ D. Both conclusions I and II are true

- Q.45** Which of the following numbers will replace the question mark (?) in the given series?

12, 14, 20, 34, 60, ?

- Ans**
- ☒ A. 100
  - ☒ B. 104
  - ☒ C. 102
  - ☒ D. 108

**Q.46** In this question, a statement is followed by four conclusions. Find out which conclusion is true based on the given statement.

**Statement:**

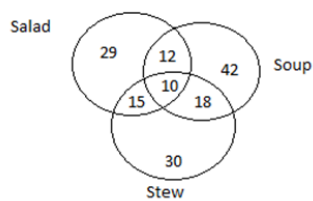
$$B > Y \leq Z = A < X > O$$

**Conclusions:**

1.  $B > X$
2.  $Y < O$
3.  $Y < X$
4.  $A > O$

**Ans** ☒ A. 1  
☒ B. 2  
☒ C. 3  
☒ D. 4

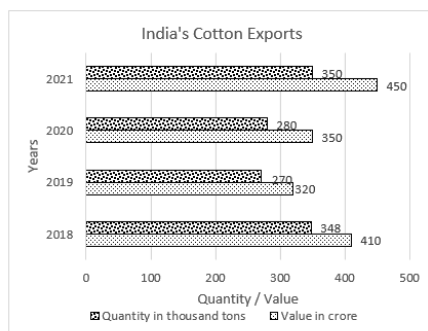
**Q.47** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons in a company with preference for different foods for lunch.



How many people prefer salads but NOT stew?

**Ans** ☒ A. 41  
☒ B. 29  
☒ C. 51  
☒ D. 39

**Q.48** The given bar graph shows the data of cotton exports in India from years 2018 to 2021. Study the given bar graph and answer the question.



In which year was the value per thousand tons the minimum?

**Ans** ☒ A. 2018  
☒ B. 2019  
☒ C. 2020  
☒ D. 2021

**Q.49** P, Q, R, S, T and U are six siblings who passed their class tenth exam in different years viz. 2001, 2003, 2005, 2007, 2010 and 2012 but not necessarily in the same order.

P passed in one of the years before S and after R. Only Q passed before R. T passed in the year immediately after S. U passed in one of the years before P. Who passed their class tenth exam in the year 2007?

- Ans**
- ✓ A. P
  - ✗ B. S
  - ✗ C. U
  - ✗ D. T

**Q.50** A certain number of people are sitting in a row, facing north. P sits to the immediate left of Q. P sits second to the right of L. Z sits at one of the extreme ends of the row. Only one person sits to the right of S. K sits to the immediate right of D. L sits second to the right of D. Only two people sit between D and Z. Only one person sits between Q and S. If no other person is sitting in the row, what is the total number of persons seated?

- Ans**
- ✓ A. 12
  - ✗ B. 13
  - ✗ C. 14
  - ✗ D. 15

**Q.51** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

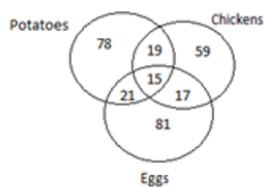
5 : 13 :: 9 : 69 :: 13 : ?

- Ans**
- ✗ A. 175
  - ✓ B. 157
  - ✗ C. 147
  - ✗ D. 174

**Q.52** To reach house B from house A, a person has to walk 30 m towards the south. Then he must take a left turn and walk 15 m. Then he must take a left turn again and walk 20 m. Again, he must take a left turn and walk 25 m. Then he must take a right turn and walk 10 m. Then he must take a left turn and walk 17 m to finally reach house B. How far and in which direction is house A from house B? (All turns are 90 degree turns only)

- Ans**
- ✗ A. 17 m, East
  - ✗ B. 17 m, West
  - ✓ C. 27 m, East
  - ✗ D. 27 m, West

**Q.53** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons who eat a particular food for dinner every day.



How many people eat potatoes and eggs for dinner but NOT chickens?

- Ans**
- ✗ A. 15
  - ✗ B. 36
  - ✓ C. 21
  - ✗ D. 81

- Q.54** In this question, a group of letters is coded using numbers as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Letter/ Symbol | Y | T | V | R | I | G | E | A |
|----------------|---|---|---|---|---|---|---|---|
| Code           | 4 | 6 | 8 | 0 | 3 | 5 | 7 | 9 |

Conditions:

- If the first element is a vowel and the last, a consonant, the codes for these two (the first and the last elements) are to be interchanged.
- If the first element is a consonant and the last, a vowel, the first and last elements are to be coded as 2.
- If both the third and the fifth elements are vowels, the fifth element is to be coded as the code for the third element and vice-versa.

Question: GRAVITY

- Ans**  **A. 5038964**  
 **B. 5603984**  
 **C. 5098364**  
 **D. 5309846**

- Q.55** Each of P, Q, R, S, T, U and V has an exam on a different day of a week starting from Monday and ending on Sunday of the same week. S's exam is immediately before R. Only three people have exams between U and Q. Q's exam is immediately before S. Only two people have exams between S and V. P's exam is on Tuesday. R's exam is on Sunday. Who among the following has exam on Monday?

- Ans**  **A. V**  
 **B. T**  
 **C. U**  
 **D. Q**

#### Section : General Science

- Q.56** Identify the basic requirements that led scientists towards the classification of elements.

- Identification of some pattern in different properties of elements
- Rearrangement of elements on the basis of their synthesis
- To get overall idea of the colour of different elements

- Ans**  **A. only (i)**  
 **B. (i) and (iii)**  
 **C. (ii) and (iii)**  
 **D. (i), (ii) and (iii)**

- Q.57** Coal and petroleum have their own advantages and disadvantages. Three of the statements regarding coal and petroleum are similar. Choose the one that is dissimilar.

- Ans**  **A. When burnt produce oxides of N and S that are poisonous and cause acid rain**  
 **B. When burnt in insufficient O<sub>2</sub> produce carbon monoxide, which is a poisonous gas**  
 **C. Used to generate electricity in thermal plants and are cost effective**  
 **D. When burnt produce CO<sub>2</sub>, which causes global warming**

**Q.58** According to mirror formula, the focal length of a spherical mirror is equal to:

**Ans**

- ☒ A.  $\frac{u+v}{uv}$
- ☒ B.  $\frac{uv}{u+v}$
- ☒ C.  $\frac{u-v}{uv}$
- ☒ D.  $\frac{uv}{u-v}$

**Q.59** Red colour is scattered the \_\_\_\_\_ by fog or smoke because its wavelength is \_\_\_\_\_ than the wavelength of other colour components of white light.

**Ans**

- ☒ A. most, less
- ☒ B. most, more
- ☒ C. least, more
- ☒ D. least, less

**Q.60** Which enzyme requires the presence of hydrochloric acid for its action in the process of digestion?

**Ans**

- ☒ A. Lipase
- ☒ B. Trypsin
- ☒ C. Pepsin
- ☒ D. Amylase

**Q.61** A bulb filament is made of a \_\_\_\_\_ metal with \_\_\_\_\_ melting point.

**Ans**

- ☒ A. weak, low
- ☒ B. weak, high
- ☒ C. strong, low
- ☒ D. strong, high

**Q.62** Which among the following is NOT a use of sodium hydroxide?

- (i) Used in making soaps and detergents.
- (ii) Used in the manufacture of paper.
- (iii) Used for removing permanent hardness of water.

**Ans**

- ☒ A. Only i
- ☒ B. Only ii
- ☒ C. Only iii
- ☒ D. Both ii and iii

**Q.63** What is the process of transport of soluble products of photosynthesis and other materials from the leaves to other tissues of the plant called?

- Ans**
- ☒ A. Tropic movement
  - ☒ B. Translocation
  - ☒ C. Guttation
  - ☒ D. Transpiration

**Q.64** Consider the following statements about magnetic field due to a current-carrying solenoid:

- (a) The magnetic field inside the solenoid is in the form of parallel straight lines.
- (b) The strong magnetic field produced inside the solenoid can be used to magnetise a piece of a magnetic material.

Which of the above statements is/are correct?

- Ans**
- ☒ A. Only (a)
  - ☒ B. Only (b)
  - ☒ C. Neither (a) nor (b)
  - ☒ D. Both (a) and (b)

**Q.65** What specialisations are found in the germ cells of sexually reproducing animals with complex body designs?

- Ans**
- ☒ A. Male germ cell - small and motile, Female - large with food store
  - ☒ B. Male germ cell - small with food store, Female - large and motile
  - ☒ C. Male germ cell - large with food store, Female - small and motile
  - ☒ D. Male germ cell - large and motile, Female - small with food store

**Q.66** Two resistors, A of  $8\ \Omega$  and B of  $12\ \Omega$ , are connected in series with a battery of 6 V. If  $V_1$  and  $V_2$  are the potential drops across A and B and  $I_1$  and  $I_2$  are the currents through them, respectively, then  $(V_1/V_2)$  and  $(I_1/I_2)$  are respectively

- Ans**
- ☒ A.  $(\frac{2}{3})$  and  $(\frac{3}{2})$
  - ☒ B.  $(\frac{2}{3})$  and 1
  - ☒ C.  $(\frac{3}{2})$  and  $(\frac{2}{3})$
  - ☒ D.  $(\frac{3}{2})$  and 1

**Q.67** The catenation property shown by carbon refers to which of the following properties?

- Ans**
- ☒ A. Self-degeneration property
  - ☒ B. Property of occurring as different allotropes
  - ☒ C. Self-combining capacity to form a long chain of atoms
  - ☒ D. Property of carbon to give combustive nature to its compounds

**Q.68** A converging lens having focal length 50 cm is kept in contact with a diverging lens having focal length 20 cm. The power of combination of the two lenses is:

- Ans**
- ☒ A. -3 D
  - ☒ B. +3 D
  - ☒ C. 8 D
  - ☒ D. -8 D

**Q.69** An optical device X has a focal length of  $-30$  cm. X can be:

- Ans**
- ☒ A. either a concave lens or a concave mirror
  - ☐ B. either a convex lens or a convex mirror
  - ☐ C. either a convex lens or a concave mirror
  - ☐ D. either concave lens or a convex mirror

**Q.70** Which of the following statements is TRUE?

- Ans**
- ☐ A. Plastic bags should be used to keep food.
  - ☐ B. Shopkeepers are required to use plastic bags by law.
  - ☐ C. After use, we should dispose of plastic bags by burning them.
  - ☒ D. We should not place waste in plastic bags and discard them.

**Q.71** Which of the following devices is NOT based on the concept of force on a current-carrying conductor in a magnetic field?

Loudspeaker, Voltmeter, Ammeter, Electric fuse

- Ans**
- ☐ A. Loudspeaker
  - ☐ B. Voltmeter
  - ☐ C. Ammeter
  - ☒ D. Electric fuse

**Q.72** The following table shows different epithelial tissues in animals and their location in different parts. Identify the correct option.

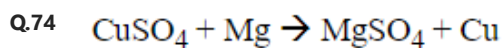
| Epithelial Tissue                                                                      | Location                     |
|----------------------------------------------------------------------------------------|------------------------------|
| A.  | i) Respiratory tract         |
| B.  | ii) Skin                     |
| C.  | iii) Lining of blood vessels |
| D.  | iv) Ducts of salivary glands |

- Ans**
- ☐ A. A-i, B-ii, C-iii, D-iv
  - ☐ B. A-ii, B-iii, C-iv, D-i
  - ☒ C. A-iii, B-iv, C-i, D-ii
  - ☐ D. A-iii, B-iv, C-ii, D-i

**Q.73** Which of the following combinations is an example of balanced meal?

- Ans**
- ☒ A. Roti, pulses, vegetables
  - ☐ B. Roti, vegetables, cold drink
  - ☐ C. Rice, chips, cold drink
  - ☐ D. Burger, chips, cold drink





In the above reaction Mg is the:

- Ans
- ☐ A. oxidising agent
  - ☐ B. catalyst
  - ☒ C. reducing agent
  - ☐ D. dissolving agent

Q.75 A steady current  $I$  flows through an appliance of resistance  $R$ . The amount of heat produced by it in time  $t$  is:

- Ans
- ☐ A.  $IRt$
  - ☒ B.  $I^2Rt$
  - ☐ C.  $(It)/R$
  - ☐ D.  $(I^2t)/R$

Q.76 When sodium sulphide reacts with dilute hydrochloric acid, a gas with unpleasant smell is produced. This gas with unpleasant smell is:

- Ans
- ☐ A.  $\text{H}_2$
  - ☐ B.  $\text{SO}_2$
  - ☒ C.  $\text{H}_2\text{S}$
  - ☐ D.  $\text{SO}_3$

Q.77 The balanced reaction for the following chemical reaction is:

Hydrogen + Bromine  $\rightarrow$  Hydrogen bromide

- Ans
- ☒ A.  $\text{H}_2 + \text{Br}_2 \rightarrow 2 \text{HBr}$
  - ☐ B.  $\text{H} + \text{Br} \rightarrow \text{HBr}$
  - ☐ C.  $\text{H}_2 + 2\text{Br} \rightarrow 2 \text{HBr}$
  - ☐ D.  $2\text{H} + \text{Br}_2 \rightarrow 2 \text{HBr}$

Q.78 Which of the following is the chemical reaction involved in the baking soda preparation?

- Ans
- ☐ A.  $\text{Ca}(\text{OH})_2 + \text{Cl}_2 \rightarrow \text{CaOCl}_2 + \text{H}_2\text{O}$
  - ☒ B.  $\text{NaCl} + \text{H}_2\text{O} + \text{CO}_2 + \text{NH}_3 \rightarrow \text{NH}_4\text{Cl} + \text{NaHCO}_3$
  - ☐ C.  $\text{NaHCO}_3 + \text{H}^+ \rightarrow \text{CO}_2 + \text{H}_2\text{O} + \text{Sodium salt of acid}$
  - ☐ D.  $2 \text{NaCl} (\text{aq}) + 2 \text{H}_2\text{O} (\text{l}) \rightarrow 2 \text{NaOH} (\text{aq}) + \text{Cl}_2 (\text{g}) + \text{H}_2 (\text{g})$



**Q.79** Identify the correct order if A, B, C, D, E are the atomic numbers of the elements in positions of rows 1 to 4 of the periodic table of Groups 15, 16, 17 respectively, as specified in figure below

| Group 15 | Group 16 | Group 17 |
|----------|----------|----------|
| A        | C        | -        |
| -        | -        | -        |
| -        | -        | E        |
| B        | D        | -        |

- Ans**
- ☒ A.  $A > B > C > D > E$
  - ☒ B.  $B > D > E > A > C$
  - ☒ C.  $E > B > D > A > C$
  - ☒ D.  $D > B > E > C > A$

**Q.80** The food prepared by the leaves of the plants is transported by phloem to which parts of the plant?

- Ans**
- ☒ A. Only to roots and fruits
  - ☒ B. Only to seeds and growing regions
  - ☒ C. Only to roots and seeds
  - ☒ D. To storage organs of roots, seeds, fruits and growing regions

#### Section : General Awareness and Current Affairs

**Q.81** The shaggy horn wild ibex is found in \_\_\_\_\_ in India.

- Ans**
- ☒ A. Tropical Deciduous Forest
  - ☒ B. Montane forests
  - ☒ C. Mangrove Forests
  - ☒ D. Thorn Forests

**Q.82** Which committee recommended that Fundamental Duties be included in the Constitution of India?

- Ans**
- ☒ A. Swaran Singh Committee
  - ☒ B. JB Kripalani Committee
  - ☒ C. AV Thakkar Committee
  - ☒ D. HC Mookherjee Committee

**Q.83** Mahindra & Mahindra Financial Services Limited is an Indian rural non-banking financial company headquartered in \_\_\_\_\_.

- Ans**
- ☒ A. Mumbai
  - ☒ B. Lucknow
  - ☒ C. Goa
  - ☒ D. Kerala

**Q.84** Which formula is used for the calculation of Ex Ante Aggregate Demand?

- Ans**
- ☒ A.  $\bar{C} + \bar{I} + cY$
  - ☒ B.  $\bar{C} + cY$
  - ☒ C.  $\bar{C} + \bar{I} - cY$
  - ☒ D.  $cY - \bar{C} + \bar{I}$

**Q.85** Anthurium Festival is celebrated to promote farmers, flowers and horticulture in \_\_\_\_\_.

- Ans**
- ☒ A. Assam
  - ☒ B. Mizoram
  - ☒ C. Nagaland
  - ☒ D. Arunachal Pradesh

**Q.86** Poa Mecca situated on top of Garurachal Hill in the state of \_\_\_\_\_.

- Ans**
- ☒ A. Himachal Pradesh
  - ☒ B. Kerala
  - ☒ C. Assam
  - ☒ D. Gujarat

**Q.87** Which branch of Physical Geography studies the earth's form and structure?

- Ans**
- ☒ A. Climatology
  - ☒ B. Biogeography
  - ☒ C. Geomorphology
  - ☒ D. Hydrology

**Q.88** India's first Christian missionary organisation, Serampore Mission, was founded by \_\_\_\_\_.

- Ans**
- ☒ A. William Carey
  - ☒ B. Mother Teresa
  - ☒ C. Hudson Taylor
  - ☒ D. Matteo Ricci

**Q.89** The Balwant Rai Mehta Committee recommended in 1957 for the establishment of a \_\_\_\_\_ Panchayati Raj System in India.

- Ans**
- ☒ A. Five-tier
  - ☒ B. Four-tier
  - ☒ C. Three-tier
  - ☒ D. Two-tier

**Q.90** Which of the following disciplines attempts to explain the concept of 'temporal synthesis'?

- Ans**
- ☒ A. History
  - ☒ B. Philosophy
  - ☒ C. Anthropology
  - ☒ D. Geomorphology

**Q.91** Which player holds the record for most runs (6411) in Indian Premier League (IPL) (as of July 2022)?

- Ans**
- ☒ A. Rohit Sharma
  - ☒ B. Virat Kohli
  - ☒ C. Shikhar Dhawan
  - ☒ D. Suresh Raina

**Q.92** In March 2022, Union Cabinet of India approved the establishment of the World Health Organization Global Centre for Traditional Medicine (WHO GCTM) in Jamnagar, Gujarat. Under which ministry will this centre be set up?

- Ans**
- ☒ A. Ministry of Health and Family Welfare
  - ☒ B. Ministry of Cooperation
  - ☒ C. Ministry of Women and Child Development
  - ☒ D. Ministry of AYUSH

**Q.93** Which of the following ministries released the draft National Air Sports Policy, 2022, in the January 2022?

- Ans**
- ☒ A. Ministry of Youth Affairs and Sports
  - ☒ B. Ministry of Defence
  - ☒ C. Ministry of Civil Aviation
  - ☒ D. Ministry of Culture

**Q.94** The 'Revised Pradhan Mantri Jan Vikas Karyakram' is being implemented (w.e.f 2022-23) by the \_\_\_\_\_.

- Ans**
- ☒ A. Ministry of Tribal Affairs
  - ☒ B. Ministry of Home Affairs
  - ☒ C. Ministry of Minority Affairs
  - ☒ D. Ministry of Rural Development

**Q.95** As per Union Budget of India 2022-23, 'One Station One Product' is an initiative taken by the Indian \_\_\_\_\_.

- Ans**
- ☒ A. railways
  - ☒ B. roadways
  - ☒ C. airways
  - ☒ D. waterways

**Q.96** Which of the following was added to the list of official languages of India in 1967?

- Ans**
- ☒ A. Konkani
  - ☒ B. Sindhi
  - ☒ C. Manipuri
  - ☒ D. Nepali

**Q.97** The 'Stree Manoraksha' Project launched in Bengaluru by the Government of India in March 2022 aims at improving \_\_\_\_\_ health of women in India.

- Ans**
- ☒ A. physical
  - ☒ B. mental
  - ☒ C. social
  - ☒ D. spiritual

Q.98

What is the range of the annual average temperature in sub-tropical vegetation zones in India?

Ans

✗ A. 7°C to 17° C

✗ B. Above 24°C

✗ C. Below 7°C

✓ D. 17°C to 24°C

Q.99

Who launched the beta version of 'Swarajability', India's first Artificial Intelligence based job platform for persons with disabilities?

Ans

✓ A. IIT Hyderabad

✗ B. IISc Bengaluru

✗ C. IIT Roorkee

✗ D. IIT Gandhinagar

Q.100

Who among the following appoints the Chief Justice of India?

Ans

✓ A. The President of India

✗ B. The Prime Minister of India

✗ C. The Supreme Court Judge of India

✗ D. The Attorney General of India



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 01/09/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** Simplify  $2^3 \times 3^2 \times 7$ .

- Ans**
- ☒ A. 603
  - ☒ B. 506
  - ☒ C. 702
  - ☒ D. 504

**Q.2** If twice the son's age is added to the father's age, the sum is 34 years. If 1.5 times the father's age is added to the son's age, the sum is 45 years. What is the father's age (in years)?

- Ans**
- ☒ A. 26
  - ☒ B. 28
  - ☒ C. 30
  - ☒ D. 32

**Q.3** Three times the present age of Sujatha is 5 years more than two times the present age of Vanita. After 3 years, three times the age of Vanita will be 4 years less than four times the age of Sujatha. The age of Vanita is  $k$  years more than that of Sujatha. What is the value of  $k$ ?

- Ans**
- ☒ A. 3
  - ☒ B. 4
  - ☒ C. 7
  - ☒ D. 9

**Q.4** A train P going at the speed of 70 km/h completely passes train Q of length 170 m, going in the same direction on parallel tracks, at 56 km/h, in  $1\frac{1}{2}$  minutes. How much time (in seconds) will P take to cross completely train R of length 220 m, going at 74 km/h in the opposite direction?

- Ans**
- ☒ A. 10
  - ☒ B. 12
  - ☒ C. 14
  - ☒ D. 15

**Q.5** Find the nature of roots of  $2(p + q)^2x^2 + 2(p + q)x + 1 = 0$

- Ans**
- ☐ A. Real roots
  - ☐ B. Real and equal roots
  - ☐ C. Real and distinct roots
  - ☒ D. Imaginary roots

**Q.6** Five solid cubes, each of volume  $216 \text{ cm}^3$ , are joined end to end in a linear manner only (single row arrangement) to form a cuboid. What is the lateral surface area (in  $\text{cm}^2$ ) of the cuboid?

- Ans**
- ☐ A. 360
  - ☒ B. 432
  - ☐ C. 468
  - ☐ D. 504

**Q.7** An article is marked 50% above its cost price. If the shopkeeper gives two successive discounts of 10% and 25%, and still earns a profit of ₹15, then the cost price of the article is:

- Ans**
- ☒ A. ₹1,200
  - ☐ B. ₹1,750
  - ☐ C. ₹1,600
  - ☐ D. ₹1,500

**Q.8** The sum of a number, its half, its  $\frac{1}{3}$  and 27, is 71. Find the number.

- Ans**
- ☐ A. 22
  - ☐ B. 23
  - ☒ C. 24
  - ☐ D. 25

**Q.9** The area of a square is  $900 \text{ cm}^2$ . Its perimeter is equal to the perimeter of a regular hexagon. What is the area (in  $\text{cm}^2$ ) of the hexagon?

- Ans**
- ☐ A. 300
  - ☐ B.  $400\sqrt{3}$
  - ☒ C.  $600\sqrt{3}$
  - ☐ D. 600

**Q.10** Two successive discounts of 40% and 60% on a deal are equivalent to a single discount of:

- Ans**
- ☐ A. 80%
  - ☒ B. 76%
  - ☐ C. 70%
  - ☐ D. 66%

**Q.11** The monthly wages of 6 employees in a company are ₹5,000, ₹6,000, ₹8,000, ₹8,500, ₹9,300, and ₹9,500. Find the median of their wages.

- Ans**
- ☐ A. ₹8,000
  - ☒ B. ₹8,250
  - ☐ C. ₹8,500
  - ☐ D. ₹8,750

Q.12 The third proportional of  $(a + b)$  and  $(a + b)^2$  is

- Ans
- ☐ A.  $(a + b)$
  - ☐ B.  $b$
  - ☐ C.  $a$
  - ☒ D.  $(a + b)^3$

Q.13 A line joining two end points is called a/an:

- Ans
- ☒ A. line segment
  - ☐ B. ray
  - ☐ C. parallel line
  - ☐ D. intersecting line

Q.14 P is any point inside the rectangle ABCD. If  $PA = 27$  cm,  $PB = 21$  cm,  $PC = 6$  cm, then the length PD (in cm) is equal to:

- Ans
- ☐ A. 10
  - ☐ B. 12
  - ☐ C. 15
  - ☒ D. 18

Q.15 Sankar and Vishnu work alternately in a tailoring shop on an order of stitching 21 suits. Sankar starts the work, stitches 3 suits in two days, and takes a break, during which Vishnu stitches 3 suits in three days, and then takes a break. This pattern is repeated till all the 21 suits are stitched. How many days did it take the duo to complete the work?

- Ans
- ☐ A. 15 days
  - ☐ B. 16 days
  - ☒ C. 17 days
  - ☐ D. 18 days

Q.16 Three numbers are in the ratio 1: 2: 5 and their LCM is 1600. Find the HCF of the numbers.

- Ans
- ☐ A. 800
  - ☐ B. 480
  - ☐ C. 320
  - ☒ D. 160

Q.17 If  $x + \frac{1}{x} = 3$ , then  $x^2 + \frac{1}{x^2}$  is:

- Ans
- ☐ A. 9
  - ☐ B. 8
  - ☒ C. 7
  - ☐ D. 6

**Q.18** One pipe can fill the tank in 20 min while another pipe can empty it in 60 min. If both the pipes are operated together, how long will it take to fill the tank completely?

- Ans**
- ☐ A. 20 min
  - ☒ B. 30 min
  - ☐ C. 40 min
  - ☐ D. 10 min

**Q.19** Raghav's average earning per month in the first three months of a year was ₹45,000. In April, his earning was  $33\frac{1}{3}\%$  more than the average earning in the first three months. If his average earning per month for the whole year is ₹45,300, then what will be Raghav's average earning (in ₹) per month from May to December?

- Ans**
- ☐ A. 43,425
  - ☐ B. 43,450
  - ☒ C. 43,575
  - ☐ D. 43,580

**Q.20** If  $x = -1$  and  $x = -2$  are the solutions of the quadratic equation  $3x^2 + px + q = 0$ , then what is the value of  $(3p - 2q)$ ?

- Ans**
- ☐ A. 12
  - ☐ B. 13
  - ☒ C. 15
  - ☐ D. 17

**Q.21** In what ratio should sugar costing ₹45 per kg be mixed with sugar costing ₹52 per kg so that by selling the mixture at ₹55.20 per kg, there is a profit of 15%?

- Ans**
- ☐ A. 3 : 2
  - ☒ B. 4 : 3
  - ☐ C. 5 : 4
  - ☐ D. 2 : 1

**Q.22** Three numbers  $x \leq y \leq z$  which are co-prime to each other are such that the product of the first two numbers is 143 and that of the last two numbers is 195. The sum of the three numbers is \_\_\_\_\_

- Ans**
- ☐ A. 29
  - ☒ B. 39
  - ☐ C. 45
  - ☐ D. 62

**Q.23** The simple interest on a sum of ₹3,600 for 3 years and 4 months is ₹840. The rate of interest per annum is:

- Ans**
- ☐ A. 9%
  - ☐ B. 8%
  - ☒ C. 7%
  - ☐ D. 6%

**Q.24** Find the smallest number that can be added to 467851 to make the sum a perfect square.

- Ans**
- ☐ A. 6
  - ☒ B. 5
  - ☐ C. 4
  - ☐ D. 3



**Q.25** If  $\sec \theta = \frac{5}{3}$ , and  $\theta$  is an acute angle, then the value of  $\frac{3 \tan \theta - 5 \cos \theta}{5 \sin \theta - 3 \sec \theta} = ?$

- Ans**
- ☐ A. 0
  - ☐ B. 1
  - ☒ C. -1
  - ☐ D. 4

Section : General Intelligence and Reasoning

**Q.26** In a class of students, Radhika is 18<sup>th</sup> from the top and 32<sup>nd</sup> from the bottom. What is the total number of students in the class?

- Ans**
- ☐ A. 50
  - ☒ B. 49
  - ☐ C. 51
  - ☐ D. 52

**Q.27** If 1 is subtracted from each odd digit and 2 is added to each even digit in the number 9345712, what will be difference between the largest and smallest digits thus formed?

- Ans**
- ☒ A. 8
  - ☐ B. 6
  - ☐ C. 2
  - ☐ D. 4

**Q.28** This question is based on the following 3-letter words.  
(left) ROW MAD LAY CAT (right)

If in each of the words, each letter is changed to the next letter in the English alphabetical order, how many words thus formed will have no vowel?

- Ans**
- ☐ A. None
  - ☒ B. Two
  - ☐ C. Three
  - ☐ D. One

**Q.29** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(13, 182, 91)

(17, 306, 153)

- Ans**
- ☐ A. 15, 200, 125
  - ☐ B. 9, 125, 50
  - ☒ C. 8, 72, 36
  - ☐ D. 11, 154, 67

**Q.31** In this question, a statement is followed by four conclusions. Find out which conclusion is true based on the given statement.

**Statement:**

$$B \leq T = N > O = Q \geq M = R$$

**Conclusions:**

1.  $N \geq B$
2.  $N < B$
3.  $O < R$
4.  $T < M$

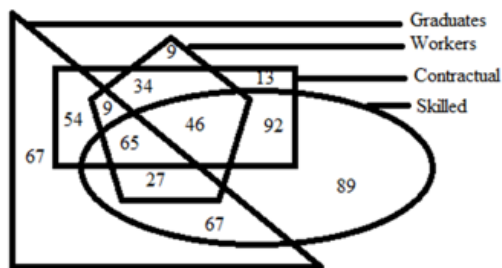
**Ans** ☒ A. 1  
☒ B. 2  
☒ C. 3  
☒ D. 4

**Q.32** Select the number from among the given options that can replace the question mark (?) in the following series.

360, ?, 180, 60, 15, 3

**Ans** ☒ A. 240  
☒ B. 180  
☒ C. 360  
☒ D. 270

**Q.33** Study the Venn diagram presented below and answer the question that follows.



How many graduated skilled workers are NOT contractual?

**Ans** ☒ A. 27  
☒ B. 65  
☒ C. 46  
☒ D. 9

**Q.34** Madan and Mohan are standing in a row of people. Madan is standing at the 16<sup>th</sup> position from the left side of the row and Mohan is standing at the 19<sup>th</sup> position from the right side of the row. If both of them interchange their positions Madan becomes 28<sup>th</sup> from the left. How many people are standing in the row?

**Ans** ☒ A. 46  
☒ B. 47  
☒ C. 35  
☒ D. 43

**Q.35** If P denotes '×', T denotes '-', M denotes '+' and B denotes '+', what will come in place of the question mark (?) in the following equation?

$$54 \text{ B } 9 \text{ P } 11 \text{ T } 13 \text{ M } 17 = ?$$

- Ans**
- ☐ A. 78
  - ☐ B. 74
  - ☐ C. 73
  - ☒ D. 70

**Q.36** Mr. Amardeep started his drive from his office and drove for 8 km towards the south. Then he took a left turn and drove for 15 km to reach city centre. Then he turned 90° in the anti-clockwise direction and drove for 8 km to reach the city palace. From the city palace, he took a left turn and drove for 8 km to reach his home. In which direction is Amardeep's office from the city centre and his home, respectively? (All turns are 90 degree turns only)

- Ans**
- ☐ A. North-east and east
  - ☒ B. North-west and west
  - ☐ C. South-east and north
  - ☐ D. South-west and west

**Q.37** In a certain code language, 'RECOVERY' is written as 'YRFVPCFR' and 'REQUIRED' is written as 'DFRJVQFR'. How will 'RIGOROUS' be written in that language?

- Ans**
- ☐ A. RJGPRPVS
  - ☒ B. SVPRPGJR
  - ☐ C. SVRPPHJR
  - ☐ D. SVPPRJGR

**Q.38** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

ASD: EWH  
FGH: JKL

- Ans**
- ☐ A. NSP: ORQ
  - ☒ B. JKL: NOP
  - ☐ C. CBH: GFM
  - ☐ D. GYU: JCY

**Q.39** Which of the following interchanges of numbers would make the given equation correct?

$$6 \times 40 \div 8 + 2 - 5 = 11$$

- Ans**
- ☐ A. 8, 40
  - ☒ B. 2, 6
  - ☐ C. 5, 6
  - ☐ D. 2, 5

**Q.40** Three statements are followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they do not conform to real world knowledge, decide which of the given conclusions/possibilities can be true on the basis of the statements.

Statements:

1. Some glasses are windows.
2. Some windows are white.
3. All white are brittle.

Conclusions

- I. Some white are glasses.
- II. Some brittle are glasses.
- III. Some brittle are windows.

**Ans**  **A. Only conclusion I is true**  
 **B. Only conclusion II is true**  
 **C. Only conclusion III is true**  
 **D. Only I and II are true**

**Q.41** Which of the following terms will replace the question mark (?) in the given series to make it logically complete?

AJM72, DMP81, GPS90, JSV99, ?

**Ans**  **A. MYV108**  
 **B. MVJ105**  
 **C. MVY108**  
 **D. MSV105**

**Q.42** Seven boxes P, Q, R, S, T, U and V are kept one over the other but not necessarily in the same order. S is kept third from the bottom. Only V is kept between P and S. Only three boxes are kept between T and V. T is kept immediately below U. Q is kept immediately above S. R is kept third from the top. How many boxes are kept between U and S?

**Ans**  **A. One**  
 **B. Two**  
 **C. Three**  
 **D. Four**

**Q.43** The following table shows the marks scored by A, B, C and D in four subjects i.e., Mathematics, Hindi, English and Science. Marks given are out of 100. Study the table and answer the question.

| Subject / Student | A  | B  | C  | D  |
|-------------------|----|----|----|----|
| Mathematics       | 90 | 85 | 83 | 78 |
| Hindi             | 86 | 80 | 74 | 82 |
| English           | 75 | 73 | 70 | 76 |
| Science           | 92 | 88 | 64 | 68 |

What is the ratio of 'the sum of the marks scored by A in Mathematics and B in Hindi' to 'the sum of the marks scored by C in Science and D in English'?

**Ans**  **A. 14 : 13**  
 **B. 2 : 3**  
 **C. 12 : 7**  
 **D. 17 : 14**

**Q.44** Study the following number arrangement and answer the question given below. All numbers given below are 2 digit numbers.

13 56 46 23 16 34 25 19 78 85 86 24 29 73 94 52 64 63

What will be the difference between the sum of the first half and second half of the above series?

- Ans**
- ☒ A. 290
  - ☒ B. 260
  - ☒ C. 310
  - ☒ D. 315

**Q.45** Susheela started her morning walk and noted that her shadow is at her back. After some time she turned left and then again turned right. Finally she turned right and started running. In which direction was she running? (All turns are 90 degree turns only)

- Ans**
- ☒ A. East
  - ☒ B. West
  - ☒ C. North
  - ☒ D. South

**Q.46** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

8 : 19 :: 5 : 13 :: 7 : ?

- Ans**
- ☒ A. 19
  - ☒ B. 17
  - ☒ C. 15
  - ☒ D. 21

**Q.47** Seven persons N, O, P, Q, R, S, and T are sitting in a row facing North. Only three persons are sitting between P and T. N is sitting at one end. P is sitting somewhere to the left of N. O is to the immediate right of P and immediate left of R. Exactly two people are sitting to the right of T who is sitting to the immediate right of Q. Who is sitting in the middle?

- Ans**
- ☒ A. T
  - ☒ B. S
  - ☒ C. Q
  - ☒ D. O

**Q.48** A statement is given below, followed by four conclusions given in the options. Find out which conclusion is true based on the given statement.

Statement:  $Q > A \geq Z > X < R \leq H < M$

- Ans**
- ☒ A.  $Q > M > H$
  - ☒ B.  $Q > X > A$
  - ☒ C.  $Z > X \geq M$
  - ☒ D.  $M > R > X$

**Q.49** A, B, C, D, E, F, G and H are sitting around a square table facing the centre of the table. Some of them are sitting at the corners, while some are sitting at the middle of the sides. D sits third to the left of F. D sits at one of the corners. C sits second to the right of A. A does not sit at any of the corners. A is not an immediate neighbour of D. G is an immediate neighbour of E. G does not sit at any of the middle of the sides. Only three people sit between G and B. Who sits second to the right of H?

- Ans**
- ☒ A. B
  - ☒ B. E
  - ☒ C. G
  - ☒ D. C

**Q.50** Three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

- I. All grounds are plane.
- II. Some planes are covered.
- III. All covered are wets.

**Conclusions:**

- I. Some wets are plane.
- II. Some wets are grounds.
- III. Some planes are grounds.

**Ans** ☒ A. Conclusions I and II follow  
☒ B. Conclusions I and III follow  
☐ C. Conclusions II and III follow  
☐ D. Conclusions I, II and III follow

**Q.51** If each vowel in the word DUSTER is changed to the letter following it in the English alphabetical order and each consonant is changed to the letter preceding it in the English alphabetical order, how many letters will appear twice in the group of letters thus formed?

**Ans** ☒ A. zero  
☐ B. One  
☐ C. Two  
☐ D. Three

**Q.52** Refer to the following letter, number, symbol series and answer the question.

(Left) K & ^ 5 T & B 4 @ 3 # 1 A 3 P H 9 L % 9 2 (Right)

If all letters are dropped from the series, which of the following will be fifth from the left?

**Ans** ☐ A. &  
☐ B. 3  
☒ C. 4  
☐ D. #

**Q.53** In a certain code language, 'AFPQV' is written as 'CITVB' and 'DLNPG' is written as 'FORUM'. How will 'LNAGK' be written in that language?

**Ans** ☒ A. NQELQ  
☐ B. NQEQL  
☐ C. QNEPK  
☐ D. NQQLQ

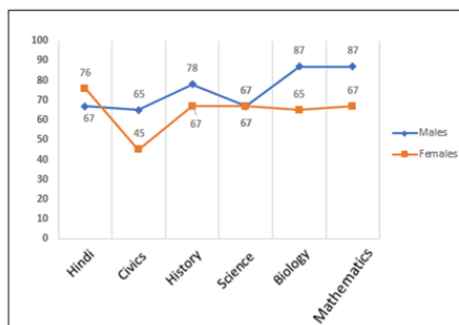
**Q.54** Select the number from among the given options that can replace the question mark (?) in the following series.

1, 0, 2, 1, 3, 2, 4, 5, 5, 26, ?, 677

**Ans** ☐ A. 52  
☐ B. 47  
☐ C. 26  
☒ D. 6

**Q.55** Study the given graph and answer the question that follows.

The graph presents total number of students who opted for different subjects in a college.



What is the difference between the total number of students who have opted for 'Biology and Mathematics' & total number of students who have opted for 'Civics and History'?

- Ans**
- ☒ A. 49
  - ☒ B. 50
  - ☒ C. 51
  - ☒ D. 52

Section : **General Science**

**Q.56** Induced EMF in a coil during the phenomenon of electromagnetic induction is directly proportional to:

- Ans**
- ☒ A. magnetic flux
  - ☒ B. resistance of the circuit
  - ☒ C. change in magnetic flux
  - ☒ D. rate of change in magnetic flux

**Q.57** In the absence of atmosphere, the colour of the sky would be:

- Ans**
- ☒ A. blue
  - ☒ B. white
  - ☒ C. black
  - ☒ D. red

**Q.59** What is the subunits composition of prokaryotic ribosomes?

- Ans**
- ☒ A. 50S and 40S
  - ☒ B. 50S and 30S
  - ☒ C. 60S and 40S
  - ☒ D. 60S and 30S

**Q.60** Which of the following practices is least harmful in the conservation of forests and wildlife?

- Ans**
- ☒ A. Collecting non-timber forest produce
  - ☒ B. Converting forests to plantations
  - ☒ C. Building roads and dams in forested areas
  - ☒ D. Using forests as a source of raw material for industries

**Q.63** Two resistors, A ( $20\ \Omega$ ) and B ( $30\ \Omega$ ), are connected in parallel. The combination is connected to a 3 V battery. The current through the battery is:

- Ans**
- ☒ A. 0.15 A
  - ☒ B. 0.25 A
  - ☒ C. 0.30 A
  - ☒ D. 0.50 A

**Q.64** Which of the following instruments is used to measure blood pressure?

- Ans**
- ☒ A. Spectrophotometer
  - ☒ B. Sphygmomanometer
  - ☒ C. Urinometer
  - ☒ D. Haemoglobin meter

**Q.65** Which of the following parts of a flower develops into a fruit after fertilisation?

- Ans**
- ☒ A. Ovule
  - ☒ B. Ovary
  - ☒ C. Pistil
  - ☒ D. Petal

**Q.67** Voice change during puberty occurs due to \_\_\_\_\_.

- Ans**
- ☒ A. the development of larynx
  - ☒ B. the development of lungs
  - ☒ C. cigarette smoking
  - ☒ D. muscular development

**Q.69** Match the following characteristics in the modern periodic table:

|                                    |       |
|------------------------------------|-------|
| i. Total number of blocks in table | a. 4  |
| ii. Total number of periods        | b. 2  |
| iii. Number of elements in K shell | c. 8  |
| iv. Number of elements in M shell  | d. 7  |
| v. Number of elements in L shell   | e. 18 |

- Ans**
- ☒ A. i-a, ii-b, iii-c, iv-d, v-e
  - ☒ B. i-a, ii-d, iii-b, iv-e, v-c
  - ☒ C. i-b, ii-a, iii-d, iv-c, v-e
  - ☒ D. i-e, ii-c, iii-a, iv-b, v-d



**Q.70** The potential difference across a copper wire is 5.0 V when a current of 0.5 A flows through it. The resistance of the wire is:

- Ans**
- ☐ A. 2.5  $\Omega$
  - ☐ B. 5.0  $\Omega$
  - ☐ C. 0.1  $\Omega$
  - ☒ D. 10.0  $\Omega$

**Q.71** A current-carrying straight conductor is placed in a magnetic field. The conductor experiences the maximum force when the angle between the direction of the current in it and the direction of the magnetic field is:

- Ans**
- ☐ A.  $30^\circ$
  - ☐ B.  $45^\circ$
  - ☐ C.  $60^\circ$
  - ☒ D.  $90^\circ$

**Q.74** The resistance of a wire of length L and area of cross-section A is 1.0  $\Omega$ . The resistance of a wire of the same material, but of length 4L and area of cross-section 5A will be:

- Ans**
- ☐ A. 0.4  $\Omega$
  - ☒ B. 0.8  $\Omega$
  - ☐ C. 1.25  $\Omega$
  - ☐ D. 2.5  $\Omega$

**Q.75** An object is placed at a distance of 10 cm in front of a concave mirror. Its image is formed at a distance at 15 cm on the same side. The focal length of the mirror is:

- Ans**
- ☐ A. 6 cm
  - ☒ B. -6 cm
  - ☐ C. 30 cm
  - ☐ D. -30 cm

**Q.76** In an organic compound, a functional group determines:

- Ans**
- ☒ A. its chemical properties
  - ☐ B. the length of carbon chain
  - ☐ C. the nature of the carbon chain
  - ☐ D. its molecular mass

**Q.77** In which of the following cases does a concave mirror form a real image?

- (i) Object placed between focus and pole
- (ii) Object placed at infinity
- (iii) Object placed at focus

- Ans**
- ☐ A. Both (i) and (ii)
  - ☒ B. Both (ii) and (iii)
  - ☐ C. Both (i) and (iii)
  - ☐ D. (i), (ii) and (iii)

**Q.79** Which of the following is an artificial ecosystem that is manmade?

- Ans**
- ☒ A. Crop field
  - ☐ B. Forest
  - ☐ C. Pond
  - ☐ D. Lake

**Q.80** Hardness of water can be removed by using:

- Ans**
- ☐ A. vinegar
  - ☐ B. POP
  - ☐ C. common salt
  - ☒ D. washing soda

Section : General Awareness and Current Affairs

**Q.82** Which of the following sports/activities is NOT covered under the National Air Sports Policy 2022?

- Ans**
- ☐ A. Gliding
  - ☐ B. Ballooning
  - ☒ C. Parasailing
  - ☐ D. Aerobatics

**Q.83** In March 2022, Bharat Biotech partnered with which country's bio-pharmaceutical firm Biofabri for TB vaccine?

- Ans**
- ☐ A. Canada
  - ☐ B. Australia
  - ☒ C. Spain
  - ☐ D. USA

**Q.85** Which institution is the country's premier organisation for literary discourse, publication and promotion, and the only one that does so in 24 Indian languages, including English?

- Ans**
- ☒ A. Sahitya Akademi
  - ☐ B. Indira Gandhi National Open University
  - ☐ C. English and Foreign Languages University
  - ☐ D. Hindi Granth Academy

**Q.86** Identify the wrong pair (Bank and related category) from following-

- Ans**
- ☐ A. Axis Bank Ltd - Private Sector Bank
  - ☐ B. AU Bank Ltd – Small Finance Bank
  - ☒ C. Canara Bank – Payments Bank
  - ☐ D. Punjab National Bank – Public Sector Bank

**Q.87** Who is the chairperson of National Commission for Women in India (As of July 2022)?

- Ans**
- ☐ A. Dr. Girija Vyas
  - ☐ B. Mamta Sharma
  - ☐ C. Meeta Rajivlochan
  - ☒ D. Rekha Sharma

**Q.88** The Tadoba National Park is located in which state of India?

- Ans**
- ☐ A. Bihar
  - ☐ B. Rajasthan
  - ☐ C. Uttar Pradesh
  - ☒ D. Maharashtra

**Q.89** A Memorandum of Understanding (MoU) was signed between the Survey of India, Government of India and Assam State Government in June 2021 for the implementation of which scheme for rural property survey?

- Ans**
- ☒ A. Svamitva scheme
  - ☐ B. Mission Suraksha
  - ☐ C. Sahakar Mitra Scheme
  - ☐ D. Mission Sagar

**Q.91** In which of the following years did the fourteen major Indian scheduled commercial banks get nationalised in India?

- Ans**
- ☐ A. 1950
  - ☒ B. 1969
  - ☐ C. 1970
  - ☐ D. 1972

**Q.92** Which of the following herbs is found only in India and is used to treat blood pressure?

- Ans**
- ☐ A. Tulsi
  - ☐ B. Jamun
  - ☒ C. Sarpagandha
  - ☐ D. Kachnar

**Q.93** \_\_\_\_\_ means the additional satisfaction or benefit (utility) that a consumer derives from buying an additional unit of a commodity or service.

- Ans**
- ☒ A. Marginal Utility
  - ☐ B. Total Utility
  - ☐ C. Equilibrium
  - ☐ D. Consumer Demand

**Q.94** Which country won the bronze at the men's Hockey Asia Cup 2022 in Jakarta?

- Ans**
- ☐ A. Japan
  - ☐ B. Pakistan
  - ☒ C. India
  - ☐ D. South Korea

Q.95

What is the ranking of India in plant diversity in the world as on December 2010?

Ans

☐ A. 20<sup>th</sup>

☐ B. 15<sup>th</sup>

☒ C. 10<sup>th</sup>

☐ D. 25<sup>th</sup>

Q.96 As of March 2022, the common High Court for the states of Punjab and Haryana is located at \_\_\_\_\_.

Ans

☐ A. Firozpur

☒ B. Chandigarh

☐ C. Karnal

☐ D. Faridabad

Q.98

How many airlines were nationalised under The Air Corporation Act, 1953?

Ans

☐ A. 18

☒ B. 09

☐ C. 13

☐ D. 11

Q.99 The 73rd Amendment of the Constitution enables the states with a population of less than 20 lakhs to have a minimum \_\_\_\_\_ structure in the local governance of the state.

Ans

☒ A. two-tier

☐ B. three-tier

☐ C. one-tier

☐ D. union rule



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 01/09/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** A shopkeeper has the following 3 schemes:

(I) Two successive discounts of 30% and 35%

(II) Buy 6, get 4 free

(III) Buy 5, get 6 free

Which scheme has the maximum discount percentage?

**Ans**

☒ A. Only I

☒ B. Only II

☒ C. Only III

☒ D. Both II and III

**Q.2** If the product of two numbers, not necessarily distinct from each other, is 25 and their HCF is 5, then their LCM is:

**Ans**

☒ A. 4

☒ B. 5

☒ C. 6

☒ D. 7

**Q.3** Find the area of a trapezium (in sq. unit) with parallel sides of length 3 unit and 5 unit and the shortest distance between its parallel sides is 6 unit.

**Ans**

☒ A. 24

☒ B. 12

☒ C. 48

☒ D. 15

Q.4 Which is the correct formula for median of grouped data?

Consider:

L = lower limit of median class

$CF_0$  = cumulative frequency of preceding class

F = frequency of median class

H = class width

N = the total of frequency

Ans

☐ A.  $L + \frac{N}{2} - CF_0 - F \times H$

☒ B.  $L + \frac{\frac{N}{2} - CF_0}{F} \times H$

☐ C.  $\frac{\frac{N}{2} - CF_0}{F} \times H$

☐ D.  $L + \frac{\frac{N}{2} - CF_0}{F}$

Q.5 The sum of two positive numbers is 45 and their difference is 19. What are the numbers?

Ans

☐ A. 25, 20

☒ B. 32, 13

☐ C. 31, 15

☐ D. 30, 15

Q.6 If  $\alpha$  and  $\beta$  are the roots of the equation  $6x^2 + x - 15 = 0$ , where  $\alpha > \beta$ , then the value of  $(\alpha - \beta)$  is:

Ans

☐ A.  $\frac{1}{6}$

☐ B.  $\frac{1}{3}$

☐ C.  $\frac{20}{3}$

☒ D.  $\frac{19}{6}$

Q.7 A 280 m long train overtakes a man moving at a speed of 8 km/h (in same direction) in 16 seconds. How much time (in seconds) will it take this train to completely cross another 380 m long train, moving in the opposite direction at a speed of 37 km/h?

Ans

☐ A. 20

☒ B. 22

☐ C. 25

☐ D. 28

**Q.8** In  $\Delta ABC$ ,  $DE \parallel AC$ , where D and E are the points on sides AB and BC, respectively. If  $BD = 4$  cm and  $AD = 2\sqrt{2}$  cm, then what is the ratio of the area of  $\Delta BDE$  to the trapezium ADEC?

- Ans**
- ☐ A.  $2 : (1 + 3\sqrt{2})$
  - ☐ B.  $1 : (1 + 2\sqrt{2})$
  - ☐ C.  $2 : (1 + \sqrt{2})$
  - ☒ D.  $2 : (1 + 2\sqrt{2})$

**Q.9** If an exterior angle of a regular polygon is  $40^\circ$ , then the number of sides in the regular polygon is:

- Ans**
- ☐ A. 10
  - ☒ B. 9
  - ☐ C. 8
  - ☐ D. 7

**Q.10** If  $9.6 : 16.8 :: 18 : x$ , what is the value of x?

- Ans**
- ☐ A. 20.4
  - ☐ B. 24.8
  - ☐ C. 25.5
  - ☒ D. 31.5

**Q.11** The cost of 2 tables and 3 chairs is ₹540, while that of 2 tables and 1 chair is ₹470. What is the cost of 5 chairs?

- Ans**
- ☐ A. ₹185
  - ☐ B. ₹245
  - ☒ C. ₹175
  - ☐ D. ₹205

**Q.12** If  $(\sin\beta + \operatorname{cosec}\beta)^2 + (\sec\beta - \cos\beta)^2 = a + \tan^2\beta + \cot^2\beta$ , then the value of a is:

- Ans**
- ☐ A. 0
  - ☐ B. 2
  - ☒ C. 3
  - ☐ D. 5

**Q.13** Find the value of  $529 \div 23 \times 61 - 1403$ .

- Ans**
- ☐ A. 1
  - ☐ B. 2
  - ☒ C. 0
  - ☐ D. 3

**Q.14** If the ratio of two numbers is 4 : 3 and the product of their LCM and their HCF is 432, then the sum of the reciprocals of the LCM and the HCF is:

- Ans**
- ☒ A.  $\frac{13}{72}$
  - ☐ B.  $\frac{13}{2}$
  - ☐ C.  $\frac{13}{7}$
  - ☐ D.  $\frac{13}{27}$

**Q.15** A dealer buys apples at ₹50, ₹40 and ₹30 per kilogram. He mixes them in the ratio 2 : 4 : 9 respectively, by weight, and sells at a profit of 30%. At what approximate price per kilogram does he sell the apples?

- Ans**
- ✓ A. ₹45.9/kg
  - ✗ B. ₹23.5/kg
  - ✗ C. ₹10.8/kg
  - ✗ D. ₹75/kg

**Q.16** The sum of two times the present age of A and three times the present age of B is 106 years. Four times the present age of B exceeds three times the present age of A by 11 years. What will be the sum of the ages (in years) of A and B, 4 years from now?

- Ans**
- ✗ A. 43
  - ✗ B. 47
  - ✗ C. 49
  - ✓ D. 51

**Q.17** A man covers distances of 300 km, 225 km, and 375 km at the speed of 15 km/h,  $x$  km/h and 30 km/h, respectively. If his average speed for the whole journey is 20 km/h, then what is the value of  $x$  ?

- Ans**
- ✗ A. 15
  - ✓ B. 18
  - ✗ C. 20
  - ✗ D. 24

**Q.18** The simplified value of  $\frac{(0.11)^2 + (0.06)^2 + (0.031)^2}{(0.011)^2 + (0.006)^2 + (0.0031)^2}$  is:

- Ans**
- ✗ A. 1000
  - ✓ B. 100
  - ✗ C. 10
  - ✗ D. 1

**Q.19** If  $x^2 - 4x + 4 = 0$ , then the value of  $x^3 + x^2 + \frac{1}{x} + \frac{1}{x^2}$  is:

- Ans**
- ✗ A. 15.75
  - ✗ B. 14.75
  - ✗ C. 13.75
  - ✓ D. 12.75

**Q.20** If  $x^2 - 2x + 1 = 0$ , then it has:

- Ans**
- ✓ A. two roots
  - ✗ B. three roots
  - ✗ C. four roots
  - ✗ D. five roots

**Q.21** Krishna has a few coins of 1 rupee, 50 paise and 25 paise in the ratio  $\frac{1}{4} : \frac{1}{2} : \frac{1}{2}$ . If the number of 25 paise coins is 100, then the total amount with Krishna is:

- Ans**
- ✗ A. ₹75
  - ✗ B. ₹120
  - ✗ C. ₹100
  - ✓ D. ₹125



**Q.22** A car covers certain distance in  $2\frac{1}{4}$  hours at 36 miles/h and another distance in  $1\frac{3}{4}$  hours at 56 miles/h. Find the total distance (in miles) travelled by the car.

- Ans**
- ☐ A. 139
  - ☐ B. 159
  - ☒ C. 179
  - ☐ D. 200

**Q.23** A sum of ₹36,000 deposited at a certain rate of compound interest, compounded annually, becomes three times itself after 6 years. How much will it become after 18 years at the same rate of compound interest?

- Ans**
- ☐ A. ₹10,72,000
  - ☒ B. ₹9,72,000
  - ☐ C. ₹8,72,000
  - ☐ D. ₹7,72,000

**Q.24** There are 4 pipes attached to a tank. Two to fill the tank and the other two to transfer the water into a cistern. The first two pipes can fill the tank in 40 sec and 80 sec, respectively, when opened alone, while the last two can empty in 80 sec and 160 sec, respectively, when opened alone. If all the pipes are opened together, in how much time will the tank be filled?

- Ans**
- ☐ A. 21.2 sec
  - ☐ B. 24.44 sec
  - ☒ C. 53.33 sec
  - ☐ D. 16.8 sec

**Q.25** The sides of a triangle are 15 cm, 28 cm, and 41 cm. What is the length of its altitude corresponding to the side with a length of 28 cm?

- Ans**
- ☒ A. 9 cm
  - ☐ B. 10 cm
  - ☐ C. 12 cm
  - ☐ D. 14 cm

#### Section : General Intelligence and Reasoning

**Q.26** HARKED is related to RAHDEK in a certain way. In the same way, RACIAL is related to CARLAI. To which of the following is NIMBLE related, following the same logic?

- Ans**
- ☐ A. NIMELB
  - ☒ B. MINELB
  - ☐ C. NIMLEB
  - ☐ D. MINLEB

**Q.27** In this question, a statement is followed by four conclusions. Find out which conclusion is true based on the given statement.

**Statement:**

$$H \geq Y < T \leq L = X > W$$

**Conclusions:**

1.  $H > T$
2.  $H < T$
3.  $Y < X$
4.  $L = W$

**Ans** ☒ A. 1  
☒ B. 2  
☒ C. 3  
☒ D. 4

**Q.28** Six girls, P, Q, R, S, T and V, are sitting in a circle, facing the centre of the circle. P sits to the immediate right of Q. S is 3<sup>rd</sup> to the right of P, and to the immediate left of R. V and T are immediate neighbours. T is second to the left of R. Who is to the immediate left of V?

**Ans** ☒ A. Q  
☒ B. P  
☒ C. T  
☒ D. S

**Q.29** From the given numbers 452, 243, 361, 579 and 674, if in each number, the first and the second digits of each number are interchanged, then which of the following will be the highest number?  
(Example- 697 – First digit = 6, second digit = 9 and third digit = 7)

**Ans** ☒ A. 452  
☒ B. 361  
☒ C. 579  
☒ D. 674

**Q.30** Five persons, P, Q, R, S and T travelled in different months of the same year viz. January, February, March, April and May.  
R travelled in February. Only one person travelled between R and S. Only three people travelled between Q and T. T travelled in a month after S. Who among them travelled in May?

**Ans** ☒ A. Q  
☒ B. S  
☒ C. T  
☒ D. P

**Q.31** Select the combination of letters that when placed from left to right in the same sequence in the blanks of the given series will complete the series.

XY\_YZ\_ \_XY\_ \_ABXY\_ \_ZAB\_ \_YYZA\_

**Ans** ☒ A. YABYZYYXYY  
☒ B. XABYZYYXYYB  
☒ C. YABYZYYXYYB  
☒ D. YZBYZYYXYYB

**Q.32** Which of the following numbers will replace the question mark (?) in the given series?

99, 101, 104, 109, 116, ?

- Ans**
- ☒ A. 132
  - ☒ B. 128
  - ☒ C. 124
  - ☒ D. 127

**Q.33** Three statements are followed by three conclusions numbered I, II and III. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts. Decide which of the given conclusions logically follow(s) from the given statement.

Statements:

All bins are plastics

Some plastics are nylon

Some nylons are green

Conclusions:

(I) Some nylons are plastics

(II) All plastics are bins

(III) Some greens are nylons

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Only conclusions I and III follow
  - ☒ D. None of the conclusions follow

**Q.34** Refer to the following letter series and answer the question.

J F V I E J E M V E F O J V E J J V M E X

How many such consonants are there each of which is immediately preceded by a vowel and also immediately followed by a vowel?

- Ans**
- ☒ A. One
  - ☒ B. Two
  - ☒ C. Three
  - ☒ D. Four

**Q.35** Pole F is to the north of pole B and west of pole E. Pole R is to the east of pole E and north of pole U. What is the position of pole R with respect to pole B?

- Ans**
- ☒ A. North
  - ☒ B. North-east
  - ☒ C. South
  - ☒ D. South-east

**Q.36** All 50 students of a class are standing in a straight row facing north. Rakesh is 17<sup>th</sup> from the right end, while Kamlesh is 22<sup>nd</sup> from the left end. How many students are standing between Rakesh and Kamlesh?

- Ans**
- ☒ A. 11
  - ☒ B. 5
  - ☒ C. 16
  - ☒ D. 8

**Q.37** In a code language, BRAIN is coded as YIZRM and COACH is coded as XLZXS. What is the code for ENTRY in that language?

- Ans**
- ☐ A. UMFIB
  - ☐ B. VNFIB
  - ☒ C. VMGIB
  - ☐ D. UNGIB

**Q.38** Which of the following interchanges of numbers would make the given equation correct?

$$5 \times 15 \div 5 + 22 - 18 = 25$$

- Ans**
- ☐ A. 22, 18
  - ☐ B. 5, 15
  - ☒ C. 22, 25
  - ☐ D. 5, 25

**Q.39** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

$$13 : 31 :: 15 : 33 :: 20 : ?$$

- Ans**
- ☐ A. 40
  - ☐ B. 36
  - ☐ C. 32
  - ☒ D. 38

**Q.40** Given below is a decision followed by two statements I and II. Read the information carefully and select the correct option.

**Decision:**

The state government has decided to start free education programs for all uneducated females living in villages in order to provide them with basic education.

**Statements:**

I. Similar programs in other states had resulted in 63% more employed women in just 2 years.

II. Some of the women in the said state, currently have children below 5 years of age, due to which they do not have much free time.

- Ans**
- ☐ A. Both statements I and II strengthen the decision.
  - ☒ B. Statement I strengthens the decision but statement II is neutral.
  - ☐ C. Both statements I and II weaken the decision.
  - ☐ D. Statement I is neutral but statement II weakens the decision.

**Q.41** Seven boxes A, B, C, D, E, F and G are kept one above the other, not necessarily in the same order. Box E is the topmost box. Box G is the third box above box A. Box F is immediately above box G. Box B is immediately below box C. There is only one box between box B and box D. How many boxes are there between D and G?

- Ans**
- ☐ A. One
  - ☐ B. Two
  - ☒ C. Three
  - ☐ D. Four

**Q.42** While returning home from school Rana misdirected from his way. From school he first walked for 3 km towards the south and then turned left and walked for 2 km. From there, he turned towards the left and further walked for 3 km. Finally he again turned to his left and walked for 1 km to reach his home. In which direction is his home from school? (All turns are 90 degree turns only)

- Ans**
- ✓ A. East
  - ✗ B. West
  - ✗ C. North
  - ✗ D. South

**Q.43** Study the following arrangement and answer the question given below. All numbers given below are 2 digit numbers.

85 34 @ 36 # 56 67 \* 79 \$ 42 48 % 32 81 Ø 57 38 ^ 73 / 51

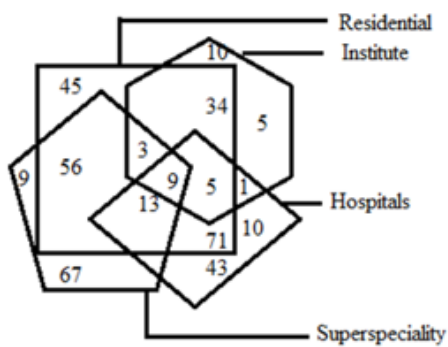
What will be the sum of those odd numbers which are followed by symbols and even numbers which are preceded by symbols?

- Ans**
- ✗ A. 548
  - ✗ B. 523
  - ✗ C. 498
  - ✓ D. 466

**Q.44** How many such pairs of letters are there in the word FRANCK (in both forward and backward directions) which have as many letters between them in the word as there are in the English alphabetical order?

- Ans**
- ✗ A. None
  - ✗ B. One
  - ✓ C. Two
  - ✗ D. Three

**Q.45** Study the given Venn diagram and answer the question that follows.



How many residential super-specialty hospitals are institutes?

- Ans**
- ✗ A. 3
  - ✗ B. 13
  - ✗ C. 5
  - ✓ D. 9

**Q.46** Which of the following options is the closest approximate value which will come in place of question mark(?) in the following equation?

$$14.96 + 10.96 + 13.16 - 12.89 \times 2.04 + 24.93 \div 5.1 = ?$$

- Ans**
- ☒ A. 20
  - ☒ B. 16
  - ☒ C. 18
  - ☒ D. 22

**Q.47** There are eight persons P, Q, R, S, T, U, V and W, sitting around a rectangular table in such a way that four of them sit at four corners of the table while the other four sit in the middle of each of the four sides. All the eight persons face toward the centre. T sits third to the right of V, but T is not the immediate neighbour of U. R sits second to the right of Q. S sits second to the right of U. P sits third to the right of Q. Who among the following is sitting 4<sup>th</sup> to the right of P?

- Ans**
- ☒ A. R
  - ☒ B. W
  - ☒ C. U
  - ☒ D. S

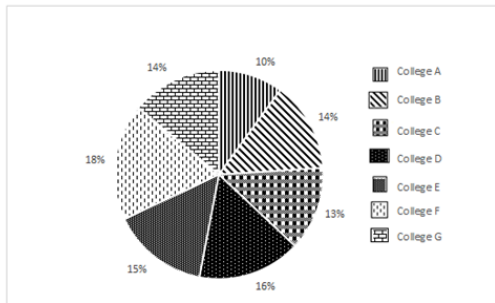
**Q.48** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

$$2 : 10 :: 3 : 30 :: 4 : ?$$

- Ans**
- ☒ A. 70
  - ☒ B. 58
  - ☒ C. 72
  - ☒ D. 68

**Q.49** Study the given pie-chart and answer the question that follows.

The pie-chart presents the percentage of law students enrolled in different colleges of Agra district.



If the total number of law students in the district is 23786, how many students are studying in colleges A, D and G taken together? (approximately)

- Ans**
- ☒ A. 9520
  - ☒ B. 10701
  - ☒ C. 9514
  - ☒ D. 7134

**Q.50** In this question, a statement is followed by two conclusions. Which of the two conclusions is/are true with respect to the statement?

Statement:  $X > E \geq U < W = T > J < L$

Conclusions:

I.  $T < E$

II.  $X < U$

- Ans**
- ☒ A. Only conclusion I is true
  - ☒ B. Only conclusion II is true
  - ☒ C. Both conclusions I and II are true
  - ☒ D. Neither conclusion I nor II is true

**Q.51** The following table shows the marks scored by A, B, C and D in four subjects i.e., Mathematics, Hindi, English and Science. Marks given are out of 100. Study the table and answer the question.

| Subject / Student | A  | B  | C  | D  |
|-------------------|----|----|----|----|
| Mathematics       | 94 | 85 | 83 | 78 |
| Hindi             | 86 | 78 | 74 | 82 |
| English           | 75 | 73 | 70 | 74 |
| Science           | 92 | 88 | 66 | 68 |

What is the ratio of 'the sum of the marks scored by A in Mathematics and Hindi' to 'the sum of the marks scored by C in Science and Hindi'?

- Ans**
- ☒ A. 1 : 2
  - ☒ B. 8 : 9
  - ☒ C. 5 : 3
  - ☒ D. 9 : 7

**Q.52** This question is based on the five, three-digit numbers given below.

(Left) 534 945 317 354 781 (Right)

(Example: 697 – first digit = 6, second digit = 9, third digit = 7)

NOTE: All operations to be done from left to right.

If all the numbers are arranged in ascending order, the position of how many numbers will remain unchanged?

- Ans**
- ☒ A. 0
  - ☒ B. 1
  - ☒ C. 2
  - ☒ D. 3

**Q.53** In a certain code language, 'ENTER' is written as 'UBWKH' and 'SHIFT' is written as 'WCLEV'. How will 'TOUCH' be written in that language?

- Ans**
- ☒ A. WXLKZ
  - ☒ B. KZXLW
  - ☒ C. WLXZK
  - ☒ D. KFXRW

**Q.54** Three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

1. All envelopes are letters.
2. No letter is a paper.
3. Some papers are notebook.

**Conclusions:**

- I. Some papers are envelopes.
- II. All notebooks can never be letters.
- III. Some notebooks are envelopes.

**Ans** ☒ A. Only conclusion I follows  
☒ B. Only conclusion II follows  
☒ C. Only conclusion III follows  
☒ D. None of the conclusions follow

**Q.55** Which of the following numbers will replace the question mark (?) in the given series?

4, 21, 47, 100, 198, ?

**Ans** ☒ A. 395  
☒ B. 359  
☒ C. 355  
☒ D. 399

#### Section : General Science

**Q.56** When Mendel studied the inheritance of two traits in the pea plant, in what phenotypic ratio did he get for the plants in F<sub>2</sub> generation?

**Ans** ☒ A. 9 : 7  
☒ B. 9 : 4 : 2 : 1  
☒ C. 9 : 3 : 2 : 2  
☒ D. 9 : 3 : 3 : 1

**Q.57** Which of the following CANNOT be explained using the phenomenon of scattering of light?

**Ans** ☒ A. Red colour used for danger signals  
☒ B. Reddening of sun during sunrise  
☒ C. Blue colour of sky  
☒ D. Twinkling of stars

**Q.58** A unicellular organism has a definite shape, takes food in at a specific spot, and uses hair like cilia to move food to that spot. Identify the organism,

**Ans** ☒ A. Lice  
☒ B. Paramecium  
☒ C. Plasmodium  
☒ D. Euglena



**Q.59** Which gases are evolved during complete decomposition of ferrous sulphate crystals?

- Ans**
- ☐ A. Only  $SO_2$
  - ☐ B. Only  $SO_3$
  - ☒ C. Both  $SO_2$  and  $SO_3$
  - ☐ D.  $O_2$

**Q.60** An object of size 1.0 cm is placed in front of a concave mirror of focal length 16 cm, at a distance of 24 cm. The image formed is \_\_\_\_\_ and its height is \_\_\_\_\_.

- Ans**
- ☒ A. inverted, 2.0 cm
  - ☐ B. erect, 2.0 cm
  - ☐ C. inverted, 0.4 cm
  - ☐ D. erect, 0.4 cm

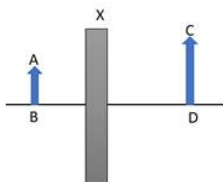
**Q.61** Which of the following parts of the human body is/are NOT lined with squamous epithelium?

- Ans**
- ☐ A. Mouth
  - ☐ B. Oesophagus
  - ☒ C. Kidney tubules
  - ☐ D. Skin

**Q.62** Which of the following has the highest boiling point?

- Ans**
- ☐ A.  $LiCl$
  - ☐ B.  $NaCl$
  - ☐ C.  $CaCl_2$
  - ☒ D.  $CaO$

**Q.63** An optical device X forms an image CD for an object AB as shown in the figure. The device X is a:



- Ans**
- ☐ A. convex mirror
  - ☒ B. concave mirror
  - ☐ C. convex lens
  - ☐ D. concave lens

**Q.64** What is the waste product in photosynthesis?

- Ans**
- ☐ A. Water
  - ☒ B. Oxygen
  - ☐ C. Carbon dioxide
  - ☐ D. Glucose

**Q.65** Direction of rotation of armature of motor can be found with the help of \_\_\_\_\_.

- Ans**
- ☐ A. Maxwell's corkscrew rule
  - ☐ B. Right hand thumb rule
  - ☒ C. Fleming's left-hand rule
  - ☐ D. Fleming's right-hand rule

**Q.66** When resistors are connected in series combination, then potential difference across each resistor will be:

- Ans**
- ☐ A. Equally divided
  - ☐ B. Proportional to thickness
  - ☒ C. Proportional to resistance
  - ☐ D. Similar

**Q.67** When magnetic field is acting towards north and current is moving in east to west direction through a conductor, then the conductor will move \_\_\_\_\_ direction

- Ans**
- ☐ A. towards left
  - ☐ B. towards right
  - ☐ C. in the upward
  - ☒ D. in the downward

**Q.68** Rays coming from the sun are refracted by the atmosphere. Due to this, the apparent sunset is about \_\_\_\_\_ the actual sunset.

- Ans**
- ☐ A. 1 minute after
  - ☐ B. 1 minute before
  - ☒ C. 2 minutes after
  - ☐ D. 2 minutes before

**Q.69** Which of the following is the most electronegative element?

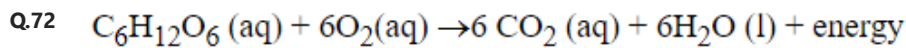
- Ans**
- ☒ A. Cl
  - ☐ B. S
  - ☐ C. Mg
  - ☐ D. Al

**Q.70** Who suggested that the origin of life must have been from simple inorganic substances?

- Ans**
- ☐ A. Gregor Mendel
  - ☐ B. Charles Darwin
  - ☒ C. JBS Haldane
  - ☐ D. Stanley L Miller

**Q.71** In a chemical equation, the arrow head points towards:

- Ans**
- ☐ A. reaction conditions
  - ☐ B. Solvent
  - ☒ C. products
  - ☐ D. Reactants



The special name for the given reaction is:

- Ans
- ☒ A. respiration
  - ☐ B. digestion
  - ☐ C. metabolism
  - ☐ D. energy conversion

Q.73 Mendeleev's period table examined the relationship between the atomic mass of elements and their \_\_\_\_\_.

- Ans
- ☐ A. physical properties only
  - ☐ B. chemical properties only
  - ☒ C. physical and chemical properties both
  - ☐ D. colour

Q.74 When a 24 V potential is applied across a conductor and 96 mA current is flowing through it then the resistance of the conductor is:

- Ans
- ☐ A. 40  $\Omega$
  - ☐ B. 0.250  $\Omega$
  - ☐ C. 0.04  $\Omega$
  - ☒ D. 250  $\Omega$

Q.75 How much energy is released when water is used to break down the terminal link of ATP?

- Ans
- ☒ A. 30.5 kJ/mol
  - ☐ B. 31.5 kJ/mol
  - ☐ C. 35.6 kJ/mol
  - ☐ D. 37.2 kJ/mol

Q.76 Some statements about food chain and energy flow through an ecosystem are given below. Select the INCORRECT statement.

- Ans
- ☐ A. All organisms that are not producers are consumers.
  - ☐ B. Food webs include two or more food chains.
  - ☐ C. A single organism can feed at several trophic levels.
  - ☒ D. The lower the trophic level at which an organism feeds, the less energy it has.

Q.77 A conductor is connected to a battery of 6V. Let  $V_1$  be the potential difference across the conductor. When a battery of 9 V is connected, the potential difference becomes  $V_2$ . ( $V_1/V_2$ ) is:

- Ans
- ☐ A. 1.5
  - ☐ B.  $\frac{1}{3}$
  - ☒ C.  $\frac{2}{3}$
  - ☐ D. 3

**Q.78** Aashi, by mistake used an unknown solution to clean her clothes, in place of detergent. Her clothes faded. The solution could be:

- Ans**
- ☐ A. common salt
  - ☐ B. baking soda powder
  - ☒ C. bleaching powder
  - ☐ D. talcum powder

**Q.79** The first member of the alkyne group of hydrocarbons is:

- Ans**
- ☐ A. methyne
  - ☒ B. ethyne
  - ☐ C. propyne
  - ☐ D. butyne

**Q.80** Which of the following issues is NOT a problem concerning large dams?

- Ans**
- ☐ A. Deforestation and the loss of biological diversity
  - ☐ B. Displacement of people
  - ☒ C. Storage of water for irrigation
  - ☐ D. Low benefits compared to costs involved

Section : General Awareness and Current Affairs

**Q.81** 'Loo' winds are usually associated with \_\_\_\_\_ in India.

- Ans**
- ☒ A. summer seasons
  - ☐ B. winter seasons
  - ☐ C. advancing monsoons
  - ☐ D. retreating monsoons

**Q.82** In which year was Bandhan Financial Services, a micro lender based out of Kolkata granted in-principle approval by RBI to start a universal bank?

- Ans**
- ☐ A. 2004
  - ☐ B. 2010
  - ☒ C. 2014
  - ☐ D. 2018

**Q.83** Consumer theory is how people decide to spend their \_\_\_\_\_.

- Ans**
- ☐ A. relations
  - ☐ B. time
  - ☒ C. money
  - ☐ D. energy

**Q.84** India's First Five Year Plan covered the period from \_\_\_\_\_, which mainly focused in the development of the primary sector.

- Ans**
- ☐ A. 1956 to 1961
  - ☐ B. 1947 to 1952
  - ☒ C. 1951 to 1956
  - ☐ D. 1949 to 1954

Q.85

How many languages are included in the Indo-Aryan language family as per Family-Wise Grouping of The 122 Scheduled and Non-Scheduled Languages - 2001?

Ans

☐ A. 12

☒ B. 21

☐ C. 15

☐ D. 25

Q.86

The water currents flowing from tropical zones of lower latitudes to higher temperate and sub-polar zones are known as \_\_\_\_\_.

Ans

☐ A. cold currents

☒ B. warm currents

☐ C. water drift

☐ D. tides

Q.87

At the inauguration of 'Tech NEEV @ 75' in November 2021, Union Minister of State for Science and Technology, Jitendra Singh announced the setting up of 30 STI Hubs in different parts of the country for Scheduled Tribes (STs) by the end of 2022. STI stands for \_\_\_\_\_.

Ans

☒ A. Science, Technology and Innovation

☐ B. Special Technological Industry

☐ C. Scientific and Technological Investigation

☐ D. Science, Technology and Industrialization

Q.88

Baisakhi festival is celebrated in the month of \_\_\_\_\_ in India.

Ans

☐ A. January

☐ B. February

☐ C. March

☒ D. April

Q.89

Which of the following mountain ranges is NOT a part of the Himalayan mountains?

Ans

☐ A. Zaskar Range

☐ B. Pir Panjal Range

☐ C. Karakoram Range

☒ D. Mahadeo Range

Q.90

In which Indian state will you find The Sumi Baptist Church?

Ans

☐ A. Kerala

☐ B. Goa

☐ C. Manipur

☒ D. Nagaland

- Q.91** In 1993, the Government of India established an institution, the NHRC, to monitor the violations of human rights. What is the full form of NHRC?
- Ans** ☒ A. National Human Rights Commission  
☒ B. National Human Rights Constitution  
☒ C. National Hindu Rights Commission  
☒ D. National Human Rights Committee
- Q.92** Which of the following events related to India's freedom struggle is matched correctly with its year of occurrence?
- Ans** ☒ A. 1922 – Mahatma Gandhi halted the Non-cooperation Movement on the national level as a direct result of the Chauri Chaura incident  
☒ B. 1928 – The Indian National Congress passed the resolution on Purna Swaraj  
☒ C. 1932 – Dr. B.R. Ambedkar, organized the Dalits into the Depressed Classes Association  
☒ D. 1918 – General Dyer opened fire at a gathering at Jallianwala Bagh
- Q.93** The State Election Commission does NOT conduct elections to \_\_\_\_\_.
- Ans** ☒ A. Town Municipal Councils  
☒ B. Municipal Corporations  
☒ C. State Legislative Assemblies  
☒ D. Gram Panchayats
- Q.94** In India, the constitutional head of the Executive of the Union is the \_\_\_\_\_.
- Ans** ☒ A. Vice President  
☒ B. Prime Minister  
☒ C. Speaker of Lok Sabha  
☒ D. President
- Q.95** Which of the following schemes of the Government of India aims to empower the students belonging to minority communities and prepare them for competitive examinations?
- Ans** ☒ A. Maulana Azad National Fellowship  
☒ B. Nai Udaan  
☒ C. Nai Manzil  
☒ D. Naya Savera
- Q.96** Which of the following formulas is used to determine the Gross Fiscal Deficit?
- Ans** ☒ A. Total Expenditure – (Revenue Receipts + Non-debt creating Capital Receipts)  
☒ B. Total Expenditure – (Revenue Receipts + Capital Receipt)  
☒ C. Capital Receipt – (Revenue Expenditure + Capital Expenditure)  
☒ D. Total Receipt – Total Expenditure

**Q.97** The 'SMILE' Scheme, which is a Central Sector Scheme, an acronym of 'Support for Marginalised Individuals for Livelihood and Enterprise' was launched in February 2022 by the Union Minister for Social Justice and Empowerment, \_\_\_\_\_, in Delhi.

- Ans**
- ✓ **A. Virendra Kumar**
  - ✗ **B. Amit Shah**
  - ✗ **C. Arjun Munda**
  - ✗ **D. Smriti Zubin Irani**

**Q.98** The Ministry of Civil Aviation released the Draft National Air Sports Policy, 2022 with a vision to make India one of the top Air Sports nations by the year \_\_\_\_\_.

- Ans**
- ✗ **A. 2027**
  - ✓ **B. 2030**
  - ✗ **C. 2032**
  - ✗ **D. 2035**

**Q.99** In the year 2022, \_\_\_\_\_ player Mithali Raj announced her retirement.

- Ans**
- ✗ **A. badminton**
  - ✗ **B. hockey**
  - ✓ **C. cricket**
  - ✗ **D. football**

**Q.100** At which place ARTPARK, India's first AI and Robotics Technology Park was launched with a seed funding of ₹230 crore, in March 2022?

- Ans**
- ✓ **A. Bengaluru**
  - ✗ **B. Chennai**
  - ✗ **C. Lucknow**
  - ✗ **D. Mumbai**





# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 02/09/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** The sum of two consecutive multiples of 6 is 66. Find the smaller of these two multiples.

- Ans**
- ☒ A. 24
  - ☒ B. 42
  - ☒ C. 36
  - ☒ D. 30

**Q.2** Two numbers are in the ratio 2 : 7. If the first number is increased by 14 and the second number is decreased by 6, then the ratio becomes 4 : 3. What is the sum of the original two numbers?

- Ans**
- ☒ A. 18
  - ☒ B. 27
  - ☒ C. 36
  - ☒ D. 45

**Q.3** A trader gives 5% discount on the marked price of an article and gives 2 articles free for buying 14 articles and gains 33% in the entire transaction. Assuming a customer pays for 14 articles, the marked price of an article is what per cent more than its cost price?

- Ans**
- ☒ A. 48%
  - ☒ B. 50%
  - ☒ C. 55%
  - ☒ D. 60%

**Q.4** If the length of a rectangle is thrice its breadth and the perimeter of that rectangle is 48 cm, then find its breadth.

- Ans**
- ☒ A. 4 cm
  - ☒ B. 6 cm
  - ☒ C. 8 cm
  - ☒ D. 9 cm



**Q.5** The total surface area of a solid cylinder having radius 24 cm and height 6 cm is:

- Ans**
- ☒ A.  $4440 \pi \text{ cm}^2$
  - ☒ B.  $3440 \pi \text{ cm}^2$
  - ☒ C.  $2440 \pi \text{ cm}^2$
  - ☒ D.  $1440 \pi \text{ cm}^2$

**Q.6** A train travelling at a speed of 45 km/h crosses a pole in 24 sec. What is the length of the train?

- Ans**
- ☒ A. 125 m
  - ☒ B. 30 m
  - ☒ C. 1.5 m
  - ☒ D. 300 m

**Q.7** Simplify the given expression.

$$(13^2 - 5^2)^{\frac{3}{2}} \times 8^{\frac{2}{3}} \div \left(\frac{1}{6}\right)^{-3}$$

- Ans**
- ☒ A. 32
  - ☒ B. 24
  - ☒ C. 16
  - ☒ D. 12

**Q.8** The mean and the mode of a set of data are 58.7 and 61.1, respectively. Find the median of the data, using the empirical formula.

- Ans**
- ☒ A. 54.6
  - ☒ B. 55.2
  - ☒ C. 55.8
  - ☒ D. 59.5

**Q.9** A shopkeeper marks an article at ₹  $x$  and offers a discount of 20% on it. He sells it for ₹432 after charging VAT of 12.5% on the discounted price. What is the value of ₹ $x$ ?

- Ans**
- ☒ A. ₹450
  - ☒ B. ₹480
  - ☒ C. ₹500
  - ☒ D. ₹520

**Q.10** A retailer permits a trade discount of 25% followed by a cash discount of 8% on the already discounted price of his goods, and still makes a net gain of 17.3% of the cost price. At what percentage above the cost price of the goods is the marked price fixed?

- Ans**
- ☒ A. 50%
  - ☒ B. 60%
  - ☒ C. 70%
  - ☒ D. 75%

**Q.11** The cost of 12 pens and 7 pencils is ₹233. If the cost of a pen decreases by ₹1.50 and the cost of a pencil increases by ₹1, then the cost of 2 pens and 3 pencils is ₹48. What is the original cost of 4 pens and 1 pencil?

- Ans** ☒ A. ₹71  
☐ B. ₹77  
☐ C. ₹74  
☐ D. ₹78

**Q.12** The positive square root of  $(34^2 - 16^2)$  is:

- Ans** ☐ A. 60  
☐ B. 50  
☐ C. 40  
☒ D. 30

**Q.13** If angles A, B, C and D of a quadrilateral ABCD, taken in order, are in the ratio 3: 7: 6: 4, then ABCD is a:

- Ans** ☐ A. parallelogram  
☒ B. trapezium  
☐ C. rhombus  
☐ D. kite

**Q.14** The sides (in cm) of a right triangle are  $(x - 2)$ ,  $(x - 4)$  and  $x$ . Its area (in  $cm^2$ ) is:

- Ans** ☐ A. 12  
☒ B. 24  
☐ C. 40  
☐ D. 60

**Q.15** In  $\triangle ABC$ ,  $BD \perp AC$  at D and  $\angle DBC = 44^\circ$ . E is a point on BC such that  $\angle CAE = 34^\circ$ . What is the measure of  $\angle AEB$ ?

- Ans** ☐ A.  $56^\circ$   
☐ B.  $46^\circ$   
☒ C.  $80^\circ$   
☐ D.  $78^\circ$

**Q.16** What is the value of  $(2x + 3y)$ , if mean of the following distribution is 54?

| Class     | 0-20 | 20-40 | 40-60 | 60-80 | 80-100 | Total |
|-----------|------|-------|-------|-------|--------|-------|
| Frequency | 7    | 11    | $x$   | 9     | $y$    | 50    |

- Ans** ☒ A. 59  
☐ B. 57  
☐ C. 56  
☐ D. 69

**Q.17** Which of the following quadratic equations has one of its roots as  $4 - 2\sqrt{5}$ ?

- Ans** ☒ A.  $x^2 - 8x - 4 = 0$   
☐ B.  $x^2 - 8x + 4 = 0$   
☐ C.  $x^2 - 4x - 8 = 0$   
☐ D.  $x^2 - 4x + 4 = 0$

**Q.18** Express  $0.\overline{794} + 0.\overline{876}$  in the form  $\frac{p}{q}$ , where  $p$  and  $q$  are integers and  $q \neq 0$ .

**Ans**

☒ A.  $1\frac{676}{990}$

☒ B.  $1\frac{15}{22}$

☒ C.  $1\frac{37}{55}$

☒ D.  $1\frac{133}{198}$

**Q.19** Find the greatest number by which when the numbers 158 and 215 are divided, it leaves remainders 4 and 5, respectively.

**Ans**

☒ A. 14

☒ B. 18

☒ C. 21

☒ D. 7

**Q.20** Find the area (in square units) of a triangle with vertices (3, 4), (5, 7) and (−3, 6).

**Ans**

☒ A. 2

☒ B. 11

☒ C. 1

☒ D. 5

**Q.21** A can do a piece of work in 15 days and B can do the same work in 20 days. The time taken by them working together to do the same work is:

**Ans**

☒ A.  $10\frac{4}{7}$  days

☒ B.  $9\frac{4}{7}$  days

☒ C.  $8\frac{4}{7}$  days

☒ D.  $7\frac{4}{7}$  days

**Q.22** The sum of two numbers is 35 and their LCM is 306. The two numbers are:

**Ans**

☒ A. 16, 19

☒ B. 17, 18

☒ C. 14, 21

☒ D. 13, 22

**Q.23** If the simple interest on ₹4,800 at 15% per annum for 'n' years is ₹2,160, then find the value of 'n'.

**Ans**

☒ A. 5

☒ B. 6

☒ C. 4

☒ D. 3

**Q.24** If  $x = (\sec \theta - \cos \theta)(\cot \theta + \tan \theta)$  and  $y = \sec \theta(\sec \theta + \tan \theta)(1 - \sin \theta)$ ,  $0^\circ < \theta < 90^\circ$ , then  $xy$  is equal to:

- Ans**
- ☒ A.  $\cot \theta$
  - ☒ B.  $\tan \theta \sec \theta$
  - ☒ C.  $\operatorname{cosec} \theta \cot \theta$
  - ☒ D.  $\sin \theta$

**Q.25** In a mixture of 80 litres, the ratio of milk to water is 3: 1. If this ratio is to be 2: 3, then the quantity of water to be further added is:

- Ans**
- ☒ A. 70 litres
  - ☒ B. 30 litres
  - ☒ C. 20 litres
  - ☒ D. 50 litres

Section : General Intelligence and Reasoning

**Q.26** Select the number from among the given options that can replace the question mark (?) in the following series.

1, 2, 11, 36, 85, ?, 287

- Ans**
- ☒ A. 90
  - ☒ B. 166
  - ☒ C. 184
  - ☒ D. 168

**Q.27** This question is based on the five, three-digit numbers given below.

(Left) 429 847 922 213 757 (Right)

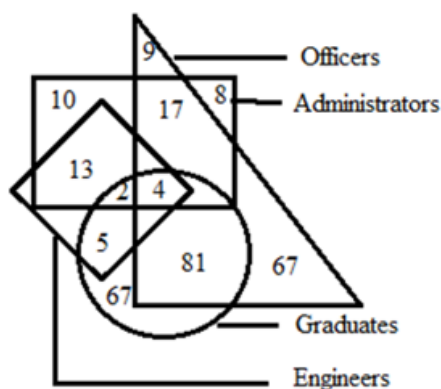
(Example: 697 – first digit = 6, second digit = 9, third digit = 7)

NOTE: All operations to be done from left to right.

If all the numbers are arranged in descending order, the position of how many numbers will remain unchanged?

- Ans**
- ☒ A. 0
  - ☒ B. 1
  - ☒ C. 2
  - ☒ D. 3

**Q.28** Study the Venn diagram given below and answer the question that follows.



How many non-graduate officers are neither administrators nor engineers?

- Ans**
- ☒ A. 67
  - ☒ B. 76
  - ☒ C. 9
  - ☒ D. 8

**Q.29** A statement is given followed by two assumptions numbered I and II. You have to assume everything in the statement to be true and decide which of the assumptions is/are implicit in the statement.

**Statement:**

Increase in the tax rates will hurt the pockets of the salaried middle class.

**Assumptions:**

- I. Increase in the prices of goods will hurt the poor too.
- II. The middle class will reduce their extra expenditure to save money.

- Ans**
- ☒ A. Only assumption I is implicit
  - ☒ B. Only assumption II is implicit
  - ☒ C. Neither assumption I nor II is implicit
  - ☒ D. Both assumptions I and II are implicit

**Q.30** Seven people, A, B, C, D, E, F and G, are sitting in a straight row, facing north. Only three people sit between F and E. Only two people sit to the left of F. D is not an immediate neighbour of E. D sits second to the right of A. G sits to the immediate right of B. Who sits at the extreme left end of the row?

- Ans**
- ☒ A. A
  - ☒ B. C
  - ☒ C. B
  - ☒ D. D

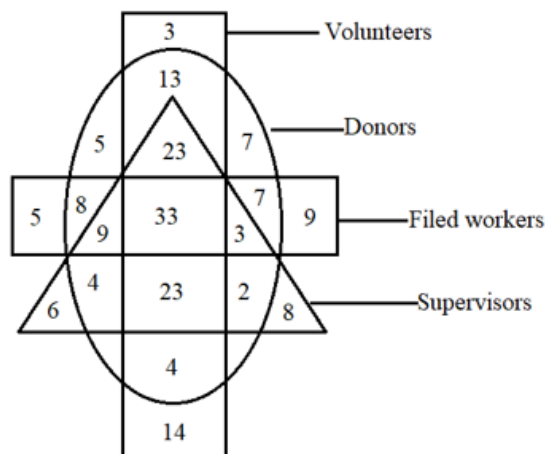
**Q.31** Raghav starts from Point A and drives 16 km towards the north. He then takes a right turn, drives 10 km, turns right and drives 17 km. He then takes a right turn and drives 13 km. He takes a final right turn, drives 1 km and stops at Point P. How far and towards which direction should he drive in order to reach Point A from Point P in a straight line? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 5 km towards the north
  - ☒ B. 3 km towards the west
  - ☒ C. 1 km towards the south
  - ☒ D. 3 km towards the east

**Q.32** Amongst six friends P, Q, R, S, T and U, each has a different height. S is taller than only four other friends. R is taller than only one friend. U is taller than T but shorter than P. P is not the tallest. Who is the second tallest among all the friends?

- Ans** ☒ A. S  
☒ B. Q  
☒ C. P  
☒ D. T

**Q.33** Study the Venn Diagram given below and answer the question that follows.



How many volunteers are supervisors but neither donors nor field workers?

- Ans** ☒ A. 8  
☒ B. 14  
☒ C. 33  
☒ D. 0

**Q.34** Select the number from among the given options that can replace the question mark (?) in the following series.

58, 118, 208, 334, ?, 718

- Ans** ☒ A. 502  
☒ B. 510  
☒ C. 512  
☒ D. 524

**Q.35** If '+' means '-', '-' means '+', '×' means '+', and '÷' means '×', what will come in place of the question mark (?) in the following equation?

$$40 - 17 \div 3 + 25 \times 5 = ?$$

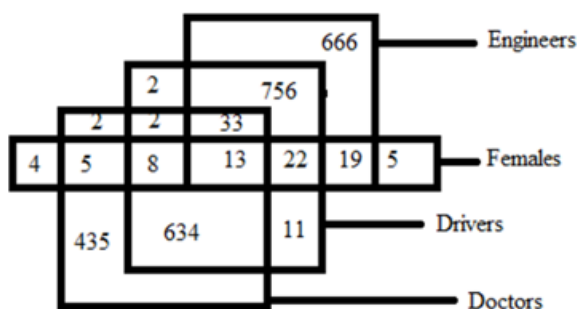
- Ans** ☒ A. 90  
☒ B. 86  
☒ C. 88  
☒ D. 92

**Q.36** Y, Z, A, B, C and D live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it number 2, and so on till the topmost floor is numbered 6.

Only Y lives on the floor between the floors occupied by D and C. B lives on an even numbered floor, but not on floor 6. Z lives on the lowermost floor. D is immediately above B. Who is on the topmost floor?

- Ans**
- ☒ A. C
  - ☒ B. A
  - ☒ C. D
  - ☒ D. Y

**Q.37** Study the Venn Diagram given below and answer the question that follows.



How many female engineers are drivers but NOT doctors?

- Ans**
- ☒ A. 22
  - ☒ B. 19
  - ☒ C. 13
  - ☒ D. 8

**Q.38** In a certain code language, 'GAURD' is written as 'LDYTE' and 'CLOVE' is written as 'HOSXF'. How will 'HORSE' be written in that language?

- Ans**
- ☒ A. IHFGD
  - ☒ B. MRVUF
  - ☒ C. MORDG
  - ☒ D. DGOJO

**Q.39** Select the set in which the numbers are related in the same way as are the numbers of the following sets.  
(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)  
(14, 98)  
(22, 242)

- Ans**
- ☒ A. 6, 18
  - ☒ B. 8, 48
  - ☒ C. 12, 132
  - ☒ D. 16, 80

**Q.40** In this question, a statement is followed by four conclusions. Find out which conclusion is true based on the given statement.

**Statement:**

$$E \geq R = S \leq T < N > O = Z$$

**Conclusions:**

1.  $E \geq S$
2.  $T \geq E$
3.  $R > N$
4.  $T < Z$

**Ans** ☒ A. 1  
☐ B. 2  
☐ C. 3  
☐ D. 4

**Q.41** Four friends Aman, Renu, Mohan and Rakesh are sitting at the corners of a square table and all are facing the centre. Only two persons are sitting between Aman and Renu. Rakesh is sitting to the immediate right of Mohan. If Aman is sitting immediately to the left of Mohan, which of the following statements is definitely true?

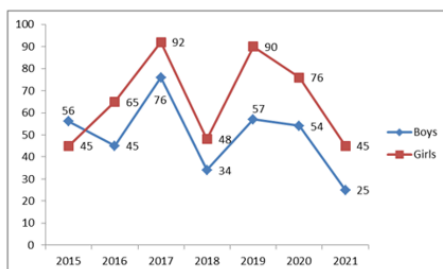
**Ans** ☐ A. Aman is sitting diagonally opposite to Mohan.  
☐ B. Rakesh is sitting diagonally opposite to Mohan.  
☒ C. Renu is sitting diagonally opposite to Mohan.  
☐ D. Aman is sitting diagonally opposite to Renu.

**Q.42** Refer to the following letter, number, symbol series and answer the question.  
(Left) D 2 R X 5 8 T ^ & 9 3 H 8 C % K T A # 3 T 5 4 \$ % 9 & R % 5 (Right)  
If all the letters are dropped from the series, which of the following will be in the middle of the series formed?

**Ans** ☐ A. 5  
☒ B. #  
☐ C. \$  
☐ D. %

**Q.43** Study the given graph and answer the question that follows.

The graph presents the number of athletes that qualified for national camp during the years 2015 to 2021.



By what percentage (approximately) have the girls qualified more than the boys in the given years taken together?

**Ans** ☐ A. 46%  
☒ B. 33%  
☐ C. 25%  
☐ D. 15%



**Q.44** In a certain code language, 'PUTRE' is written as 'RXXWK' and 'DGHKL' is written as 'FJLPR'. How will 'ZSHJL' be written in that language?

- Ans**
- ☒ A. BVLRO
  - ☒ B. BVLOR
  - ☒ C. BVROL
  - ☒ D. BRVOL

**Q.45** Pole A is to the west of pole B and north of pole D. Pole E is to the east of pole D, and pole C is to the west of pole D. What is the position of pole D with respect to pole B?

- Ans**
- ☒ A. South
  - ☒ B. South-west
  - ☒ C. North
  - ☒ D. North-east

**Q.46** Which of the following terms will replace the question mark (?) in the given series to make it logically complete?  
GP32S, LU35X, QZ38C, VE41H, ?

- Ans**
- ☒ A. AM44J
  - ☒ B. AJ44M
  - ☒ C. JA44M
  - ☒ D. MJ42A

**Q.47** A certain number of people are sitting in a row, facing north. D sits fourth to the right of A. B sits third to the right of D. C sits fifth to the left of A. There are only two persons between B and E. If no other person is sitting in the row, what is the total number of persons seated?

- Ans**
- ☒ A. 9
  - ☒ B. 14
  - ☒ C. 16
  - ☒ D. 11

**Q.48** In a straight row of students facing north, the position of P is 32<sup>nd</sup> from the left side of the row and 47<sup>th</sup> from the right side of the row. Find the total number of students in the row.

- Ans**
- ☒ A. 78
  - ☒ B. 80
  - ☒ C. 79
  - ☒ D. 77

**Q.49** Study the given arrangement carefully and answer the question that follows.

(Left) 8 @ ! 3 ^ 3 f & 6 @ 4 @ & 8 ¥ 2 4 % 1 £ % 7 (Right)

How many such symbols are there in the above arrangement each of which is immediately followed by an odd number and immediately preceded by a symbol?

- Ans**
- ☒ A. None
  - ☒ B. 1
  - ☒ C. 2
  - ☒ D. 3

**Q.50** Refer to the following series and answer the question (all numbers are single digit numbers only)

3 7 5 2 8 6 4 1 3 7 4 3 7 6 8 2 6 5 8 9 7 8 6 1 2 7 3

How many such odd digits are there, each of which is immediately preceded by a perfect square and immediately followed by an odd digit? (NOTE: 1 is also a perfect square)

- Ans**
- ☒ A. One
  - ☒ B. Two
  - ☒ C. Three
  - ☒ D. Four

**Q.51** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

5 : 30 :: 6 : 42 :: 7 : ?

- Ans**
- ☒ A. 58
  - ☒ B. 50
  - ☒ C. 56
  - ☒ D. 60

**Q.52** Which of the following options is the closest approximate value which will come in place of question mark(?) in the following equation?

$4.98 \times 2 + 1.96 \times 4 - 8 \div 2 + 1 = ?$

- Ans**
- ☒ A. 12
  - ☒ B. 15
  - ☒ C. 20
  - ☒ D. 18

**Q.53** Which of the following options is the closest approximate value which will come in place of question mark (?) in the following equation?

$14.999 \times 4.999 + 17.988 \div 2.998 + 24.999 \div 4.998 - 8.997 = ?$

- Ans**
- ☒ A. 70
  - ☒ B. 72
  - ☒ C. 77
  - ☒ D. 87

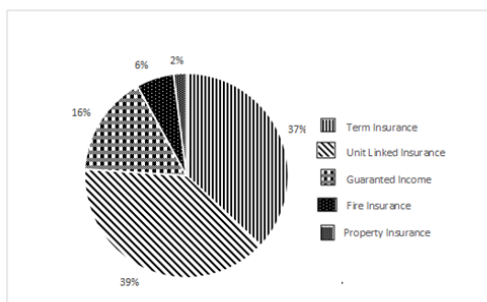
**Q.54** Select the option that is related to the fifth letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster and the fourth letter-cluster is related to the third letter-cluster.

BFHN : HBDI :: DHFM : JDBH :: FSWL : ?

- Ans**
- ☒ A. LPSF
  - ☒ B. KOTF
  - ☒ C. LOSG
  - ☒ D. KPSH

**Q.55** Study the given pie-chart and answer the question that follows.

The pie-chart presents the total share of different insurance products offered by an insurance company.



If the total insurance sold by the company in a given year was 36000, then how many fire and property insurances were sold in that year?

- Ans**
- ☒ A. 5760
  - ☒ B. 2880
  - ☒ C. 2160
  - ☒ D. 720

Section : General Science

**Q.56** A ray of light is incident on a refracting surface AB of a glass prism, kept in air, and emerges out of the other refracting surface AC. Consider the following statements:

- (a) The angle of refraction at surface AB is less than the angle of incidence.
- (b) The angle of refraction at the surface AC is more than the angle of incidence.

Which of the above statements is/are correct?

- Ans**
- ☒ A. Only (a)
  - ☒ B. Only (b)
  - ☒ C. Both (a) and (b)
  - ☒ D. Neither (a) nor (b)

**Q.57** Which of the following statements is correct?

- Ans**
- ☒ A. Enzymes, bacteria or other saprophytes act on biodegradable substances and decompose them.
  - ☒ B. Non-biodegradable substances cannot be decomposed by physical processes like heat and pressure.
  - ☒ C. Biodegradable substances persist for a long time in the environment.
  - ☒ D. Non-biodegradable substances help the various members of the ecosystem.

**Q.58** Which of the following properties is NOT governed by the position of elements in the Periodic Table?

- Ans**
- ☒ A. Electrons present in outermost shell
  - ☒ B. Valency
  - ☒ C. Atomic size
  - ☒ D. Colour of element

**Q.59** Which of the following point(s) always lie(s) on the principal axis of a lens?

- (i) Point of refraction
- (ii) Optical Centre
- (iii) Point of incidence

**Ans** ☒ A. Only (i)

☒ B. Only (ii)

☒ C. Both (i) and (ii)

☒ D. Both (i) and (iii)

**Q.60** Which of the following organisms shows a parasitic nutritive strategy?

**Ans** ☒ A. Cuscuta

☒ B. Mushroom

☒ C. Amoeba

☒ D. Yeast

**Q.61** Clouds appear white during sunshine because the particles in clouds are \_\_\_\_\_ than the wavelength of different colours in white light coming from the sun and all colours of white light are scattered by \_\_\_\_\_ amount(s).

**Ans** ☒ A. smaller, about the same

☒ B. larger, about the same

☒ C. smaller, different

☒ D. larger, different

**Q.62** An object is placed in front of a concave mirror at a distance equal to its focal length. The image is formed at:

**Ans** ☒ A. infinity

☒ B. a point between F and C

☒ C. C

☒ D. a point between P and F

**Q.63** The magnetic field around a current carrying conductor:

**Ans** ☒ A. increases with increase in distance

☒ B. remains constant with increase in distance

☒ C. decreases with increase in distance

☒ D. is unaffected by any variation in distance

**Q.64** If the current passing through a conductor is doubled and the potential difference is tripled then the power will increase:

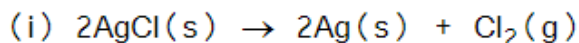
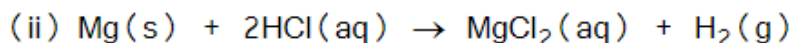
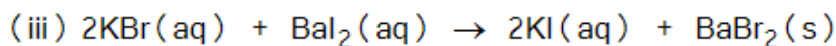
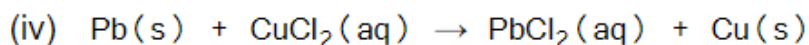
**Ans** ☒ A. two fold

☒ B. three fold

☒ C. six fold

☒ D. five fold

**Q.65** Identify the double displacement reaction from the following.



**Ans** ☒ A. (i)

☒ B. (ii)

☒ C. (iii)

☒ D. (iv)

**Q.66** Which of the following elements has the highest effective nuclear charge?

**Ans** ☒ A. Li

☒ B. C

☒ C. F

☒ D. B

**Q.67** Consider the below statements and identify the correct answer.

Statement-I: The metals high up in the reactivity series are very reactive.

Statement-II: The metals high up in the reactivity series can be obtained from their compounds by electrolytic reduction.

**Ans** ☒ A. Both the statements are true.

☒ B. Both the statements are false.

☒ C. Statement-I is true, and Statement-II is false.

☒ D. Statement-II is true, and Statement-I is false.

**Q.68** The figure given below shows the different stages of gradual decay of tooth in humans. All of the following statements related to tooth decay are correct except one. Which one is NOT correct?



**Ans** ☒ A. Bacteria act on leftover food in the mouth

☒ B. Bacteria break down sugars and produce acids

☒ C. Acids soften the enamel, causing tooth ache and tooth loss

☒ D. No role of bacteria, caused by a virus

**Q.69** Consider the below statements and identify the correct answer.

Statement I: Most carbon compounds are good conductors of electricity.

Statement II: The force of attraction between the molecules of carbon compounds is not very strong.

**Ans** ☒ A. Statement I is correct, and Statement II is incorrect.

☒ B. Statement II is correct, and Statement I is incorrect.

☒ C. Both the statements are correct.

☒ D. Both the statements are incorrect.

**Q.70** The movement of food in the alimentary canal is brought about by the smooth muscles in the body. Which of the following options has all the organs having smooth muscles?

- Ans**
- ☒ A. Bones, ureters, bronchi of lungs
  - ☒ B. Iris of the eye, bronchi of lungs, ureters
  - ☒ C. Heart, iris of the eye, bones
  - ☒ D. Blood vessels, ureters, bones

**Q.71** Three resistors of  $10\ \Omega$ ,  $15\ \Omega$  and  $30\ \Omega$  are connected in parallel. The resistance of the combination is:

- Ans**
- ☒ A.  $55\ \Omega$
  - ☒ B.  $7.5\ \Omega$
  - ☒ C.  $6\ \Omega$
  - ☒ D.  $5\ \Omega$

**Q.72** Which element is NOT more reactive than copper?

- Ans**
- ☒ A. Fe
  - ☒ B. Zn
  - ☒ C. Pb
  - ☒ D. Ag

**Q.73** In Mendel's experiment, when F<sub>1</sub> generation plants were self-pollinated, what was the genotypic ratio?

- Ans**
- ☒ A.  $1 : 2 : 1$
  - ☒ B.  $2 : 2 : 1$
  - ☒ C.  $3 : 2 : 1$
  - ☒ D.  $1 : 2 : 3$

**Q.74** The angle between thumb and middle finger in Fleming's left-hand rule is:

- Ans**
- ☒ A.  $45^\circ$
  - ☒ B.  $180^\circ$
  - ☒ C.  $120^\circ$
  - ☒ D.  $90^\circ$

**Q.75** What is the main difference observed between a slide of human cheek cells and a slide of onion peel when viewed under a compound microscope?

- Ans**
- ☒ A. Presence of cell wall in onion peel cells
  - ☒ B. Presence of mitochondria in onion peel cells
  - ☒ C. Presence of plastids in cheek cells
  - ☒ D. Presence of cell wall in human cheek cells

**Q.76** What is the formula of cyclohexane?

- Ans**
- ☒ A.  $C_6H_{14}$
  - ☒ B.  $C_6H_{10}$
  - ☒ C.  $C_6H_{12}$
  - ☒ D.  $C_6H_6$

**Q.77** Which of the following activities is environmentally friendly?

- Ans**
- ☒ A. Using solar-power for generation of electricity
  - ☐ B. Using ACs and coolers during the summer
  - ☐ C. Using polythene bags for shopping
  - ☐ D. Construction of skyscrapers

**Q.78** When  $6\ \Omega$ ,  $9\ \Omega$  and  $6\ \Omega$  resistors are connected in parallel combination then the resultant resistance will be:

- Ans**
- ☐ A.  $2.40\ \Omega$
  - ☐ B.  $2.75\ \Omega$
  - ☒ C.  $2.25\ \Omega$
  - ☐ D.  $2.50\ \Omega$

**Q.79** Which of the following statements is INCORRECT regarding the surgical methods of birth control?

- Ans**
- ☐ A. They block gamete transport and prevent fertilisation
  - ☐ B. They are also called sterilisation procedures
  - ☐ C. In males vas deferens and in females fallopian tube is blocked
  - ☒ D. They are not very effective methods

**Q.80** Which of the following is NOT a use of plaster of Paris?

- (i) Manufacture of glass, soap and paper
- (ii) used in plaster for supporting fractured bones.
- (iii) making toys, materials for decoration and for making surfaces smooth.
- (iv) Used in chemistry laboratories for sealing air gaps in apparatus where air tight arrangement is required.

- Ans**
- ☒ A. only i
  - ☐ B. only ii
  - ☐ C. only iii
  - ☐ D. ii and iii

Section : General Awareness and Current Affairs

**Q.81** Generally, a Gram Panchayat is constituted for \_\_\_\_\_ year/s.

- Ans**
- ☐ A. one
  - ☐ B. three
  - ☒ C. five
  - ☐ D. four

**Q.82** Who is the highest law officer in India?

- Ans**
- ☐ A. Prime Minister of India
  - ☐ B. President of India
  - ☒ C. Attorney General of India
  - ☐ D. Advocate General of India



**Q.83** In the Government Budget, when the expenses made by a nation are more than the source of income, then the difference between the income and expenses is termed as \_\_\_\_\_.

- Ans**
- ☒ A. Revenue Deficit
  - ☒ B. Budget Deficit
  - ☒ C. Financial Statement
  - ☒ D. Unbalanced Budget

**Q.84** Which Fundamental Duty was added through the 86<sup>th</sup> Constitutional Amendment Act, 2002?

- Ans**
- ☒ A. The 10<sup>th</sup> Fundamental Duty
  - ☒ B. The 11<sup>th</sup> Fundamental Duty
  - ☒ C. The 9<sup>th</sup> Fundamental Duty
  - ☒ D. The 8<sup>th</sup> Fundamental Duty

**Q.85** NABARD and which of the following organisations has jointly launched the Adavi brand to market the forest produce harvested by Nilambur tribes people?

- Ans**
- ☒ A. Jan Sikshan Sansthan
  - ☒ B. Jan Raksha Sansthan
  - ☒ C. Sarva Raksha Sansthan
  - ☒ D. Sarva Sikshan Sansthan

**Q.86** Sri Lanka is separated from India by a narrow channel of sea called the \_\_\_\_\_.

- Ans**
- ☒ A. Palk Strait
  - ☒ B. Malacca Strait
  - ☒ C. Otranto Strait
  - ☒ D. Sunda Strait

**Q.87** The Tamil language was declared as the classical language of India in \_\_\_\_\_.

- Ans**
- ☒ A. 2002
  - ☒ B. 2003
  - ☒ C. 2004
  - ☒ D. 2005

**Q.88** Which of the following schemes aims to establish a lab focusing on the development of sustainable technologies for a rural area?

- Ans**
- ☒ A. Cognitive Science Research Initiative (CSRI)
  - ☒ B. Clinical Training/Translational Research Workshops
  - ☒ C. Cross-Cutting and Futuristic Initiatives
  - ☒ D. Clinical/Public Health Research Centre Schemes

**Q.89** \_\_\_\_\_, established by Atmaram Pandurang in Bombay (Mumbai) in 1867, was a movement for religious and social reform.

- Ans**
- ☒ A. Brahmo Samaj
  - ☒ B. Prarthana Samaj
  - ☒ C. Arya Samaj
  - ☒ D. Satya Shodhak Samaj



**Q.90** Maru Sri (or Maru Shri) is a desert pageant held at the \_\_\_\_\_.

- Ans**
- ☒ A. Hornbill Festival
  - ☒ B. Jaisalmer Desert Festival
  - ☒ C. Pushkar Fair
  - ☒ D. Goa Carnival

**Q.91** In March 2022, Indian badminton player \_\_\_\_\_ defeated Olympic champion Viktor Axelsen to enter the men's singles final of the German Open Tournament.

- Ans**
- ☒ A. Lakshya Sen
  - ☒ B. Srikanth Kidambi
  - ☒ C. B Sai Praneeth
  - ☒ D. Chirag Shetty

**Q.92** In February 2022, scientists from Defence Research and Development Organisation (DRDO) and \_\_\_\_\_ successfully demonstrated Quantum Key Distribution link between Prayagraj and Vindhyachal in Uttar Pradesh.

- Ans**
- ☒ A. Indian Institute of Technology (IIT) Kharagpur
  - ☒ B. Indian Institute of Technology (IIT) Delhi
  - ☒ C. Indian Institute of Technology (IIT) Kanpur
  - ☒ D. Indian Institute of Technology (IIT) Madras

**Q.93** Select the correct match in the context of microfinance.

- Ans**
- ☒ A. Muhammad Yunus – Grameen Bank
  - ☒ B. Muhammad Yunus – Vishvaas Bank
  - ☒ C. Grameen Bank – Bhutan
  - ☒ D. Muhammad Yunus – Sri Lanka

**Q.94** The river \_\_\_\_\_ flows through the Chotanagpur Plateau.

- Ans**
- ☒ A. Damodar
  - ☒ B. Tungabhadra
  - ☒ C. Bhima
  - ☒ D. Meghna

**Q.95** When was the Prime Minister's Rozgar Yojana (PMRY) launched?

- Ans**
- ☒ A. 1990
  - ☒ B. 1993
  - ☒ C. 1995
  - ☒ D. 2000

**Q.96** In June 2022, who has become India's first weightlifter to win a gold medal at the IWF Youth World Championships in Leon, Mexico?

- Ans**
- ☒ A. Vijay Prajapati
  - ☒ B. Gurunaidu Sanapathi
  - ☒ C. T Madhavan
  - ☒ D. Muna Nayak

**Q.97** Which of the following Vedas is a 'Book of rituals'?

- Ans**
- ☐ A. The Rigveda
  - ☐ B. The Samaveda
  - ☒ C. The Yajurveda
  - ☐ D. The Atharvaveda

**Q.98** The Tropical Deciduous Forests in India receives rainfall between\_\_\_\_\_.

- Ans**
- ☐ A. 40 to 60 cm
  - ☐ B. Below 25 cm
  - ☐ C. 25 to 50 cm
  - ☒ D. 70 to 200 cm

**Q.99** The Minimum Needs Programme was introduced in India in the \_\_\_\_\_ year of the Fifth Five-Year Plan.

- Ans**
- ☐ A. fourth
  - ☐ B. third
  - ☐ C. second
  - ☒ D. first

**Q.100** As of July 2022, a life insurance cover of \_\_\_\_\_ under the Pradhan Mantri Jan Dhan Yojana, gives life insurance cover on death of the life assured, due to any reason, to the deceased's family.

- Ans**
- ☒ A. ₹30,000
  - ☐ B. ₹40,000
  - ☐ C. ₹50,000
  - ☐ D. ₹75,000



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 02/09/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** The expression  $\frac{1+x}{1-x} - \frac{1-x}{1+x} + \frac{4x}{1+x^2} + \frac{8x^3}{1-x^4}$  is equal to:

- Ans**
- ✓ A.  $\frac{8x}{1-x^2}$
  - ✗ B.  $\frac{4x}{1+x^2}$
  - ✗ C.  $\frac{4x}{1-x^2}$
  - ✗ D.  $\frac{8x}{1+x^2}$

**Q.2** A man sold a shirt for ₹960, at a loss of 4%. He sells a sweater for ₹840 at a profit of 20%. Find his net profit or loss.

- Ans**
- ✗ A. Profit, ₹123
  - ✗ B. Loss, ₹100
  - ✗ C. Loss, ₹123
  - ✓ D. Profit, ₹100

**Q.3** Find the values of b for which the quadratic equation  $4x^2 + bx + 1 = 0$  has equal roots.

- Ans**
- ✓ A. - 4 and 4
  - ✗ B. Only 4
  - ✗ C. Only -4
  - ✗ D. -8 and 8

**Q.4** Harish bought an article for ₹520 and sold it to Renu at a loss of 30%. With this amount, Harish bought another article and sold it at a gain of 55%. What is Harish's overall gain percentage?

- Ans**
- ✓ A. 8.5%
  - ✗ B. 7.8%
  - ✗ C. 9%
  - ✗ D. 9.5%

**Q.5** Amita travels a certain distance at a speed of 50 km/h and double the earlier distance at 60 km/h. She then returns to the starting point through same route. If her average speed for the entire journey is 45 km/h, then what is her average speed (in km/h) for the return journey?

- Ans**
- ✓ A. 37.5
  - ✗ B. 40
  - ✗ C. 42.5
  - ✗ D. 42

**Q.6** Four bells ring at intervals of 4 minutes, 8 minutes, 12 minutes, and 24 minutes respectively. All the four bells rang together at 12 noon. How many times after 12 noon will all the four bells ring together in the next four hours, with the ringing at 4 p.m. being included?

- Ans**
- ✗ A. 8 times
  - ✗ B. 9 times
  - ✓ C. 10 times
  - ✗ D. 11 times

**Q.7** If  $\alpha$  and  $\beta$ , where  $\alpha > \beta$ , are the roots of the equation  $5x^2 - 3x - 2 = 0$ , then what is the value of  $(\alpha - 2\beta)$ ?

- Ans**
- ✗ A.  $\frac{7}{5}$
  - ✗ B.  $\frac{1}{5}$
  - ✓ C.  $\frac{9}{5}$
  - ✗ D.  $\frac{11}{5}$

**Q.8** If  $x^2 + y^2 - 4x + 8y + 20 = 0$ , then the value of  $x^2 + y^2$  is :

- Ans**
- ✗ A. 40
  - ✗ B. 30
  - ✓ C. 20
  - ✗ D. 10

**Q.9** A man has to cover a distance of 150 km in 12 hours. If he covers two-third of this distance in  $\frac{5}{8}$  of the time, then what should be his speed (in km/h, correct to one decimal place) to cover the remaining distance in the time left?

- Ans**
- ✗ A. 6.7
  - ✗ B. 10.5
  - ✓ C. 11.1
  - ✗ D. 11.5

**Q.10** How many cubic cm of water can a hemispherical container of radius 7 cm hold (rounded off to 2 decimal places) (use  $\pi = \frac{22}{7}$ )?

- Ans**
- ✗ A. 616.25
  - ✗ B. 154.75
  - ✓ C. 718.67
  - ✗ D. 1437.33

Q.11

The value of  $\sqrt{75 + \sqrt{41 - \sqrt{21 + \sqrt{19 - \sqrt{9}}}}}$  is:

- Ans ☒ A. 9  
☒ B. 6  
☒ C. 5  
☒ D. 3

Q.12 The simple interest on a certain sum for  $4\frac{2}{5}$  years at the rate of 9.5% p.a. is ₹3,553. What will be the amount payable on the same sum at 8.4% p.a. simple interest in  $7\frac{1}{2}$  years?

- Ans ☒ A. ₹14,855  
☒ B. ₹13,850  
☒ C. ₹13,855  
☒ D. ₹13,950

Q.13 For a data, if the mean is 28.5 and the median is 32, then the mode using empirical formula is:

- Ans ☒ A. 42  
☒ B. 41  
☒ C. 40  
☒ D. 39

Q.14 The value of  $84 - 4 \div 2 \times 3 + 7$  is:

- Ans ☒ A. 85  
☒ B. 127  
☒ C. 173  
☒ D. 97

Q.15 ABCD is a quadrilateral in which  $AB \parallel DC$ , and E and F are the mid points of the diagonals AC and BD, respectively. If  $AB = 28$  cm,  $BC = 15$  cm,  $DC = 40$  cm, and  $AD = 9$  cm, then what is the length (in cm) of EF?

- Ans ☒ A. 6  
☒ B. 8  
☒ C. 9  
☒ D. 12

Q.16 The value of  $\frac{20 + 20 \tan^2 A}{50 + 50 \cot^2 A}$  is:

- Ans ☒ A.  $\frac{5}{2} \cot^2 A$   
☒ B.  $\frac{2}{5} \cot^2 A$   
☒ C.  $\frac{5}{2} \tan^2 A$   
☒ D.  $\frac{2}{5} \tan^2 A$

**Q.17** A and B started moving at the same time towards each other from points X and Y, respectively. After meeting on the way, A and B took 5.4 hours and  $p$  hours, respectively to reach Y and X, respectively. If the speed of B is 50% more than that of A, then what is the value of  $p$ ?

- Ans**
- ☒ A. 1.8
  - ☒ B. 2.7
  - ☒ C. 2.4
  - ☒ D. 3.6

**Q.18** If  $1.6 : 0.6 :: 0.6 : x$ , find the value of  $x$ .

- Ans**
- ☒ A. 0.225
  - ☒ B. 0.25
  - ☒ C. 0.275
  - ☒ D. 0.98

**Q.19** For a regular polygon, the sum of the interior angles is 200% more than the sum of its exterior angles. Each interior angle of the polygon measures  $x^\circ$ . What is the value of  $x^\circ$ ?

- Ans**
- ☒ A.  $144^\circ$
  - ☒ B.  $135^\circ$
  - ☒ C.  $140^\circ$
  - ☒ D.  $108^\circ$

**Q.20** C is twice as efficient as A, while B takes thrice as many days as C to do the same work. A takes 10 days to do the work alone. If they work in pairs [like (A, B), (B, C) and (C, A)], with (A, B) working on the first day, then (B, C) working on the second day and (C, A) working on the third day and continuing the cycle till the work gets completed, then how many days will be required to complete this work?

- Ans**
- ☒ A.  $7\frac{5}{8}$  days
  - ☒ B.  $6\frac{1}{8}$  days
  - ☒ C.  $5\frac{7}{8}$  days
  - ☒ D.  $4\frac{3}{8}$  days

**Q.21** If the number  $6484y6$  is divisible by 8, then find the least value of  $y$ ?

- Ans**
- ☒ A. 3
  - ☒ B. 1
  - ☒ C. 7
  - ☒ D. 4

**Q.22** If  $a : b = 7 : 9$  and  $b : c = 15 : 7$ , then  $a : b : c$  is:

- Ans**
- ☒ A. 35 : 45 : 21
  - ☒ B. 45 : 35 : 21
  - ☒ C. 21 : 35 : 45
  - ☒ D. 35 : 45 : 25

**Q.23** Three times the present age of Renu is 11 years more than two times the present age of Manav, and three times the present age of Manav is 9 years less than four times the present age of Renu. The sum of the present ages (in years) of Renu and Manav is:

- Ans**
- ☒ A. 29
  - ☒ B. 31
  - ☒ C. 32
  - ☒ D. 37

**Q.24** Sanjay is 25 years older than his son and Sanjay's wife is 65 years old. If the average age of all the three members of this family is 58 years, then find the age of the son.

- Ans**
- ☒ A. 42 years
  - ☒ B. 41 years
  - ☒ C. 45 years
  - ☒ D. 43 years

**Q.25** The surface area of a cuboid having length 6 cm, breadth 7 cm and height 8 cm is:

- Ans**
- ☒ A.  $592 \text{ cm}^2$
  - ☒ B.  $492 \text{ cm}^2$
  - ☒ C.  $392 \text{ cm}^2$
  - ☒ D.  $292 \text{ cm}^2$

#### Section : General Intelligence and Reasoning

**Q.26** Select the term from among the given options that can replace the question mark (?) in the following series.

ABCD, ABCD1, ABC1D1, AB1C1D1, A1B1C1D1, A1B1C1D2, ?

- Ans**
- ☒ A. A1B1C2D2
  - ☒ B. A1B1C2D11
  - ☒ C. A1B1C2D12
  - ☒ D. A1B1C2D22

**Q.27** If each vowel in the word RUBAL is changed to the next vowel in the English alphabetical order and each consonant is changed to the next letter in the English alphabetical order, which letter will be present in the newly formed word?

- Ans**
- ☒ A. R
  - ☒ B. U
  - ☒ C. A
  - ☒ D. L

**Q.28** Three statements are followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they do not conform to real world knowledge, decide which of the given conclusions/possibilities can be true on the basis of the statements.

Statements:

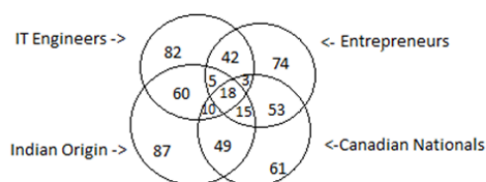
1. All pots are sands.
2. Some sands are clays.
3. All greys are clays.

Conclusions:

- I. Some greys are pots.
- II. All clays are sands is a possibility.
- III. Some clays are pots.

- Ans**
- ☒ A. Only conclusion I is true
  - ☒ B. Only conclusion II is true
  - ☒ C. Only conclusion III is true
  - ☒ D. Only conclusion I and II are true

**Q.29** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



How many Canadian nationals are there who are entrepreneurs of Indian origin but NOT IT engineers?

- Ans**
- ☒ A. 18
  - ☒ B. 15
  - ☒ C. 33
  - ☒ D. 36
- Q.30** In the given letter-cluster triads, the letter-clusters in a particular triad are related following a certain logic. Study the given triads carefully and from the given options, select the triad that follows the same logic.
- ABC : DFH : ILO  
 RST : UWY : ZCF
- Ans**
- ☒ A. STU : VWX : YZA
  - ☒ B. FGH : IKM : NQT
  - ☒ C. OPQ : RTV : WYA
  - ☒ D. EFG : HKN : ORU

**Q.31** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)  
 25 : 6 :: 64 : 9 :: 9 : ?

- Ans**
- ☒ A. 2
  - ☒ B. 3
  - ☒ C. 5
  - ☒ D. 4



**Q.32** Seven people R, S, T, U, V, W and X were sitting around a circular table, facing the centre. They were equidistant to one another. T was sitting to the immediate right of S. W was sitting to the immediate left of V. R and U were immediate neighbours. Only X was sitting between V and S. U was sitting to the immediate right of T. Who was sitting to the immediate left of W?

- Ans**
- ☒ A. U
  - ☒ B. S
  - ☒ C. R
  - ☒ D. T

**Q.33** Refer to the following letter series and answer the question that follows.

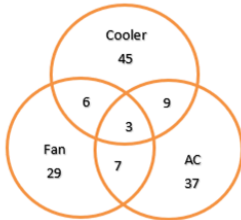
(Left) A F R G H U I N H F W D C T V G Y J M K O Q (Right)

If every third letter in the above series is dropped, which letter would appear at the fifth place from the left?

- Ans**
- ☒ A. H
  - ☒ B. N
  - ☒ C. U
  - ☒ D. I

**Q.34** Study the given diagram carefully and answer the questions. The numbers in different sections indicate the number of things.

Which number represents AC which are coolers but are not fans?



- Ans**
- ☒ A. 6
  - ☒ B. 3
  - ☒ C. 9
  - ☒ D. 7

**Q.35** Prince starts from Point A and walks 6 km toward south, and then turns to the right, walks for 4 km. He takes a final turn to the left and walks 6 km. Now, in which direction is he from the starting place?

(All turns are 90 degree turns only)

- Ans**
- ☒ A. South
  - ☒ B. South-west
  - ☒ C. South-east
  - ☒ D. East

**Q.36** Read the given statement(s) and conclusions carefully and decide which of the conclusions logically follow(s) from the statement(s).

Statements:

$L \leq R < M \geq Q, N > Q \geq T$

Conclusions:

I.  $N \geq M$

II.  $Q \leq R$

III.  $M > L$

IV.  $N \geq L$

- Ans**
- ☒ A. Only conclusions I and IV follow
  - ☒ B. Only conclusions III and IV follow
  - ☒ C. Only conclusion III follows
  - ☒ D. All conclusions I, II, III and IV follow

- Q.37** This question is based on the following 3-letter words  
(left) BOW SAD LOW RAY (right)  
If in each of the words, each letter is changed to the next letter in the English alphabetical order, how many words thus formed will have no vowel?
- Ans** ☒ A. None  
☒ B. Three  
☒ C. Two  
☒ D. One
- Q.38** Harsh walks 45 m towards the west and turns to left and walks 25 m. He then turns to the left and walks 21 m. Again, he turns left and walks 18 m. After that he turns right and walks 23 m and finally, he turns left and walks for 37 m. Which direction is Harsh facing now?  
(All turns are 90 degree turns only)
- Ans** ☒ A. East  
☒ B. West  
☒ C. South  
☒ D. North
- Q.39** Which of the following options is the closest approximate value which will come in place of question mark(?) in the following equation?  
 $2.04 + 5.019 - 3.001 \times 2.04 = ?$
- Ans** ☒ A. 1  
☒ B. 3  
☒ C. 5  
☒ D. 4
- Q.41** A, B, C, D, E and F live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it number 2, and so on till the topmost floor is numbered 6.  
B lives on an even numbered floor but not on floor number 4. Only two people live between B and E. D lives immediately below A. A lives on an even numbered floor. Neither D nor C live on the lowermost floor. Who lives on floor number 4?
- Ans** ☒ A. C  
☒ B. A  
☒ C. E  
☒ D. F
- Q.42** Select the number from among the given options that can replace the question mark (?) in the following series.  
2, 8, 4, 16, 8, 32, ?, 64
- Ans** ☒ A. 96  
☒ B. 16  
☒ C. 32  
☒ D. 48
- Q.43** Out of a few people who participated in a race, Sandeep ranked 17<sup>th</sup> from the top and 15<sup>th</sup> from the bottom. How many persons participated in the race?
- Ans** ☒ A. 29  
☒ B. 30  
☒ C. 31  
☒ D. 32

**Q.44** Which of the following interchanges in signs and numbers will make the given equation correct?

$$9 - 11 \times 24 = 75$$

- Ans**
- ☒ A.  $\times$  and  $=$ , 24 and 9
  - ☒ B.  $-$  and  $\times$ , 75 and 11
  - ☒ C.  $\times$  and  $-$ , 9 and 11
  - ☒ D.  $=$  and  $-$ , 75 and 24

**Q.45** In a certain code language, 'ANGLE' is written as 'CQKQK' and 'BEING' is written as 'DHMSM'. How will 'BROKE' be written in that language?

- Ans**
- ☒ A. DUKSP
  - ☒ B. DUSKP
  - ☒ C. DUSPK
  - ☒ D. DUPPK

**Q.46** What will come in the place of the question mark (?) in the following equation if '+' and '-' are interchanged and also ' $\times$ ' and ' $\div$ ' are interchanged?

$$28 - 168 \times 4 + 10 \div 2 = ?$$

- Ans**
- ☒ A. 25
  - ☒ B. 30
  - ☒ C. 40
  - ☒ D. 50

**Q.47** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(33, 56)

(44, 67)

- Ans**
- ☒ A. (11, 36)
  - ☒ B. (7, 38)
  - ☒ C. (12, 36)
  - ☒ D. (5, 28)

**Q.48** Amongst six friends A, B, C, D, E and F, each has a different height. A is taller than only three other friends. B is taller than F. D is taller than only one friend. C is taller than D but shorter than F. Who is the second tallest among all the friends?

- Ans**
- ☒ A. A
  - ☒ B. F
  - ☒ C. C
  - ☒ D. B

**Q.49** P, Q, R, S, T, U, V and W are sitting around a square table facing the centre of the table. Some of them are sitting at the corners, while some are sitting at the middle of the sides. R sits third to the left of U. R sits at one of the corners. T does not sit at any of the corners. V sits second to the right of T. T is not an immediate neighbour of R. Only three people sit between S and Q. S is an immediate neighbour of W. S does not sit at any of the middle of the sides.

Who sits second to the left of V?

- Ans**
- ☒ A. W
  - ☒ B. T
  - ☒ C. U
  - ☒ D. S

**Q.50** In a code language, 'let's cook dinner' is written as 'li mu ha', 'dinner is late' is written as 'ha ve ka', and 'let's go out' is written as 'yo pa mu'. What is the code for the word 'cook' in that language?

- Ans**
- ☒ A. ve
  - ☒ B. mu
  - ☒ C. ha
  - ☒ D. li

**Q.51** Which of the following numbers will replace the question mark (?) in the given series?

12, 17, 27, 42, 62, ?

- Ans**
- ☒ A. 80
  - ☒ B. 82
  - ☒ C. 85
  - ☒ D. 87

**Q.52** Five friends P, Q, R, S, and T live in a five-storeyed building numbered from 1 (lowest floor) to 5 (top most floor). Each of them lives on different floor of the building. R lives on the floor below Q's floor. T does not live on the top floor. There are equal number of people living above and below the floor on which S lives. Two people live between the floors where T and R live. Q does not live above or below the floor where S lives. Who lives on second floor?

- Ans**
- ☒ A. R
  - ☒ B. S
  - ☒ C. T
  - ☒ D. P

**Q.53** The following table shows the expenditures of a company (in ₹ lakh) per annum over the given years. Study the following table carefully and answer the question that follows.

| Year | Item of Expenditure |                    |       |                   |       |
|------|---------------------|--------------------|-------|-------------------|-------|
|      | Salary              | Fuel and Transport | Bonus | Interest on Loans | Taxes |
| 2016 | 355                 | 56                 | 3.5   | 34.2              | 75    |
| 2017 | 285                 | 85                 | 4.2   | 28.6              | 61    |
| 2018 | 361                 | 72                 | 4.0   | 29.4              | 83    |
| 2019 | 310                 | 69                 | 5.5   | 45.6              | 71    |
| 2020 | 395                 | 76                 | 5.1   | 38.2              | 98    |

Total expenditure on all the items in 2018 was what percent of the total expenditure of all the items in 2020?

- Ans**
- ☒ A. 89.93%
  - ☒ B. 89.73%
  - ☒ C. 87.93%
  - ☒ D. 88.63%

**Q.54** Refer to the following letter, number, symbol series and answer the question.

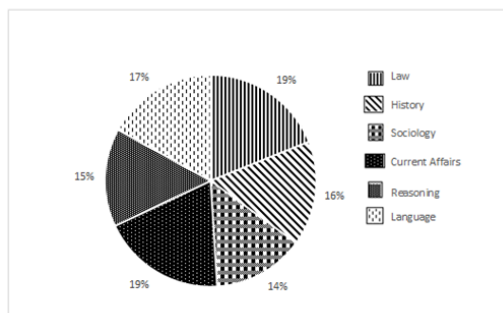
(Left) H ^ 2 K L 4 D & 3 \$ D @ 5 7 % J B # S (Right)

How many such symbols are there which are immediately preceded by a letter and also immediately followed by a number?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.55** Study the given pie-chart and answer the question that follows.

The pie-chart shows the percentage of questions asked in a competitive examination.



If the total number of question asked in the examination was 350, how many questions were asked in History, Law and Language taken together?

- Ans**
- ☒ A. 122.50
  - ☒ B. 182 .00
  - ☒ C. 111.50
  - ☒ D. 171.50

**Section : General Science**

**Q.56** It is found that during dispersion of white light by a glass prism, the more a colour component is bent, the more is the refractive index of the glass for that colour component. If  $\mu_B$ ,  $\mu_Y$  and  $\mu_G$  are refractive indices for blue, yellow and green lights, respectively, then which of the following relations between them is correct?

- Ans**
- ☒ A.  $\mu_Y > \mu_G > \mu_B$
  - ☒ B.  $\mu_Y = \mu_G = \mu_B$
  - ☒ C.  $\mu_G > \mu_B > \mu_Y$
  - ☒ D.  $\mu_B > \mu_G > \mu_Y$

**Q.57** The pH of milk of magnesia is about \_\_\_\_\_.

- Ans**
- ☒ A. 2.9
  - ☒ B. 4.7
  - ☒ C. 10.4
  - ☒ D. 13.2

**Q.58** Consider the below statements and identify the correct answer.

Statement-I: The chemical formula for baking soda is  $\text{NaHCO}_3$ .  
Statement-II: It is used in soda-acid fire extinguisher.

- Ans**
- ☒ A. Both the statements are true.
  - ☒ B. Both the statements are false.
  - ☒ C. Statement-I is true, and Statement-II is false.
  - ☒ D. Statement-II is true, and Statement-I is false.

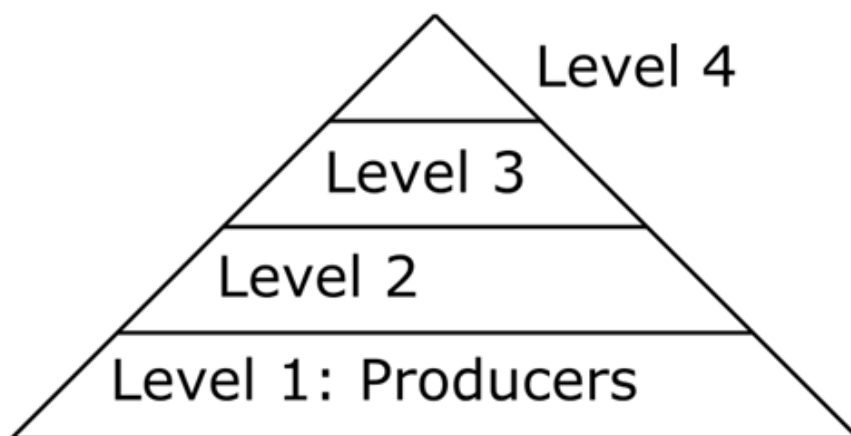
**Q.59** If the resistance of a conductor is doubled then the heat produced is:

- Ans**
- ☒ A. Half
  - ☒ B. Two times
  - ☒ C. Unchanged
  - ☒ D. Zero

**Q.60** Arun was performing an experiment in the laboratory. He took a solution of ferric chloride and added some smaller pieces of zinc. When the yellow colour of ferric chloride disappeared, which compound was formed?

- Ans**
- ✓ A.  $\text{ZnCl}_2$
  - ✗ B.  $\text{FeCl}_2$
  - ✗ C.  $\text{Zn(OH)}_2$
  - ✗ D.  $\text{Fe(OH)}_3$

**Q.61** In the following figure, deer occupies \_\_\_\_\_.



- Ans**
- ✗ A. Level 1
  - ✓ B. Level 2
  - ✗ C. Level 3
  - ✗ D. Level 4

**Q.62** Which of the following statements about double displacement reactions is correct?

- Ans**
- ✓ A. An exchange of ions between two reactants.
  - ✗ B. The number of products should be one.
  - ✗ C. The reactant should be organic.
  - ✗ D. Only one reactant is required.

**Q.63** Which element is neither metal nor non-metal?

- Ans**
- ✗ A. Mg
  - ✗ B. Al
  - ✓ C. Ge
  - ✗ D. P

**Q.64** Which of the following methods is a surgical method that is used to prevent sperm transfer from males?

- Ans**
- ✓ A. Vas deferens is blocked
  - ✗ B. Fallopian tubes are blocked
  - ✗ C. Copper T is inserted
  - ✗ D. Condom is used

**Q.65** An object is placed in front of a convex mirror of focal length 9 cm, at a distance of 18 cm. Its image is formed at a distance of:

- Ans**
- ☒ A. 6 cm
  - ☐ B. 12 cm
  - ☐ C. 18 cm
  - ☐ D. 24 cm

**Q.66** Combustion of one methane gas molecule gives \_\_\_\_\_ carbon dioxide and \_\_\_\_\_ water molecules, respectively.

- Ans**
- ☐ A. 2; 3
  - ☒ B. 1; 2
  - ☐ C. 3; 2
  - ☐ D. 2; 1

**Q.67** Which of the following elements is most metallic in nature?

- Ans**
- ☐ A. Be
  - ☐ B. Ca
  - ☒ C. Ba
  - ☐ D. Sr

**Q.68** Some reasons for conserving coal and petroleum are given below. Select the INCORRECT option.

- Ans**
- ☐ A. Decreases the effect of climate change
  - ☐ B. Saves money of citizens
  - ☐ C. No acidification of oceans causing death of aquatic animals
  - ☒ D. Increases air pollution even upon judicious usage

**Q.69** The direction of the current in a coil of a motor is reversed by:

- Ans**
- ☐ A. brushes
  - ☒ B. split ring
  - ☐ C. slip ring
  - ☐ D. axle

**Q.70** Which of the following pairs will be in the same homologous series?

- Ans**
- ☐ A.  $\text{C}_2\text{H}_5\text{OH}$  and  $\text{CH}_3\text{COOH}$
  - ☐ B.  $\text{CH}_3\text{OH}$  and  $\text{HCOOH}$
  - ☐ C.  $\text{CH}_3\text{CHO}$  and  $\text{CH}_3\text{OH}$
  - ☒ D.  $\text{CH}_3\text{COCH}_3$  and  $\text{C}_2\text{H}_5\text{COCH}_3$

**Q.71** A concave mirror is made from a section of the surface of a sphere of radius 18.0 cm. According to New Cartesian Sign Convention, its principal focus is located at x = \_\_\_\_\_.

- Ans**
- ☐ A. -18 cm
  - ☒ B. -9 cm
  - ☐ C. 18 cm
  - ☐ D. 9 cm



**Q.72** Which of the following organisms has a three chambered heart?

- Ans**
- ☐ A. Fish
  - ☐ B. Man
  - ☒ C. Frog
  - ☐ D. Bird

**Q.73** Some features of a respiratory surface in animals are mentioned below. Select the INCORRECT option.

- Ans**
- ☐ A. Has a large surface area
  - ☒ B. Is very thick
  - ☐ C. Usually placed inside the body
  - ☐ D. presence of a mechanism for moving air in and out of this area

**Q.74** The carbon and energy requirements of plants are fulfilled by which of the following processes?

- Ans**
- ☐ A. Transpiration
  - ☐ B. Absorption
  - ☒ C. Photosynthesis
  - ☐ D. Translocation

**Q.75** Which of the following has NO effect on the resistance of a conductor?

- Ans**
- ☐ A. Length
  - ☐ B. Thickness
  - ☐ C. Temperature
  - ☒ D. Shape

**Q.76** The power of a convex lens of focal length 20 cm is \_\_\_\_\_.

- Ans**
- ☐ A.  $-0.05\text{ D}$
  - ☐ B.  $0.05\text{ D}$
  - ☐ C.  $-5.0\text{ D}$
  - ☒ D.  $5.0\text{ D}$

**Q.77** Two resistors, A ( $10\ \Omega$ ) and B ( $20\ \Omega$ ), are connected in parallel. The combination is connected to a 6 V battery. The currents in A and B are respectively \_\_\_\_\_.

- Ans**
- ☐ A. 0.3 A and 0.6 A
  - ☒ B. 0.6 A and 0.3 A
  - ☐ C. 0.2 A and 0.2 A
  - ☐ D. 0.6 A and 0.6 A

**Q.78** Which of the following cellular components is absent in most of the prokaryotes?

- Ans**
- ☒ A. Nuclear membrane
  - ☐ B. Ribosome
  - ☐ C. Cell wall
  - ☐ D. Cytoplasm



**Q.79** Magnetic field lines at north pole of a magnet are:

- Ans**
- ☐ A. parallel lines
  - ☒ B. lines emerging from the pole
  - ☐ C. lines merging at the pole
  - ☐ D. intersecting lines

**Q.80** What is a possible reason for young females becoming teen mothers?

- Ans**
- ☒ A. Familial and societal pressure
  - ☐ B. Good education to the females
  - ☐ C. Females belonging to educated families
  - ☐ D. Good support from family and society

Section : General Awareness and Current Affairs

**Q.81** Which of the following is NOT an example of 'fiat' money in India?

- Ans**
- ☐ A. ₹100 note
  - ☐ B. ₹500 note
  - ☐ C. ₹1 coin
  - ☒ D. ₹1,000 cheque

**Q.82** The Planning Commission was set up on \_\_\_\_\_ and the plan era started from 1 April 1951 with the launching of the First Five-Year Plan (1951-56).

- Ans**
- ☐ A. 26 January 1950
  - ☐ B. 15 August 1949
  - ☒ C. 15 March 1950
  - ☐ D. 1 March 1950

**Q.83** The Kumaun Himalayas (according to the east-west division of the Himalayas) lie between which of the following two rivers?

- Ans**
- ☐ A. Indus and Sutlej
  - ☒ B. Sutlej and Kali
  - ☐ C. Kali and Teesta
  - ☐ D. Teesta and Dibang

**Q.84** Gandhiji founded Harijan Sevak Sangh in \_\_\_\_\_ to eradicate untouchability and uplift the depressed classes.

- Ans**
- ☐ A. 1924
  - ☐ B. 1929
  - ☐ C. 1936
  - ☒ D. 1932

**Q.85** In India, \_\_\_\_\_ is/are governed by the provisions of Section 29A of the Representation of the People Act, 1951.

- Ans**
- ☒ A. registration of political parties
  - ☐ B. general duties of chief electoral officers
  - ☐ C. appointment of dates for nominations, etc.
  - ☐ D. withdrawal of candidature

**Q.86** Kendriya Hindi Sansthan is an autonomous educational institution established in 1960 by the Department of Higher Education of the Ministry of Education, Government of India. Where is its headquarters located?

- Ans**
- ✓ A. Agra
  - ✗ B. Meerut
  - ✗ C. Lucknow
  - ✗ D. Kanpur

**Q.87** In which state is the five day religious festival of 'Shad Nongkrem' celebrated?

- Ans**
- ✗ A. Uttar Pradesh
  - ✓ B. Meghalaya
  - ✗ C. Andhra Pradesh
  - ✗ D. Tripura

**Q.88** In which year was the Panchayats (Extension to the Scheduled Areas) Act (PESA act) passed in India?

- Ans**
- ✓ A. 1996
  - ✗ B. 1994
  - ✗ C. 1992
  - ✗ D. 1990

**Q.89** Which team won the Pro Kabaddi League title of Season 8 in 2022?

- Ans**
- ✗ A. U Mumba
  - ✗ B. Bengaluru Bulls
  - ✗ C. Patna Pirates
  - ✓ D. Dabang Delhi KC

**Q.90** Which Article of the Constitution of India says that 'No person shall be deprived of his life or personal liberty except according to procedure established by law'?

- Ans**
- ✓ A. Article 21
  - ✗ B. Article 22
  - ✗ C. Article 23
  - ✗ D. Article 24

**Q.91** As of July 2022, under the National Pension Scheme for Traders and Self-employed Persons, beneficiaries are entitled to receive minimum monthly assured pension of how much after attaining the age of 60 years?

- Ans**
- ✗ A. ₹2,500
  - ✓ B. ₹3,000
  - ✗ C. ₹4,500
  - ✗ D. ₹5,000

**Q.93** Researchers at IIT Guwahati have developed a 'smart' window material in May 2021. What is the use of this material?

- Ans**
- ✗ A. It maintains oxygen pressure that works without electricity.
  - ✓ B. It allows automatic climate control of buildings.
  - ✗ C. It increases the life of medical oxygen cylinders.
  - ✗ D. It locates sources of faint light from distant quasars

**Q.94** River \_\_\_\_\_ flows through the Malwa Plateau.

- Ans**
- ☒ A. Rangeet
  - ☒ B. Godavari
  - ☒ C. Betwa
  - ☒ D. Bhima

**Q.95** \_\_\_\_\_, the first 'made in India' Petascale supercomputer that was deployed at IIT Roorkee in March 2022, has a supercomputing capacity of 1.66 Petaflops.

- Ans**
- ☒ A. PARAM Ganga
  - ☒ B. PARAM Brahma
  - ☒ C. PARAM Shakti
  - ☒ D. PARAM Yukti

**Q.96** According to India State Forest Survey Report 2021, the forest cover in India is \_\_\_\_\_ of the geographical area of the country.

- Ans**
- ☒ A. 24.62%
  - ☒ B. 31.05%
  - ☒ C. 27.50%
  - ☒ D. 37.05%

**Q.97** Who among the following holds the record of presenting the maximum number of budgets in the history of independent India by presenting 10 budgets during his stint as union finance minister?

- Ans**
- ☒ A. Morarji Desai
  - ☒ B. P Chidambaram
  - ☒ C. Pranab Mukherjee
  - ☒ D. Yashwant Sinha

**Q.98** Which of the following is a characteristic of public goods?

- Ans**
- ☒ A. Elasticity
  - ☒ B. Excludable
  - ☒ C. Inelasticity
  - ☒ D. Non-rivalry

**Q.99** In 2021, who among the following was awarded the Major Dhyan Chand Khel Ratna award?

- Ans**
- ☒ A. Tara Iyer
  - ☒ B. Jwala Gutta
  - ☒ C. PV Sindhu
  - ☒ D. Ravi Kumar

**Q.100** Under the 'Jiyo Parsi' scheme launched by the Government of India Rupees \_\_\_\_\_ is the maximum amount of childcare support per child per month only up to the age of 18 years as per the guidelines w.e.f. 22<sup>nd</sup> Oct 2021.

- Ans**
- ☒ A. 8000
  - ☒ B. 10,000
  - ☒ C. 12,000
  - ☒ D. 15,000



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 02/09/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

Q.1 If  $\frac{(15x-9)}{x} + \frac{(15y-9)}{y} + \frac{(15z-9)}{z} = 0$ , then the value of  $\frac{1}{x} + \frac{1}{y} + \frac{1}{z}$  is:

- Ans
- ☒ A. 7
  - ☒ B. 6
  - ☒ C. 5
  - ☒ D. 4

Q.2 The value of  $\sqrt{74529}$  is:

- Ans
- ☒ A. 243
  - ☒ B. 259
  - ☒ C. 239
  - ☒ D. 273

Q.3 The HCF of the numbers 64, 86, 108 and 260 is:

- Ans
- ☒ A. 2
  - ☒ B. 4
  - ☒ C. 6
  - ☒ D. 8

Q.4 Five times a number is 65. Find the number.

- Ans
- ☒ A. 10
  - ☒ B. 11
  - ☒ C. 13
  - ☒ D. 15

Q.5 A boat takes 21 minutes to go 12.6 km upstream. The ratio of the speed of the boat in still water to that of the stream is 7 : 2. How much total time (in hours) will the boat take to go 43.2 km upstream and 38.88 km downstream?

- Ans
- ☒ A. 1.6
  - ☒ B. 1.8
  - ☒ C. 2
  - ☒ D. 2.4

Q.6 Let  $0^\circ < \theta < 90^\circ$ .  $\sqrt{\frac{\sec^2 \theta + \operatorname{cosec}^2 \theta}{\tan^2 \theta - \sin^2 \theta}} \times \frac{(1 + \tan^2 \theta) \sin^2 \theta}{(\operatorname{cosec} \theta - \cot \theta)(1 + \cos \theta)}$  is equal to:

- Ans ☒ A.  $\operatorname{cosec}^2 \theta \sec^2 \theta$   
☒ B.  $\sin^2 \theta \cos^2 \theta$   
☒ C.  $\cot^2 \theta$   
☒ D.  $\sec^2 \theta$

Q.7 A solid metallic cuboid of sides  $4 \text{ cm} \times 10 \text{ cm} \times 15 \text{ cm}$  is melted and made into small identical dices of  $2 \text{ cm} \times 2 \text{ cm} \times 2 \text{ cm}$ . How many such dices can be made?

- Ans ☒ A. 43  
☒ B. 75  
☒ C. 36  
☒ D. 40

Q.8 How many prime numbers are there between 20 and 80?

- Ans ☒ A. 13  
☒ B. 14  
☒ C. 15  
☒ D. 16

Q.9 In a quadrilateral ABCD,  $\angle A = 86^\circ$  and  $\angle B = 72^\circ$ . The bisectors of  $\angle C$  and  $\angle D$  meet at O. What is the measure of  $\angle DOC$ ?

- Ans ☒ A.  $69^\circ$   
☒ B.  $79^\circ$   
☒ C.  $91^\circ$   
☒ D.  $101^\circ$

Q.10 The volume of a cube whose side is 12 cm is:

- Ans ☒ A.  $1928 \text{ cm}^3$   
☒ B.  $1828 \text{ cm}^3$   
☒ C.  $1728 \text{ cm}^3$   
☒ D.  $1628 \text{ cm}^3$

Q.11 AB is parallel to CD. A transversal PQ intersects AB and CD at E and F, respectively, and  $\angle PEB = 78^\circ$ . G is a point between AB and CD such that  $\angle BEG = 18^\circ$  and  $\angle GFE = 30^\circ$ . What is the measure of  $\angle EGF$ ?

- Ans ☒ A.  $58^\circ$   
☒ B.  $66^\circ$   
☒ C.  $68^\circ$   
☒ D.  $72^\circ$

Q.12 If  $a = 5$ , then  $\sqrt{(4a^2 - 4a + 1)} + 6a$  is:

- Ans ☒ A. 69  
☒ B. 59  
☒ C. 49  
☒ D. 39

**Q.13** A large tanker can be filled by pipes A and B in 60 minutes and 30 minutes, respectively. How much time will it take to fill the empty tanker, if for half the time pipe B is opened and for the remaining time pipes A and B are opened?

- Ans**
- ☒ A. 15 minutes
  - ☒ B. 20 minutes
  - ☒ C. 24 minutes
  - ☒ D. 28 minutes

**Q.14** A quadratic equation whose roots are  $-\frac{2}{3}$  and  $-\frac{3}{2}$  is:

- Ans**
- ☒ A.  $6x^2 + 13x + 1 = 0$
  - ☒ B.  $6x^2 + 13x + 6 = 0$
  - ☒ C.  $6x^2 - 13x + 6 = 0$
  - ☒ D.  $6x^2 - 13x - 1 = 0$

**Q.15** Pipe P can fill  $\frac{3}{4}$  part of a tank in 18 hours and pipe Q can fill  $\frac{3}{5}$  part of the same tank in 12 hours. Both P and Q were kept open for 4 hours, then both were closed. Pipe R alone was then opened and it emptied the water in the tank in  $5\frac{1}{2}$  hours. Pipes P, Q and R together can fill the empty tank in:

- Ans**
- ☒ A. 30 hours
  - ☒ B. 35 hours
  - ☒ C. 36 hours
  - ☒ D. 40 hours

**Q.16** For the equation  $2x^2 + bx + 3 = 0$ , the smaller root is 0.5. Find the value of b.

- Ans**
- ☒ A. 5
  - ☒ B. -7
  - ☒ C. -2
  - ☒ D. 1

**Q.17** If the mean of the following data is 22, then what is the value of  $x$ ?

| Class     | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 |
|-----------|------|-------|-------|-------|-------|
| Frequency | 12   | 16    | 6     | 7     | $x$   |

- Ans**
- ☒ A. 6
  - ☒ B. 9
  - ☒ C. 13
  - ☒ D. 19

**Q.18** By selling an article for ₹19.50, a man makes a profit of 30%. By how much should the sales price be increased to make a profit of 40%?

- Ans**
- ☒ A. ₹2.00
  - ☒ B. ₹1.90
  - ☒ C. ₹1.50
  - ☒ D. ₹4

**Q.19** If ₹12,500 amounts to ₹15,680 in 2 years at x % compound interest per annum, compounded annually, then the value of x is:

- Ans**
- ☒ A. 11
  - ☒ B. 12
  - ☒ C. 15
  - ☒ D. 20

**Q.20** The mean of the first 7 odd prime numbers is:

- Ans**
- ☒ A. 8.61
  - ☒ B. 7.91
  - ☒ C. 5.41
  - ☒ D. 10.71

**Q.21** A shopkeeper professes to sell his goods at a 10% loss but uses a false balance and gains 15%. The actual weight (correct to one decimal place) he uses for 1 kg is:

- Ans**
- ☒ A. 782.6 gm
  - ☒ B. 784.4 gm
  - ☒ C. 785.6 gm
  - ☒ D. 788.4 gm

**Q.22** The sum of the present ages of a father and his son is 6 years more than 3 times the present age of the son. After 2 years, 2 times the father's age will be 7 years less than 5 times the son's age. The difference (in years) between the ages of the father and the son is:

- Ans**
- ☒ A. 17
  - ☒ B. 19
  - ☒ C. 20
  - ☒ D. 23

**Q.23** If  $3.2 : x :: x : 16.2$ , and  $x > 0$ , then find the value of x.

- Ans**
- ☒ A. 5.4
  - ☒ B. 6.3
  - ☒ C. 7.2
  - ☒ D. 9.7

**Q.24** Suman's present age is twice that of Venkat's. Venkat's age, after 12 years, will be 21 years. Find Suman's present age.

- Ans**
- ☒ A. 18 years
  - ☒ B. 20 years
  - ☒ C. 22 years
  - ☒ D. 16 years

**Q.25** The annual income of Ram is ₹5,62,400. He spent 20% of this income on house rent, 15% of the remaining income on food, and 30% of the income still remaining with him on children's education. If the amount still remaining was his savings, which of the following amounts is closest to his actual savings?

- Ans**
- ☒ A. ₹2,67,730
  - ☒ B. ₹2,76,703
  - ☒ C. ₹2,67,037
  - ☒ D. ₹2,67,703



**Q.26** A certain number of people are sitting in a row and all are facing north. Exactly one person is sitting between G and K. I is sitting third to the right of J. H is sitting to the immediate right of G. Exactly four persons are sitting between I and K. M is sitting at the second position to the left of K. If it is given that there is no other person sitting in the row, what is the total number of people in the row?

- Ans**
- ✓ A. 12
  - ✗ B. 10
  - ✗ C. 11
  - ✗ D. 13

**Q.27** Three statements are followed by three conclusions numbered I, II and III. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts. Decide which of the given conclusions logically follow(s) from the given statement.

Statements:

Some woods are charcoals

Some petrol is diesel

All diesel are fossils

Conclusions:

(I) Some petrol are charcoals

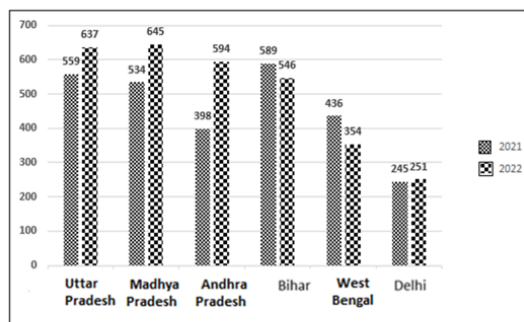
(II) Some fossils are petrol

(III) Some woods are diesel

- Ans**
- ✗ A. Only conclusion I follows
  - ✓ B. Only conclusion II follows
  - ✗ C. Only conclusion I and III follows
  - ✗ D. None of the conclusions follow

**Q.28** Study the given graph and answer the question that follows.

The graph presents the total production of crops (in metric tonnes) in six different states/UTs of the country in the years 2021 and 2022.

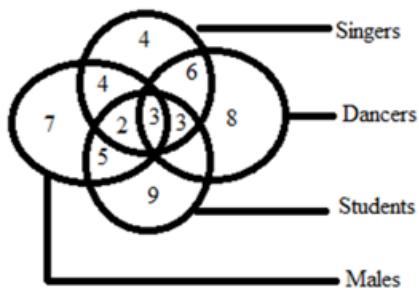


In which pair of states/UTs is the ratio of total crop production for both the years 1 : 2?

- Ans**
- ✗ A. West Bengal and Madhya Pradesh
  - ✓ B. Delhi and Andhra Pradesh
  - ✗ C. Delhi and Uttar Pradesh
  - ✗ D. West Bengal and Andhra Pradesh



Q.29 Study the Venn Diagram given below and answer the question that follows.



How many male students are neither singers nor dancers?

- Ans ☒ A. 4  
☒ B. 5  
☒ C. 2  
☒ D. 3

Q.30 How many such pairs of letters are there in the word LOVABLE (in both forward and backward directions) which have as many letters between them in the word as there are in the English alphabetical order?

- Ans ☒ A. 1  
☒ B. 3  
☒ C. 5  
☒ D. 6

Q.31 Refer to the following letter and symbol series and answer the question.

(Left) E # R & H & @ J & M N # B & V & & D # P @ W % & Q & A % & # E & (Right)

If all the symbols are dropped from the series, which of the following will be third from the left?

- Ans ☒ A. H  
☒ B. J  
☒ C. M  
☒ D. Q

Q.32 Sharad walks 4 km towards the west and then turns right and walks 5 km. Again, he turns left and walks 7 km. Finally, he turns to his left and walks 5 km. How far is he from the starting point?  
 (All turns are 90 degree turns only)

- Ans ☒ A. 10 km  
☒ B. 11 km  
☒ C. 14 km  
☒ D. 21 km

Q.33 A certain number of people are sitting in a row, facing north. B sits fourth to the right of E. C sits third to the right of B. A sits sixth to the left of E. There are only two persons between C and D. If no other person is sitting in the row, what is the total number of persons seated?

- Ans ☒ A. 12  
☒ B. 9  
☒ C. 17  
☒ D. 20

**Q.34** Six friends, A, B, C, D, E and F, are sitting in a circle facing the centre of the circle. A is 2<sup>nd</sup> to the right of E. Only one person sits between F and D. B and D are immediate neighbours. F is 3<sup>rd</sup> to the right of B. C is second to the right of D. Who sits between D and F?

- Ans**
- ✓ A. A
  - ✗ B. B
  - ✗ C. C
  - ✗ D. D

**Q.35** Select the number from among the given options that can replace the question mark (?) in the following series.

188, 187, 183, 174, 158, ?

- Ans**
- ✗ A. 139
  - ✗ B. 137
  - ✓ C. 133
  - ✗ D. 129

**Q.36** If 2 is added to each odd digit and 2 is subtracted from each even digit in the number 485136785, what will be the difference between the digits which are second from the left and third from the right?

- Ans**
- ✗ A. 1
  - ✗ B. 2
  - ✓ C. 3
  - ✗ D. 4

**Q.37** If in a certain code language, CARBON is coded as DCUFTT and ENABLE is coded as FPDFQK, then how is CANDLE coded in that language?

- Ans**
- ✗ A. EDRIQK
  - ✗ B. EDRIKQ
  - ✗ C. DCHQKQ
  - ✓ D. DCQHQQ

**Q.38** Given below is a statement followed by two possible conclusions I and II. Read the information carefully and select the correct option.

**Statement:**

Country B has been importing 80% of its crude oil and petroleum from country Y for a few decades now to fulfil their fuel needs. However, owing to the current financial crisis in country Y, it exports the crude oil and petroleum to other countries at 30% higher prices now.

Which of the following can be concluded from the given information?

I. The car resale industry in country B will be on verge of a total shut down in the coming months.

II. Country B will increase fuel tax by 30%.

- Ans**
- ✗ A. Only I can be concluded from the given information.
  - ✗ B. Only II can be concluded from the given information.
  - ✗ C. Both I and II can be concluded from the given information.
  - ✓ D. Neither I nor II can be concluded from the given information.

**Q.39** Refer to the following letter series and answer the question that follows.

A F R C D S Y H N T E D C I D Q A C V Y U I N G R F S C W R

How many such consonants are there each of which is immediately preceded by a vowel and also immediately followed by a vowel?

- Ans**
- ✓ A. Zero
  - ✗ B. One
  - ✗ C. Two
  - ✗ D. Three

**Q.40** Select the number from among the given options that can replace the question mark (?) in the following series.

10, 132, 234, 318, ?, 440.

- Ans**
- ✗ A. 332
  - ✗ B. 369
  - ✗ C. 373
  - ✓ D. 386

**Q.41** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

13 : 195 :: 11 : 143 :: 7 : ?

- Ans**
- ✓ A. 63
  - ✗ B. 105
  - ✗ C. 91
  - ✗ D. 107

**Q.42** Six classmates L, M, N, O, P and Q compare the IGCSE results of their final exam. Each of them scored different marks. O scored more than N but less than L. M scored more than N. P scored less than N but more than Q. L scored less than M. Who among the six scored the most?

- Ans**
- ✓ A. M
  - ✗ B. L
  - ✗ C. O
  - ✗ D. N

**Q.43** Pinky walked 160 m towards north, then she turned right and walks 240 m. Then she turned right and walked 280 m, then she turned left and walked 120 m. Finally, she turned left and walked 120 m. In which direction and how many metres is she from the starting position?

(All turns are 90 degree turns only)

- Ans**
- ✗ A. East, 120 m
  - ✗ B. West, 120 m
  - ✗ C. West, 360 m
  - ✓ D. East, 360 m

**Q.44** Study the following line graph and answer the question.



The average annual exports during the given period for Company B is what percentage of the average annual exports for Company C?

- Ans**
- ☒ A. 93.99%
  - ☒ B. 95.90%
  - ☒ C. 96.65%
  - ☒ D. 97.32%

**Q.45** Select the term from among the given options that can replace the question mark (?) in the following alpha-numeric series to make it logically complete.

3Z6, 8Y12, 15X18, 24W24, 35V30, ?

- Ans**
- ☒ A. 36U48
  - ☒ B. 48V36
  - ☒ C. 36V48
  - ☒ D. 48U36

**Q.46** There are 88 mobile phones, each of separate brands, arranged in a straight row at a mobile centre. The K brand mobile is 47<sup>th</sup> from the left side of the row and the M brand mobile is 34<sup>th</sup> from the right side of the row. How many mobile phones are between K and M brands?

- Ans**
- ☒ A. 10
  - ☒ B. 9
  - ☒ C. 8
  - ☒ D. 7

**Q.47** If each of the digits in the number 417593286 is arranged in ascending order from left to right, the position of how many digits will remain unchanged as compared to that in the original number?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.48** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

13 : 28 :: 15 : 30 :: 20 : ?

- Ans**
- ☒ A. 42
  - ☒ B. 40
  - ☒ C. 36
  - ☒ D. 35

**Q.49** A, B, C, D, W, X, Y and Z are sitting around a square table facing the centre of the table. Some of them are sitting at the corners, while some are sitting at the middle of the sides. C sits third to the left of W. C sits at one of the corners. A does not sit at any of the corners. Y sits second to the right of A. A is not an immediate neighbour of C. Only three people sit between B and D. B is an immediate neighbour of Z. B does not sit at any of the middle of the sides.

Who sits second to the left of Y?

- Ans**
- ☒ A. B
  - ☒ B. D
  - ☒ C. A
  - ☒ D. C

**Q.50** Select the option that is related to the fifth letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster and the fourth letter-cluster is related to the third letter-cluster.

PROFESS : ORPSSEF :: CONTAIN : NOCNIAI :: ROUTINE : ?

- Ans**
- ☒ A. TORENIU
  - ☒ B. UORENIT
  - ☒ C. UROEINT
  - ☒ D. UORNETI

**Q.51** Refer to the following letter, number, symbol series and answer the question.

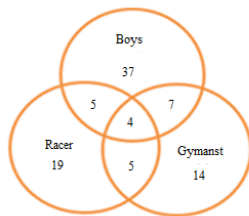
(Left) N 3 F P # 1 C B 5 \$ L Q 6 & N 8 D @ K 9 R (Right)

How many such symbols are there which are immediately preceded by a letter and also immediately followed by a number?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.52** Study the given diagram carefully and answer the questions. The numbers in different sections indicate the number of persons.

In the following Venn diagram, the how many boys are there who are racers and gymnasts?



- Ans**
- ☒ A. 5
  - ☒ B. 4
  - ☒ C. 7
  - ☒ D. 14

**Q.53** In a certain code language, '856 458 1265' means 'you are good', 568 235 1265 1452 means 'good boy bad habit', and '25475 458 568' means 'evils are bad'. In that language, which code stands for 'are'?

- Ans**
- ☒ A. 856
  - ☒ B. 458
  - ☒ C. 235
  - ☒ D. 1265

**Q.54** Which two signs should be interchanged to make the following equation correct?

$$13 + 6 \div 12 - 4 \times 5 = 4$$

- Ans**
- ☒ A.  $\div$  and  $\times$
  - ☒ B.  $-$  and  $\times$
  - ☒ C.  $\div$  and  $-$
  - ☒ D.  $\times$  and  $+$

**Q.55** Amongst six friends P, Q, R, S, T and U, each has a different height. R is taller than only three other friends. T is taller than only one friend. Q is taller than T but shorter than U. U is shorter than P. Who is the second tallest among all the friends?

- Ans**
- ☒ A. R
  - ☒ B. Q
  - ☒ C. U
  - ☒ D. P

Section : General Science

**Q.56** An object is placed at a distance of 40 cm from a convex lens having focal length 20 cm. Which option given below, correctly describes the nature and the relative size of the image formed in the respective order?

- Ans**
- ☒ A. Real, inverted and same sized
  - ☒ B. Real, inverted and diminished
  - ☒ C. Virtual, erect and enlarged
  - ☒ D. Virtual, erect and diminished

**Q.57** When baking soda is heated it converts into \_\_\_\_\_, water, and carbon dioxide.

- Ans**
- ☒ A. sodium chloride
  - ☒ B. sodium acetate
  - ☒ C. sodium hydroxide
  - ☒ D. sodium carbonate

**Q.58** An element X combines with chlorine to form a compound  $\text{XCl}$ . The element X is placed on the left side of the periodic table. Which of the following statements are correct for element X?

- (i) Has one valence electron.
- (ii) Is a metal and is solid.
- (iii) Is a non-metal and is a gas.
- (iv) Has five valence electrons.

- Ans**
- ☒ A. Only (iii)
  - ☒ B. Only (iv)
  - ☒ C. Only (i) and (iii)
  - ☒ D. Only (I), (ii) and (iii)

**Note:** For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

**Q.59** Which instrument aids in the detection of the heartbeat?

- Ans**
- ✓ **A.** Stethoscope
  - ✗ **B.** Sphygmomanometer
  - ✗ **C.** Spirometer
  - ✗ **D.** Thermometer

**Q.60** What is the natural resource from which petrol and diesel are obtained?

- Ans**
- ✓ **A.** Petroleum
  - ✗ **B.** Coke
  - ✗ **C.** Bitumen
  - ✗ **D.** Coal tar

**Q.61** The Resistance of a conductor is:

- Ans**
- ✗ **A.** The ratio of I and V
  - ✗ **B.** The product of I and V
  - ✓ **C.** The ratio of V and I
  - ✗ **D.** The Difference of V and I

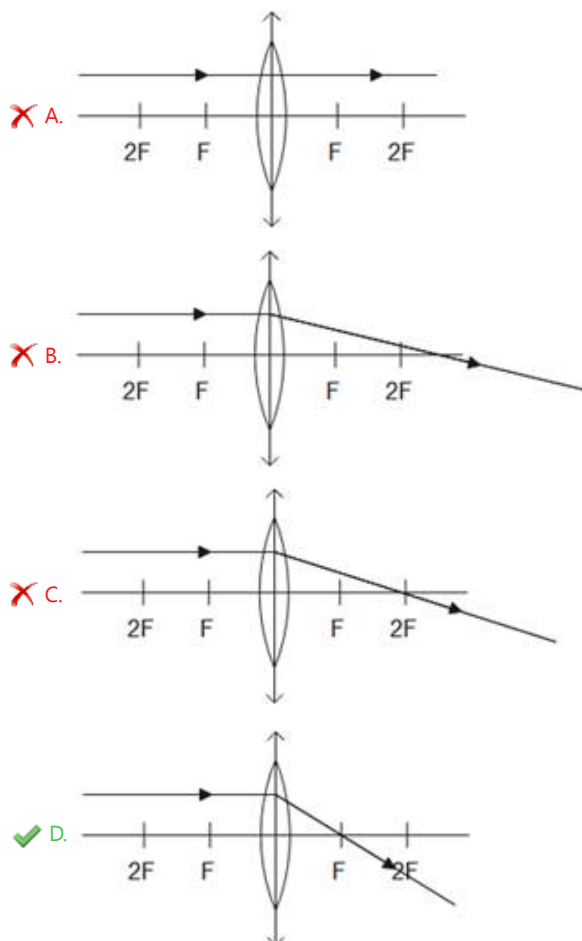
**Q.62** In which of the following situations will there be no potential difference induced in the coil?

- (a) A bar magnet moving towards a stationary coil
- (b) A coil moving towards a stationary bar magnet
- (c) A coil and a bar magnet moving in the same direction with the same speed
- (d) A coil and a bar magnet moving towards each other with the same speed

- Ans**
- ✗ **A.** (a)
  - ✗ **B.** (b)
  - ✓ **C.** (c)
  - ✗ **D.** (d)

**Q.63** Which of the following diagrams correctly represents the path of a light ray incident parallel to the principal axis after refraction through the lens?

**Ans**



**Q.64** Which of the following wastes CANNOT be degraded by bacteria or other saprophytes?

- Ans**
- ☒ A. Excreta
  - ☒ B. Paper
  - ☒ C. Plastic
  - ☒ D. Leather



Q.65

Match the following:

| Compound         | Name            |
|------------------|-----------------|
| i. $C_6H_6$      | a. Ethane       |
| ii. $H_2C=CH_2$  | b. Benzene      |
| iii. $CH_3-CHO$  | c. Acetaldehyde |
| iv. $CH_3COCH_3$ | d. Ethylene     |
| v. $CH_3CH_3$    | e. Acetone      |

Ans ☒ A. i-d, ii-c, iii-a, iv-b. v-e

☒ B. i-a, ii-b, iii-c, iv-e v-d

☒ C. i-b, ii-d, iii-c, iv-e, v-a

☒ D. i-d, ii-c, iii-e, iv-b v-a

Q.66 Who gave the laws of inheritance?

Ans ☒ A. Carl Linnaeus

☒ B. Charles Darwin

☒ C. Watson and Crick

☒ D. Gregor Mendel

Q.67 A 2200 W electric toaster operates at 220 V. The resistance of its coil is:

Ans ☒ A.  $11\ \Omega$

☒ B.  $22\ \Omega$

☒ C.  $44\ \Omega$

☒ D.  $88\ \Omega$

Q.68 In the process of storing and transferring ADP into ATP molecules, which of the following minerals is critical?

Ans ☒ A. Phosphorus

☒ B. Calcium

☒ C. Iron

☒ D. Sodium

Q.69 The centre of curvature of a convex mirror is located at +18 cm, as per New Cartesian Sign convention. Its focus is at

Ans ☒ A. 9 cm

☒ B. -9 cm

☒ C. 18 cm

☒ D. -18 cm

**Q.70** Name the process by which soluble products of photosynthesis are transported to other parts of the plant.

- Ans**
- ☐ A. Transpiration
  - ☐ B. Diffusion
  - ☒ C. Translocation
  - ☐ D. Osmosis

**Q.71** Which of the following reactions is NOT an example of a displacement reaction?

- Ans**
- ☐ A.  $Fe(s) + CuSO_4(aq) \rightarrow FeSO_4(aq) + Cu(s)$
  - ☒ B.  $2AgBr(s) \xrightarrow{\text{Sunlight}} 2Ag(s) + Br_2(g)$
  - ☐ C.  $Zn(s) + CuSO_4(aq) \rightarrow ZnSO_4(aq) + Cu(s)$
  - ☐ D.  $Pb(s) + CuCl_2(aq) \rightarrow PbCl_2(aq) + Cu(s)$

**Q.72** Catenation property is shown by:

- Ans**
- ☒ A. carbon
  - ☐ B. Oxygen
  - ☐ C. Nitrogen
  - ☐ D. Helium

**Q.73** Two coils, A and B, such that A is connected to a battery through a key and a rheostat, and B is connected to a galvanometer, are arranged parallel and close to each other. In which of the following durations, as described, is/are current(s) induced in B?

- (a) 0 to 50 s : the current in A is steady  
(b) 50 to 60 s : the current in A is decreased at a constant rate

- Ans**
- ☐ A. Only (a)
  - ☒ B. Only (b)
  - ☐ C. Neither (a) nor (b)
  - ☐ D. Both (a) and (b)

**Q.74** How many resistors of  $12\ \Omega$  must be connected in parallel combination to obtain  $4\ \Omega$  resistance?

- Ans**
- ☐ A. 2 resistors
  - ☐ B. 4 resistors
  - ☐ C. 8 resistors
  - ☒ D. 3 resistors

**Q.75** Bone is an example of which of the following types of tissues?

- Ans**
- ☐ A. Muscular tissue
  - ☒ B. Connective tissue
  - ☐ C. Epithelial tissue
  - ☐ D. Nervous tissue

Q.76 In the reaction  $\text{MnO}_2 + 4\text{HCl} \rightarrow \text{MnCl}_2 + 2\text{H}_2\text{O} + \text{Cl}_2$ :

- Ans
- ☒ A.  $\text{MnO}_2$  is oxidized to  $\text{MnCl}_2$
  - ☒ B.  $\text{MnO}_2$  is reduced to  $\text{MnCl}_2$
  - ☒ C.  $\text{MnCl}_2$  is reduced to  $\text{MnO}_2$
  - ☒ D. Mn does not undergo redox reaction

Q.77 Which of following molecules govern the inheritance of a trait by the offspring?

- Ans
- ☒ A. Only paternal DNA
  - ☒ B. Paternal and maternal DNA
  - ☒ C. Proteins
  - ☒ D. Only maternal DNA

Q.78 Which of the following is NOT an alkali?

- Ans
- ☒ A.  $\text{NH}_4\text{OH}$
  - ☒ B.  $\text{Ba}(\text{OH})_2$
  - ☒ C.  $\text{Cu}(\text{OH})_2$
  - ☒ D.  $\text{LiOH}$

Q.79 A ray of light is incident on a concave mirror at point M. The ray makes an angle of  $10^\circ$  with a line joining M to the centre of curvature. The ray is reflected at an angle of \_\_\_\_\_.

- Ans
- ☒ A.  $10^\circ$
  - ☒ B.  $20^\circ$
  - ☒ C.  $30^\circ$
  - ☒ D.  $40^\circ$

Q.80 Which of the following is NOT a metal?

- Ans
- ☒ A. Ga
  - ☒ B. Sc
  - ☒ C. Si
  - ☒ D. Pb

#### Section : General Awareness and Current Affairs

Q.81 The 74th Constitutional Amendment Act provides for \_\_\_\_\_ for a transitional area between a rural and urban area.

- Ans
- ☒ A. Nagar Panchayat
  - ☒ B. Municipal Corporation
  - ☒ C. Municipal Council
  - ☒ D. Gram Panchayat

Q.82 The part of the northern plains of India comprising older alluvium is known as:

- Ans
- ☒ A. Bhabar
  - ☒ B. Khadar
  - ☒ C. Bhangar
  - ☒ D. Terai

**Q.83** Red and Yellow soils can easily be found in parts of \_\_\_\_\_ and \_\_\_\_\_.

- Ans**
- ☐ A. Rajasthan and Gujarat
  - ☒ B. Odisha and Chhattisgarh
  - ☐ C. Manipur and Sikkim
  - ☐ D. Jammu and Kashmir and Ladakh

**Q.84** The Women's Day week to raise awareness on 'Safety and Security of Women' was celebrated from \_\_\_\_\_ in 2022.

- Ans**
- ☒ A. 1<sup>st</sup> to 8<sup>th</sup> March
  - ☐ B. 4<sup>th</sup> to 11<sup>th</sup> March
  - ☐ C. 7<sup>th</sup> to 14<sup>th</sup> March
  - ☐ D. 10<sup>th</sup> to 17<sup>th</sup> March

**Q.85** Which one of the following districts in Western India recorded a temperature of 1.1 degrees Celcius on December 18, 2021?

- Ans**
- ☒ A. Churu
  - ☐ B. Banswara
  - ☐ C. Morbi
  - ☐ D. Patan

**Q.86** What is the main role of the Reserve Bank of India?

- Ans**
- ☐ A. It lends money to all people.
  - ☒ B. It conducts consolidated supervision of the financial sector in India.
  - ☐ C. It provides fund to the private sector industries.
  - ☐ D. It maintains the profit generated by the banking sector.

**Q.87** Which of the following is an indigenously developed automatic train protection system tested in India in March 2022?

- Ans**
- ☐ A. SANRAKSHAN
  - ☐ B. RAKSHAA
  - ☒ C. KAVACH
  - ☐ D. BACHAAV

**Q.88** Which of the following statements about the Rajya Sabha is correct?

- Ans**
- ☐ A. One-third of the members retire every year.
  - ☒ B. One-third of the members retire every second year.
  - ☐ C. One-fifth of the members retire every second year.
  - ☐ D. Half of the members retire every year.

**Q.89** In March 2022, in which state did the World Health Organization sign an agreement with India to set up a Global Centre for Traditional Medicine?

**Ans**

☐ A. Rajashtan

☒ B. Gujarat

☐ C. Himachal Pradesh

☐ D. Kerala

**Q.90** Which of the following features of the Constitution of India is borrowed from the Constitution of Ireland?

**Ans**

☒ A. Directive principles of state policy

☐ B. Rule of law

☐ C. Parliamentary system of government

☐ D. Single citizenship

**Q.91** In July 2022, the Supreme Court of India gave an order giving more power to the right to be forgotten, which has been acknowledged as a facet of the right to privacy by the top court in its 2017 landmark judgment, the new order is related to \_\_\_\_\_.

**Ans**

☐ A. print media

☒ B. search engines and internet

☐ C. phone calls

☐ D. medical history

**Q.92** On which national festival is the National Flag of India hoisted by the Prime Minister at the Red Fort in old Delhi?

**Ans**

☐ A. National Constitution Day

☐ B. Gandhi Jayanti

☐ C. Republic Day

☒ D. Independence Day

**Q.93** \_\_\_\_\_, the then largest NBFC – MFI got merged with IndusInd bank in July 2019.

**Ans**

☒ A. Bharat Financial Inclusion Limited

☐ B. Bandhan Financial Services Limited

☐ C. Annapurna Finance Private Limited

☐ D. CreditAccess Grameen Limited

**Q.94** In India, Petrol price was liberalized and deregulated in June:

**Ans**

☐ A. 2017

☐ B. 2008

☒ C. 2010

☐ D. 2014

**Q.95** \_\_\_\_\_ is a type of crescent-shaped sand dune formed in desert regions where the wind direction is very constant.

- Ans**
- ☒ A. Blowhole
  - ☒ B. Barchan
  - ☒ C. Bergschrund
  - ☒ D. Bluff

**Q.96** Who was the Viceroy of British India when the Rowlatt Act was passed?

- Ans**
- ☒ A. Lord Chelmsford
  - ☒ B. Lord Curzon
  - ☒ C. Lord Reading
  - ☒ D. Lord Canning

**Q.97** Under the 'Talent Search and Development' component of 'Khelo India' programme to carry out talent identification, the country has been divided into how many zones as of July 2022?

- Ans**
- ☒ A. Three
  - ☒ B. Four
  - ☒ C. Five
  - ☒ D. Seven

**Q.98** Which of the following is a classical language among the 22 languages in the 8th Schedule of the Indian Constitution?

- Ans**
- ☒ A. Konkani
  - ☒ B. Sanskrit
  - ☒ C. Santhali
  - ☒ D. Bengali

**Q.99** The sayings or day-to-day teachings of Prophet Muhammad after his death were compiled by his followers and called \_\_\_\_\_.

- Ans**
- ☒ A. Quran
  - ☒ B. Hadith
  - ☒ C. Sunnah
  - ☒ D. Sharia

**Q.100** How many teams were scheduled to be a part of the 15<sup>th</sup> edition of the Indian Premier League (Cricket), 2022?

- Ans**
- ☒ A. 10
  - ☒ B. 12
  - ☒ C. 15
  - ☒ D. 17



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 05/09/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** Anu is four times as good as Binni in doing a work. Together they finish the same work in 12 hrs. In how many hrs will Anu alone finish the work?

- Ans**
- ☒ A. 10 hrs
  - ☒ B. 11 hrs
  - ☒ C. 13 hrs
  - ☒ D. 15 hrs

**Q.2** What is the median of the following data?

41, 32, 50, 28, 35, 19, 27, 31, 45, 16, 34, 37

- Ans**
- ☒ A. 32.5
  - ☒ B. 33
  - ☒ C. 33.5
  - ☒ D. 34

**Q.3** The cost of 3 pens and 2 pencils is ₹53 and the cost of 2 pens and 5 pencils ₹50. The cost of 5 pens and 3 pencils is:

- Ans**
- ☒ A. ₹72
  - ☒ B. ₹81
  - ☒ C. ₹87
  - ☒ D. ₹95

**Q.4** The shorter side of a rectangle is 10 cm less than the longer side. The numerical value of its area is equal to 6 times the numerical value of its perimeter. What is the length (in cm) of its longer side?

- Ans**
- ☒ A. 20
  - ☒ B. 25
  - ☒ C. 30
  - ☒ D. 35

**Q.5** A shopkeeper sells an item for ₹571.20 after giving two successive discounts of 20% and 15% on its marked price. Had he not given any discount, he would have earned a profit of 12%. What is the cost price (in ₹) of the item?

- Ans**
- ☐ A. 700
  - ☐ B. 720
  - ☒ C. 750
  - ☐ D. 780

**Q.6** The volume of a cuboid whose length, breadth and height are 3 cm, 4 cm and 5 cm, respectively, is:

- Ans**
- ☐ A.  $90 \text{ cm}^3$
  - ☐ B.  $80 \text{ cm}^3$
  - ☐ C.  $70 \text{ cm}^3$
  - ☒ D.  $60 \text{ cm}^3$

**Q.7** Three pipes A, B and C can fill a tank in 5 hours, 8 hours and 12 hours, respectively. If all the pipes are opened at the same time, then the time taken to fill the tank is:

- Ans**
- ☐ A.  $5\frac{22}{49}$  hours
  - ☐ B.  $4\frac{22}{49}$  hours
  - ☐ C.  $3\frac{22}{49}$  hours
  - ☒ D.  $2\frac{22}{49}$  hours

**Q.8** If ABCD is a rhombus such that  $\angle ACB = 40^\circ$ , then  $\angle ADB$  is:

- Ans**
- ☐ A.  $40^\circ$
  - ☐ B.  $45^\circ$
  - ☒ C.  $50^\circ$
  - ☐ D.  $60^\circ$

**Q.9** A train crosses a platform of length 200 metres in 40 seconds and a man in 20 seconds. The length of the train is:

- Ans**
- ☐ A. 500 metres
  - ☐ B. 400 metres
  - ☐ C. 300 metres
  - ☒ D. 200 metres

**Q.10** If  $4^x - 4^{x-1} = 24$ , then the value of  $\frac{2x-1}{2x+3}$  is:

- Ans**
- ☐ A.  $\frac{1}{3}$
  - ☒ B.  $\frac{1}{2}$
  - ☐ C.  $\frac{1}{5}$
  - ☐ D.  $\frac{3}{7}$



**Q.11** Vamsi's father is 60 years old. He is 20 years older than twice Vamsi's age. Find Vamsi's age.

- Ans**
- ✓ A. 20 years
  - ✗ B. 25 years
  - ✗ C. 15 years
  - ✗ D. 30 years

**Q.12** The corresponding sides of two similar triangles are in the ratio of 2: 3. If the area of the smaller triangle is  $48 \text{ cm}^2$ , then the area of the bigger triangle is:

- Ans**
- ✗ A.  $230 \text{ cm}^2$
  - ✗ B.  $106 \text{ cm}^2$
  - ✗ C.  $107 \text{ cm}^2$
  - ✓ D.  $108 \text{ cm}^2$

**Q.13** The current population of a town is 15,625. It increases by 8% and 12% in two successive years but decreases by 22% in the third year. What is the population of the town at the end of the third year?

- Ans**
- ✗ A. 13,230
  - ✓ B. 14,742
  - ✗ C. 15,120
  - ✗ D. 14,042

**Q.14** Find the surface area of a sphere whose diameter is equal to 14 cm.

- Ans**
- ✓ A.  $616 \text{ cm}^2$
  - ✗ B.  $524 \text{ cm}^2$
  - ✗ C.  $1232 \text{ cm}^2$
  - ✗ D.  $1048 \text{ cm}^2$

**Q.15** If the simple interest on a certain sum for 8 years is  $\frac{11}{25}$  of the sum, then the rate of interest per annum is:

- Ans**
- ✗ A.  $8\frac{1}{2}\%$
  - ✗ B.  $7\frac{1}{2}\%$
  - ✗ C.  $6\frac{1}{2}\%$
  - ✓ D.  $5\frac{1}{2}\%$

**Q.16** If 3 and  $-7$  are the roots of a quadratic equation, then the quadratic equation is:

- Ans**
- ✗ A.  $-x^2 + 4x + 21 = 0$
  - ✓ B.  $x^2 + 4x - 21 = 0$
  - ✗ C.  $x^2 - 4x - 21 = 0$
  - ✗ D.  $x^2 - 4x + 21 = 0$

**Q.17** When a number is divided by 15, the remainder is 9. What will be the remainder when the same number is divided by 5?

- Ans**
- ☒ A. 1
  - ☒ B. 4
  - ☒ C. 2
  - ☒ D. 3

**Q.18** If the numerator of a fraction be increased by 10% and its denominator be reduced by 5%, then the fraction becomes  $\frac{4}{5}$ . Find the original fraction.

- Ans**
- ☒ A.  $\frac{19}{25}$
  - ☒ B.  $\frac{17}{25}$
  - ☒ C.  $\frac{23}{55}$
  - ☒ D.  $\frac{38}{55}$

**Q.19** The value of  $\left(\frac{64}{25}\right)^{-\frac{3}{2}} \times \left(\frac{2}{5}\right)^4 \div \sqrt[5]{(32)^{-3}}$  is:

- Ans**
- ☒ A.  $\frac{1}{5}$
  - ☒ B.  $\frac{2}{5}$
  - ☒ C.  $\frac{8}{25}$
  - ☒ D.  $\frac{1}{20}$

**Q.20**  $\frac{(1 + \cot\theta - \operatorname{cosec}\theta)(1 + \tan\theta + \sec\theta)(\sec^2\theta)}{(\sec\theta - \cos\theta)(\cot\theta + \tan\theta)}$ ,  $0^\circ < \theta < 90^\circ$ , is equal to:

- Ans**
- ☒ A.  $\cos \theta$
  - ☒ B.  $\sin \theta$
  - ☒ C.  $2 \sec \theta$
  - ☒ D.  $2 \operatorname{cosec} \theta$

**Q.21** The list price of a washing machine is ₹13,200. It is sold to a retailer after two successive discounts of 25% and 15%. The retailer wants to earn a profit of 20% on his cost after allowing a 25% discount (on its new list price) to the customer. At what price should he list the washing machine?

- Ans**
- ☒ A. ₹13,644
  - ☒ B. ₹13,464
  - ☒ C. ₹13,466
  - ☒ D. ₹13,664

**Q.22** If the mode of a data exceeds its mean by 16.2, then the mode exceeds the median by \_\_\_\_\_. (Use empirical formula to find the answer.)

- Ans**
- ☒ A. 8.25
  - ☒ B. 10.2
  - ☒ C. 10.8
  - ☒ D. 12.4

Q.23

The value of  $\left(\frac{x^b}{x^c}\right)^{b+c} \times \left(\frac{x^c}{x^a}\right)^{c+a} \times \left(\frac{x^a}{x^b}\right)^{a+b}$  is equal to:

Ans

- ☒ A. 3  
☒ B. 2  
☒ C. 1  
☒ D. 0

Q.24

If the product of two numbers is 8410 and their HCF is 29, then their LCM is:

Ans

- ☒ A. 310  
☒ B. 290  
☒ C. 270  
☒ D. 330

Q.25

3 bags and 4 pens together cost ₹1,285, whereas 5 bags and 3 pens together cost ₹1,995. The cost of 2 bags exceeds the cost of 11 pens by:

Ans

- ☒ A. ₹390  
☒ B. ₹350  
☒ C. ₹310  
☒ D. ₹300

#### Section : General Intelligence and Reasoning

Q.26

Three statements are followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they do not conform to real world knowledge, decide which of the given conclusions/possibilities can be true on the basis of the statements.

Statements:

1. All sparrows are birds.
2. Some birds are animals.
3. All dogs are animals.

Conclusions:

- I. Some dogs are sparrows.
- II. All animals are birds is a possibility.
- III. Some animals are sparrows.

Ans

- ☒ A. Only conclusion I is true  
☒ B. Only conclusion II is true  
☒ C. Only conclusion III is true  
☒ D. Only conclusion I and II are true

Q.27 If

'-' means '+',

'+' means '×',

'÷' stands for '-' and

'×' means '+',

then which of the following equations is correct?

Ans  A.  $20 + 3 - 9 \div 5 \times 2 = 20$

 B.  $20 - 3 + 9 \times 5 \div 2 = 63$

 C.  $20 \times 3 \div 9 - 5 + 2 = 32$

 D.  $20 \div 3 \times 9 + 5 - 2 = 50$

Q.28 In this question, a group of letters is coded using letters/symbols as per the table given below, and the conditions that follow. The correct combination of codes following the conditions is your answer.

| Letter/Symbols | O | E | R | L | A | V | & | \$ | @ |
|----------------|---|---|---|---|---|---|---|----|---|
| Code           | 7 | 6 | 1 | 4 | 8 | 2 | 3 | 5  | 9 |

Condition 1: If a word starts with a vowel but ends with a consonant then codes for first and last letter to be reversed.

Condition 2: If there are more than two vowels in a word, then first vowel is to be coded as 1, second vowel as 2 and so on.

Condition 3: If a word starts with a consonant and also ends with a consonant then vowels are to be coded after coding all the consonants.

What is the code for "ALOEVEA"?

Ans  A. 84232615

 B. 14762618

 C. 84762618

 D. 14232415

Q.29 Seven people, A, B, C, D, E, F and G, are sitting in a straight row, facing north. Only three people sit between A and D. Only two people sit to the left of A. G is not an immediate neighbour of D. G sits second to the right of E. F sits to the immediate right of C. Who sits at the extreme left end of the row?

Ans  A. E

 B. B

 C. A

 D. G

Q.30 Six children, F, G, H, I, J and K, were examined for intelligence and were given marks according to their performance in the test. Each child scored different marks. H scored more than J. H scored less than G and K. J scored less than I. F scored more than G. Who among the six children scored the least?

Ans  A. K

 B. H

 C. I

 D. J

**Q.31** Which of the following options is the closest approximate value which will come in place of question mark(?) in the following equation?

$$4.49 \div 1.49 - 3.33 \times 3 + 4.49 = ?$$

- Ans**
- ☒ A. 4.5
  - ☒ B. 2.5
  - ☒ C. -2.5
  - ☒ D. -4.5

**Q.32** Tamanna started her walk at 6 a.m. On her way she saw a tree in front of her. She noted that the shadow of the tree was exactly to her left. In which direction was Tamanna walking?

- Ans**
- ☒ A. East
  - ☒ B. West
  - ☒ C. North
  - ☒ D. South

**Q.33** The position of how many letters will remain unchanged if each of the letters in the word DUPLICATE is arranged in alphabetical order?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.34** Five persons, P, Q, R, S and T travelled in different months of the same year viz. January, February, March, April and May.

Q travelled in February. Only one person travelled between Q and P. Only three people travelled between T and R. R travelled in a month after P. Who among them travelled in May?

- Ans**
- ☒ A. P
  - ☒ B. S
  - ☒ C. T
  - ☒ D. R

**Q.35** In a certain code language, the numbers/symbols are coded using letters as per the table given below and as per the given conditions.

| Number/<br>Symbol | \$ | 5 | % | 6 | ^ | 7 | 4 | & | 8 | * | 9 | 1 | ! | 2 | @ | 3 | # |
|-------------------|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code              | A  | S | D | F | G | H | J | K | L | M | N | B | V | C | X | Z | Q |

**Conditions:**

- If the first element is an even number and the last is an odd number, the codes for the first and last elements are to be interchanged.
- If both the second and third elements are even numbers, the code for these two will be K.
- If the first element is a number and the last a symbol, the last element code is to be used for the first element also.

What will be the code for 8%7S9@ ?

- Ans**
- ☒ A. LDHANX
  - ☒ B. LDHANL
  - ☒ C. XDHANX
  - ☒ D. XDHANL

**Q.36** Which of the following terms will replace the question mark (?) in the given series to make it logically complete?

17KDP, 20TMY, 23CVH, 26LEQ, ?

- Ans**
- ☒ A. 27NZW
  - ☒ B. 29UNZ
  - ☒ C. 29NZW
  - ☒ D. 27UNZ

**Q.37** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

22 : 440 :: 14 : 168 :: 19 : ?

- Ans**
- ☒ A. 380
  - ☒ B. 323
  - ☒ C. 228
  - ☒ D. 95

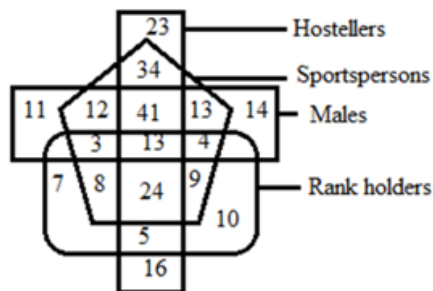
**Q.38** Refer to the following letter, number, symbol series and answer the question.

(Left) B 8 D 5 6 M S 8 # Z @ 7 K S 2 C B 4 5 N R (Right)

How many such numbers are there which are immediately preceded by a letter and also immediately followed by a number?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.39** Study the Venn diagram given below and answer the question that follows.



How many hosteller sportspersons are NOT males but rank holders?

- Ans**
- ☒ A. 24
  - ☒ B. 13
  - ☒ C. 34
  - ☒ D. 5

**Q.40** Read the given statements and conclusions carefully and decide which of the given conclusions logically follow(s) from the statements.

**Statements:**

In a race,

1. G is behind L who is behind D.
2. D is ahead of G who is ahead of R.
3. F is not behind V who is ahead of R.

**Conclusions:**

- I. V is behind D.
- II. F is ahead of R.
- III. D is ahead of R.

**Ans** ☒ A. Conclusions I and II follow  
☒ B. Conclusions I and III follow  
☒ C. Conclusion III follows  
☒ D. Conclusions II and III follow

**Q.41** If L denotes  $\div$ , M denotes  $\times$ , P denotes  $+$  and Q denotes  $-$ , then which of the following statements is true out of the options given below?

**Ans** ☒ A.  $13 M 64 P 24 L 18 Q 6 = 36$   
☒ B.  $17 Q 22 M 18 P 13 L 7 = 473$   
☒ C.  $11 L 34 M 17 P 8 Q 3 = 42/4$   
☒ D.  $12 Q 13 L 15 M 19 P 23 = 96$

**Q.42** T, U, V, W, X, Y, Z and A are sitting in a straight row, facing north. Only Z sits between T and V. A sits at the extreme left end of the row. Only three people sit between Z and Y. Only X sits between V and W. T sits to the immediate right of U. Who sits to the immediate right of A?

**Ans** ☒ A. W  
☒ B. T  
☒ C. Z  
☒ D. U

**Q.43** Select the number from among the given options that can replace the question mark (?) in the following series.  
12, 10, 11.5, 10.5, 11, 11, 10.5, 11.5, 10, ?

**Ans** ☒ A. 8.5  
☒ B. 11  
☒ C. 12  
☒ D. 13

**Q.44** Given below is a statement followed by two possible conclusions I and II. Read the information carefully and select the correct option.

**Statement:**

Following the recession in country F, many smaller companies have decided to lay off all their employees who were on probation period of six months. As a result, a little over 48% of the employees of company M were laid off.

Which of the following can be concluded from the given information?

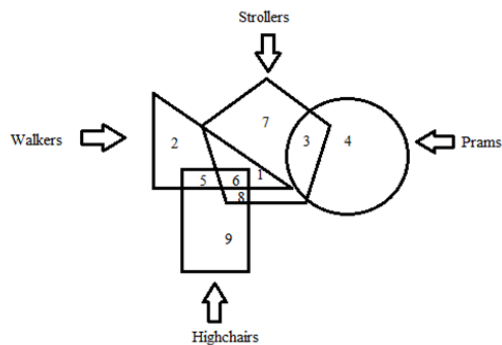
- I. Company M had almost doubled in employee strength recently.
- II. The layoffs due to recession are not performance based.

**Ans** ☒ A. Only I can be concluded from the given information.  
☒ B. Only II can be concluded from the given information.  
☒ C. Both I and II can be concluded from the given information.  
☒ D. Neither I nor II can be concluded from the given information.

**Q.45** The position of how many letters will remain unchanged if each of the letters in the word AMBUSHED is arranged in the reverse alphabetical order?

- Ans** ☒ A. zero  
☒ B. One  
☒ C. Two  
☒ D. Three

**Q.46** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of things.



How many such walkers are there that are also highchairs but NEITHER prams NOR strollers?

- Ans** ☒ A. 5  
☒ B. 6  
☒ C. 9  
☒ D. 8

**Q.47** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.  
 59 : 45 :: 46 : 24 :: 85 : ?

- Ans** ☒ A. 38  
☒ B. 44  
☒ C. 40  
☒ D. 35

**Q.48** A certain number of people are sitting in a row, facing the north. R sits third to the left of P. Q sits fourth to the right of P. Only two persons sit between Q and T. If no other person is sitting in the row, what is the total number of persons seated?

- Ans** ☒ A. 13  
☒ B. 12  
☒ C. 11  
☒ D. 15

**Q.49** Refer to the following number, symbol series and answer the question.  
 7 4 & @ 3 4 % @ \$ 4 @ 3 4 % 4 \$ 5 \* @ 4 3 4 5 \* 3  
 How many 4s are there that are immediately followed by a symbol?

- Ans** ☒ A. Seven  
☒ B. Five  
☒ C. Nine  
☒ D. Three



**Q.50** Starting from point P, Sheetal walks 50 m towards the west. She takes a right turn and walks 20 m. Then she takes a left turn and walks 47 m. She takes a left turn again and walks 75 m. Again, she takes a left turn and walks 47 m. She takes a left turn again and walks 20 m. Then she takes a right turn and walks 50 m. Finally, she takes a left turn and walks 10 m to reach point Q. How far and in which direction is point P from point Q? (All turns are 90 degree turns only)

- Ans**
- ✓ A. 25 m due north
  - ✗ B. 25 m due south
  - ✗ C. 35 m due north
  - ✗ D. 15 m due north

**Q.51** Study the given table and answer the question that follows.

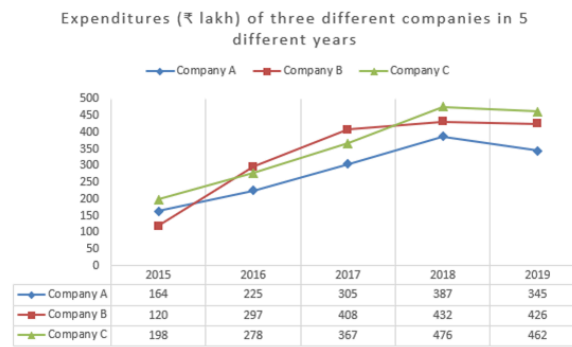
The table presents the total expenditure made by a company under different heads during the years 2016 to 2022.

| Year | Expenditure  |           |        |                |     |
|------|--------------|-----------|--------|----------------|-----|
|      | Raw Material | Transport | Salary | Establishments | Tax |
| 2022 | 789          | 123       | 122    | 987            | 97  |
| 2021 | 786          | 112       | 132    | 789            | 98  |
| 2020 | 798          | 109       | 189    | 678            | 112 |
| 2019 | 879          | 101       | 196    | 897            | 134 |
| 2018 | 987          | 98        | 199    | 876            | 141 |
| 2017 | 890          | 95        | 173    | 766            | 108 |
| 2016 | 908          | 78        | 166    | 567            | 111 |

The total expenditure of the company in 2020 was approximately what per cent of the total expenditure in 2022?

- Ans**
- ✗ A. 82%
  - ✗ B. 93%
  - ✓ C. 89%
  - ✗ D. 95%

**Q.52** Study the graph and answer the question.



Total expenditure of all three companies together in the year 2018 was what percentage of the total expenditure of company B over all the years together?

- Ans**
- ✗ A. 78.65%
  - ✗ B. 77.32%
  - ✓ C. 76.95%
  - ✗ D. 75.86%

**Q.53** There are 43 cadets in a battalion, and the commander is planning for an straight row arrangement of cadets on stage, facing north. P is 18<sup>th</sup> from the left side of the row and Q is 31<sup>st</sup> from the right side of the row. Find the number of cadets standing between P and Q.

- Ans**
- ✗ A. 6
  - ✗ B. 5
  - ✓ C. 4
  - ✗ D. 3

**Q.54** Select the number from among the given options that can replace the question mark (?) in the following series.

1.6, 2.3, 3, 3.7, 4.4, 5.1, 5.8, 6.5, ?, 7.9, 8.6

- Ans**
- ☒ A. 7.2
  - ☐ B. 7.3
  - ☐ C. 7.1
  - ☐ D. 7.4

**Q.55** Select the option that is related to the fifth letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster and the fourth letter-cluster is related to the third letter-cluster.

LAPTOP : QPUQBM :: MOBILE : FMJCPN :: DEVICE : ?

- Ans**
- ☐ A. EFWJDF
  - ☒ B. FDJWFE
  - ☐ C. FDJFEW
  - ☐ D. FDJFFW

Section : General Science

**Q.56** Toothpaste is generally \_\_\_\_\_ in nature.

- Ans**
- ☐ A. acidic
  - ☒ B. basic
  - ☐ C. harmful
  - ☐ D. neutral

**Q.57** Due to atmospheric refraction, the apparent position of a star is slightly \_\_\_\_\_ than its actual position, when viewed from near the horizon, and this apparent position \_\_\_\_\_. This results in twinkling of stars.

- Ans**
- ☐ A. higher, is stationary
  - ☒ B. higher, keeps on changing
  - ☐ C. lower, is stationary
  - ☐ D. lower, keeps on changing

**Q.58** What did Mendel discover about the factors that influence heredity?

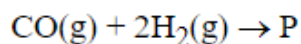
- Ans**
- ☐ A. Self-fertilisation shows paternal traits only.
  - ☐ B. Traits are expressed due to production of hormones.
  - ☐ C. All offspring in one generation appear like only one of the parents.
  - ☒ D. A pair of factors in sexually reproducing organisms defines their characteristics.

**Q.59** Which of the following metals is obtained by electrolysis?

Na, Zn, Au, Ag, Mg, Al, Cu

- Ans**
- ☐ A. Au, Ag, Mg
  - ☐ B. Na, Zn, Au
  - ☐ C. Mg, Al, Cu
  - ☒ D. Na, Mg, Al

**Q.60** Consider the following chemical reaction.



Predict the product (P) of this reaction.

- Ans**
- ☒ A.  $\text{CHO} + \text{H}_2$
  - ☒ B.  $\text{COOH} + \text{H}_2$
  - ☒ C.  $\text{CHO} + 2\text{H}_2$
  - ☒ D.  $\text{CH}_3\text{OH}$

**Q.61** An object is placed in front of a concave mirror of focal length 6 cm, at a distance of 24 cm. The magnification produced by the mirror is \_\_\_\_\_.

- Ans**
- ☒ A.  $\frac{1}{3}$
  - ☒ B.  $-\frac{1}{3}$
  - ☒ C. 3
  - ☒ D. -3

**Q.62** Who discovered the law of octaves and compared this to the octaves found in music?

- Ans**
- ☒ A. John Newlands
  - ☒ B. Johann Döbereiner
  - ☒ C. Dmitri Mendeléeve
  - ☒ D. Johann Jakob Balmer

**Q.63** Consider the following statements about a fuse wire:

- (a) It is connected in series with a device.
- (b) It is made of a material of low melting point.

Which of the above statements is/are correct?

- Ans**
- ☒ A. Only (a)
  - ☒ B. Only (b)
  - ☒ C. Both (a) and (b)
  - ☒ D. Neither (a) nor (b)

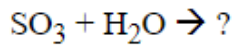
**Q.64** Many of the excretory products produced by plants are useful to humans. Identify the product that is harmful for humans when inhaled.

- Ans**
- ☒ A. Carbon dioxide
  - ☒ B. Resins
  - ☒ C. Gums
  - ☒ D. Oxygen

**Q.65** How many electrons are shared by one oxygen atom with a carbon atom in a carbon dioxide molecule?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.66** What is the product of the following combination reaction?



- Ans**
- ☒ A.  $\text{SO}_2$
  - ☒ B.  $\text{H}_2\text{S}$
  - ☒ C.  $\text{H}_2\text{O}_2$
  - ☒ D.  $\text{H}_2\text{SO}_4$

**Q.67** Resistivity of material depends on \_\_\_\_\_.

- Ans**
- ☒ A. pressure
  - ☒ B. temperature
  - ☒ C. length
  - ☒ D. thickness

**Q.68** Some features of a prokaryotic cell are mentioned below. Select the INCORRECT option.

- Ans**
- ☒ A. Very small in size
  - ☒ B. Single chromosome
  - ☒ C. Membrane-bound cell organelles present
  - ☒ D. Nuclear region known as nucleoid

**Q.69** An object, 2.0 cm in height, is placed at a distance of 6.0 cm in front of a concave mirror of focal length 8.0 cm, on its principal axis. Its image has a height of \_\_\_\_\_ and is \_\_\_\_\_.

- Ans**
- ☒ A. less than 2.0 cm, erect
  - ☒ B. more than 2.0 cm, erect
  - ☒ C. less than 2.0 cm, inverted
  - ☒ D. more than 2.0 cm, inverted

**Q.70** A ray of light in air is incident at an angle of  $45^\circ$  on the surface separating air from a medium of refractive index  $\sqrt{2}$ . The ray is refracted in the medium at an angle of \_\_\_\_\_.

- Ans**
- ☒ A.  $15^\circ$
  - ☒ B.  $30^\circ$
  - ☒ C.  $45^\circ$
  - ☒ D.  $60^\circ$

**Q.71** Which disease in human beings is caused by UV radiation from the Sun?

- Ans**
- ☒ A. Skin cancer
  - ☒ B. Smallpox
  - ☒ C. Parkinson's disease
  - ☒ D. Pneumonia

**Q.72** Consider the below statements and identify the correct answer.

Statement-I: Dobereiner made the first observations on platinum as a catalyst and discovered similar triads of elements which led to the development of the periodic table of elements.

Statement-II: JW Dobereiner was the professor of chemistry and pharmacy at the University of Jena.

- Ans**
- ☒ A. Both the statements are true.
  - ☐ B. Both the statements are false.
  - ☐ C. Only statement I is true.
  - ☐ D. Only statement II is true.

**Q.73** What kind of resources are the fossil fuels coal and petroleum?

- Ans**
- ☐ A. Exhaustible and renewable
  - ☒ B. Exhaustible and non-renewable
  - ☐ C. Inexhaustible
  - ☐ D. Renewable

**Q.74** During fermentation in yeast, pyruvate is converted into which of the following products?

- Ans**
- ☐ A. Glucose and carbon dioxide
  - ☒ B. Ethanol and carbon dioxide
  - ☐ C. Water and carbon dioxide
  - ☐ D. Lactic acid and carbon dioxide

**Q.75** If the armature of an AC generator is rotated faster, then:

- Ans**
- ☐ A. induced potential difference decreases
  - ☒ B. induced potential difference increases
  - ☐ C. induced current decreases
  - ☐ D. there is no change in induced current

**Q.76** Which of the following molecules has three carbon atoms in it?

- Ans**
- ☒ A. Pyruvic acid
  - ☐ B. Carbon dioxide
  - ☐ C. Glucose
  - ☐ D. Ethanol

**Q.77** If a  $4\ \Omega$  resistor is connected to a 12 V battery, then the power consumed is:

- Ans**
- ☐ A. 3 Watt
  - ☐ B. 9 Watt
  - ☒ C. 36 Watt
  - ☐ D. 1.25 Watt

**Q.78** \_\_\_\_\_ refers to the cessation of menstruation.

- Ans**
- ☒ A. Menopause
  - ☐ B. Menarche
  - ☐ C. Menses
  - ☐ D. Hypermenorrhea

**Q.79** The area around a magnet in which force is exerted by the magnet is called:

- Ans**
- ☐ A. pole
  - ☐ B. magnetic lines
  - ☒ C. magnetic field
  - ☐ D. magnetic material

**Q.80** Reactions in which there is an exchange of ions between the reactants are called:

- Ans**
- ☐ A. displacement reactions
  - ☒ B. double displacement reactions
  - ☐ C. precipitation reactions
  - ☐ D. exchange reactions

Section : General Awareness and Current Affairs

**Q.81** Jawaharlal Nehru classified which of the following Acts as 'a new charter of slavery'?

- Ans**
- ☐ A. Government of India Act, 1919
  - ☒ B. Government of India Act, 1935
  - ☐ C. The Charter Act, 1853
  - ☐ D. Rowlatt Act

**Q.82** The three-tier system of Panchayati Raj was first recommended by the \_\_\_\_\_ in 1957.

- Ans**
- ☒ A. Balwant Rai Mehta Committee
  - ☐ B. Ashok Mehta Committee
  - ☐ C. GKV Rao Committee
  - ☐ D. Singhvi Committee

**Q.83** Which of the following is the scheme of interest subsidy on educational loans for overseas studies for students belonging to the minority communities?

- Ans**
- ☐ A. Padho Videsh
  - ☒ B. Padho Pardesh
  - ☐ C. Naya Savera
  - ☐ D. Nai Udaan

**Q.84** Which of the following is a public sector bank in India?

- Ans**
- ☐ A. IndusInd Bank
  - ☐ B. Tamilnad Mercantile Bank
  - ☒ C. Indian Overseas Bank
  - ☐ D. Bandhan Bank

**Q.85** Shri Lal Bahadur Shastri National Sanskrit University is located at \_\_\_\_\_.

- Ans**
- ☐ A. Dehradun
  - ☒ B. New Delhi
  - ☐ C. Jaipur
  - ☐ D. Lucknow

**Q.86** The Constitution divided the powers between the Centre and the States in the terms of \_\_\_\_\_ lists.

- Ans**
- ☒ A. 2
  - ☒ B. 3
  - ☒ C. 4
  - ☒ D. 5

**Q.87** In Economics, Total variable cost ÷ Units of output produced = \_\_\_\_\_.

- Ans**
- ☒ A. Average fixed cost
  - ☒ B. Average variable cost
  - ☒ C. Total product
  - ☒ D. Average product

**Q.88** The river when in its lower course while entering the sea splits into numerous smaller channels known as \_\_\_\_\_.

- Ans**
- ☒ A. tributaries
  - ☒ B. distributaries
  - ☒ C. gorges
  - ☒ D. arêtes

**Q.89** The Fundamental Duties of Indian citizens are found in which Article of the Constitution of India?

- Ans**
- ☒ A. Article 244
  - ☒ B. Article 307
  - ☒ C. Article 13
  - ☒ D. Article 51A

**Q.90** According to Global MPI 2021, India's rank is \_\_\_\_\_ out of 109 countries.

- Ans**
- ☒ A. 66
  - ☒ B. 87
  - ☒ C. 96
  - ☒ D. 99

**Q.91**  
In January 2022, who launched NIPER Research Portal?

- Ans**
- ☒ A. Narendra Modi
  - ☒ B. Mansukh Mandaviya
  - ☒ C. Amit Shah
  - ☒ D. Piyush Goyal



**Q.92** Which of the following Fundamental Rights stands violated in a hypothetical situation where an officer of the armed forces is not promoted because she is a woman?

- Ans**
- ☒ A. Right against Exploitation
  - ☒ B. Right to Equality
  - ☒ C. Right to Constitutional Remedies
  - ☒ D. Right to Freedom

**Q.93** Tamil, the official and most prominent language of Tamil Nadu, is a member of \_\_\_\_\_ language family.

- Ans**
- ☒ A. Dravidian
  - ☒ B. Munda
  - ☒ C. Indo-Aryan
  - ☒ D. Kra-Dai

**Q.94** Which of the following festivals is celebrated in the month of January every year?

- Ans**
- ☒ A. Pongal
  - ☒ B. Ugadi
  - ☒ C. Gudi Padwa
  - ☒ D. Onam

**Q.95** Where is India's only confirmed active volcano located, which lies about 135 km south of the Andaman and Nicobar Island's capital, Port Blair?

- Ans**
- ☒ A. Barren Island
  - ☒ B. Havelock island
  - ☒ C. Neill Island
  - ☒ D. Wilson Island

**Q.96** Which player among the following won individual silver medal in the women's 10 m air pistol event in International Shooting Sport Federation (ISSF) World Cup 2022?

- Ans**
- ☒ A. Rajshree Sancheti
  - ☒ B. Esha Singh
  - ☒ C. Shreya Aggarwal
  - ☒ D. Manu Bhaker

**Q.97** India is a member of the General Agreement on Tariffs and Trade (GATT) since \_\_\_\_\_.

- Ans**
- ☒ A. 1948
  - ☒ B. 1962
  - ☒ C. 1985
  - ☒ D. 1990

**Q.98** Which city of India will host the 2023 International Olympic Committee Session?

- Ans**
- ☒ A. Chennai
  - ☒ B. Shimla
  - ☒ C. Mumbai
  - ☒ D. Guwahati



**Q.99** Which of the following companies launched India's first hydrogen fuel cell-powered electric car in March 2022?

- Ans**
- ☐ A. Tata Motors Limited
  - ☐ B. Hyundai Motor India Limited
  - ☐ C. Renault India Private Limited
  - ☒ D. Toyota Kirloskar Motor Private Limited

**Q.100** 'e-RUPI' is a \_\_\_\_\_ based payments system to promote cashless transactions, launched by the National Payments Corporation of India (NPCI) in 2021.

- Ans**
- ☒ A. voucher
  - ☐ B. credit card
  - ☐ C. mobile wallet
  - ☐ D. debit card



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 05/09/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** The value of  $22 \times (63 \div 7) \div 6 - \{7 \times 5 + 4 - (3 - 5) \div 2\}$  is:

- Ans**
- ☒ A. -7
  - ☐ B. -9
  - ☐ C. 7
  - ☐ D. 11

**Q.2** The length, the breadth and the height of a closed cuboidal box are 2.5 m, 2 m and 90 cm, respectively. What would be the cost of a canvas needed to cover this box completely, if the cost of the canvas is ₹80 per  $m^2$ ?

- Ans**
- ☒ A. ₹1,448
  - ☐ B. ₹1,502
  - ☐ C. ₹1,600
  - ☐ D. ₹1,750

**Q.3** A, B and C together can complete a certain work in 40 days. B and C together can complete the same work in 60 days. B is 25% more efficient than A. A, B and C work together for 30 days. B alone will complete the remaining work in:

- Ans**
- ☐ A. 20 days
  - ☒ B. 24 days
  - ☐ C. 30 days
  - ☐ D. 32 days

**Q.4** A and B can do a work alone in 30 days and 40 days, respectively. In how many days will the work be completed if they work on alternate days, starting with B on the first day?

- Ans**
- ☐ A.  $17\frac{1}{3}$  days
  - ☐ B.  $17\frac{1}{7}$  days
  - ☒ C.  $34\frac{1}{3}$  days
  - ☐ D.  $34\frac{2}{3}$  days

**Q.5** The smallest four-digit number that is exactly divisible by each of 24, 40 and 56 is:

- Ans**
- ☒ A. 1080
  - ☒ B. 1170
  - ☒ C. 1260
  - ☒ D. 1680

**Q.6** If  $(-7)^{2k+1}(-7)^5 = (-7)^{12}$ , then k is:

- Ans**
- ☒ A. -2
  - ☒ B. -3
  - ☒ C. 2
  - ☒ D. 3

**Q.7** The speed of a stream is 4 km/h. A boat can go 40 km downstream and 12 km upstream in 4 hours. What is the speed (in km/h) of the boat in still water?

- Ans**
- ☒ A. 10
  - ☒ B. 12
  - ☒ C. 14
  - ☒ D. 16

**Q.8** The value of  $\frac{1\frac{2}{3} + 2\frac{1}{2} \times \frac{2}{3}}{5 - 4\frac{1}{2} \div \frac{3}{2}}$  is:

- Ans**
- ☒ A.  $1\frac{2}{3}$
  - ☒ B.  $2\frac{1}{3}$
  - ☒ C.  $3\frac{1}{3}$
  - ☒ D.  $4\frac{2}{3}$

**Q.9** Four friends Ahmed, Suman, Raj and Madhu, started their own garment shops.

Ahmed provides successive discounts of 6% and 5%.

Suman offers successive discounts of 2% and 5%

Raj offers successive discounts 7% and 2% and Madhu offers successive discounts 5% and 4%.

Who is giving highest total discount to the customers?

- Ans**
- ☒ A. Ahmed
  - ☒ B. Raj
  - ☒ C. Suman
  - ☒ D. Madhu

**Q.10** The LCM of the numbers 5, 12.5 and 0.05 is:

- Ans**
- ☒ A. 1.25
  - ☒ B. 25
  - ☒ C. 12.5
  - ☒ D. 125

**Q.11**  $\frac{\sin\theta(1+\cos\theta)}{1+\cos\theta-\sin^2\theta} \times (\sec\theta + \tan\theta)(1 - \sin\theta), 0^\circ < \theta < 90^\circ$ , is equal to :

- Ans**
- ☒ A.  $\cos \theta$
  - ☒ B.  $\sin \theta$
  - ☒ C.  $\sec \theta$
  - ☒ D.  $\operatorname{cosec} \theta$

**Q.12** 12 years ago, the age of father was 28 years more than twice his son's age. After how many years, from now, will he be twice his son's age?

- Ans**
- ☒ A. 14
  - ☒ B. 15
  - ☒ C. 16
  - ☒ D. 18

**Q.13** The lengths of the diagonals of a rhombus are 16 cm and 12 cm. The length of the side of the rhombus is:

- Ans**
- ☒ A. 20 cm
  - ☒ B. 8 cm
  - ☒ C. 10 cm
  - ☒ D. 9 cm

**Q.14** A man loses 12% by selling an article for ₹330. If he sells it for ₹367.50, what will be his gain/loss percentage?

- Ans**
- ☒ A. Gain, 2%
  - ☒ B. Loss, 2%
  - ☒ C. Gain, 4%
  - ☒ D. Loss, 4%

**Q.15** The price (per litre) of petrol increases by 52%. By what percent should its consumption be reduced such that the expenditure on it increases by 14% only?

- Ans**
- ☒ A. 38%
  - ☒ B. 35%
  - ☒ C. 30%
  - ☒ D. 25%

**Q.16** If the median of a data is 24.12 less than its mode, then the median of the data exceeds its mean by \_\_\_\_\_. (Use the empirical formula to find the answer)

- Ans**
- ☒ A. 16.08
  - ☒ B. 12.06
  - ☒ C. 6.03
  - ☒ D. 8.04

**Q.17** The total surface area of a cube having side 5 cm is:

- Ans**
- ☒ A.  $325 \text{ cm}^2$
  - ☒ B.  $225 \text{ cm}^2$
  - ☒ C.  $250 \text{ cm}^2$
  - ☒ D.  $150 \text{ cm}^2$

**Q.18** In a triangle ABC if  $\angle ABC = 90^\circ$  and  $BA = BC$ , then the angles of A and C respectively are:

- Ans**
- ☒ A.  $80^\circ, 70^\circ$
  - ☒ B.  $80^\circ, 60^\circ$
  - ☒ C.  $50^\circ, 40^\circ$
  - ☒ D.  $45^\circ, 45^\circ$

**Q.19** The amount on a sum of ₹2,400 at 5% per annum compound interest, compounded annually, in 2 years will be:

- Ans**
- ☒ A. ₹5,646
  - ☒ B. ₹4,646
  - ☒ C. ₹3,646
  - ☒ D. ₹2,646

**Q.20** The cost of 4 pens and 3 notebooks is ₹150. The cost of 5 notebooks exceeds the cost of 6 pens by ₹41. What is the cost of 3 pens and 2 notebooks?

- Ans**
- ☒ A. ₹110.50
  - ☒ B. ₹109.00
  - ☒ C. ₹104.00
  - ☒ D. ₹105.50

**Q.21** A dealer buys two articles X and Y for ₹600 each. He marks each of them at the same price. He sells X by giving two successive discounts of 25% and 15% and still earns ₹216 as profit. If he sells Y at a single discount of 46%, then what is the profit percentage on Y?

- Ans**
- ☒ A. 14%
  - ☒ B. 14.5%
  - ☒ C. 15%
  - ☒ D. 15.2%

**Q.22** The heights of six students in a school are 160 cm, 175 cm, 142 cm, 136 cm, 148 cm, and 182 cm. Find the mean of their heights (in cm) (Rounded off to 2 decimal places).

- Ans**
- ☒ A. 147.57
  - ☒ B. 152.55
  - ☒ C. 157.17
  - ☒ D. 160.47

**Q.23** The difference in the measures of two complementary angles is  $24^\circ$ . Find the measure of the greater angle.

- Ans**
- ☒ A.  $33^\circ$
  - ☒ B.  $43^\circ$
  - ☒ C.  $55^\circ$
  - ☒ D.  $57^\circ$

**Q.24** A bag contains ₹2, ₹5 and ₹10 coins in the ratio 5 : 7 : 8, amounting to a total of ₹1250. The number of ₹5 coins in the bag are:

- Ans**
- ☒ A. 70
  - ☒ B. 84
  - ☒ C. 78
  - ☒ D. 91

**Q.25** If  $a$  and  $b$  are the roots of the equation  $x^2 + 3x - 4 = 0$ , then the value of  $\frac{1}{a} + \frac{1}{b} + ab$  is:

**Ans**

- ☐ A.  $\frac{12}{5}$
- ☐ B.  $-\frac{12}{5}$
- ☐ C.  $\frac{13}{4}$
- ☒ D.  $-\frac{13}{4}$

**Section : General Intelligence and Reasoning**

**Q.26** All 35 students of a class are standing in a straight row facing north. Ram is 17<sup>th</sup> from the right end, while Rakesh is 17<sup>th</sup> from the left end. Sonu is exactly between Ram and Rakesh. What is the position of Sonu from left end?

**Ans**

- ☐ A. 12<sup>th</sup>
- ☐ B. 3<sup>rd</sup>
- ☒ C. 18<sup>th</sup>
- ☐ D. 20<sup>th</sup>

**Q.27** Amongst six friends A, L, V, P, Q and M, each has a different height. P is taller than only four other friends. V is taller than only one friend. Q is taller than M but shorter than A. A is not the tallest. Who is the shortest among all the friends?

**Ans**

- ☐ A. Q
- ☐ B. L
- ☒ C. M
- ☐ D. P

**Q.28** The position of how many letters will remain unchanged if each of the letters in the word ABDUCENT is arranged in alphabetical order?

**Ans**

- ☒ A. 2
- ☐ B. 3
- ☐ C. 5
- ☐ D. 6

**Q.29** When Rishabh started walking at dusk he was facing the sun. After some time he met his friend Sunil. After talking to him, Rishabh turned towards the right. After walking for some time he took a left turn from the next crossroad and finally turned towards his left. In which direction is Rishabh walking now? (All turns are 90 degree turns only)

**Ans**

- ☐ A. East
- ☐ B. West
- ☐ C. North
- ☒ D. South

**Q.30** Amongst six friends P, Q, R, S, T and U, each has a different height. P is taller than only one friend. S is taller than only three friends. R is taller than P but shorter than Q. U is taller than Q. Who is the shortest among all the friends?

**Ans**

- ☐ A. R
- ☒ B. T
- ☐ C. U
- ☐ D. Q

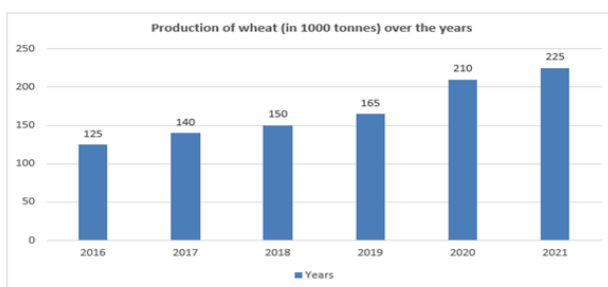
**Q.31** In a certain code language, 'ADOPT' is written as 'CGSUZ' and 'AGAIN' is written as 'CJENT'. How will 'BOOST' be written in that language?

- Ans**
- ☐ A. DRSZX
  - ☐ B. DRSXX
  - ☒ C. DRSXZ
  - ☐ D. DRXZS

**Q.32** If 1 is subtracted from each odd digit and 2 is added to each even digit in the number 2965413, what will be the average of the largest and smallest digits thus formed?

- Ans**
- ☐ A. 8
  - ☐ B. 6
  - ☒ C. 4
  - ☐ D. 2

**Q.33** The following bar chart shows the data of production of wheat in the duration of six years. Study the bar chart and answer the question based on it.



In which year there was maximum percentage increase in production as compared to the previous year?

- Ans**
- ☐ A. 2018
  - ☐ B. 2019
  - ☒ C. 2020
  - ☐ D. 2021

**Q.34** A, B, C, D and E live on five different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it number 2, and so on till the topmost floor is numbered 5. B lives on an even numbered floor but not on floor number 4. Only two people live between A and E. D lives immediately below A. Who lives on floor number 5?

- Ans**
- ☐ A. A
  - ☒ B. C
  - ☐ C. D
  - ☐ D. B

Q.35 If

@ means 'multiplication',

% means 'subtraction',

\$ means 'addition', and,

& means 'division',

then  $28 \& 7 @ 8 \% 6 \$ 4 = ?$

Ans

☒ A. 31

☒ B. 30

☒ C. 32

☒ D. 33

Q.36 Starting from his house, Bheema walks 5 m towards the west, then turns left and walks 50 m, and then turns right and walks 30 m to reach his school. In which direction is the school from his house? (All turns are 90 degree turns only)

Ans

☒ A. South-east

☒ B. South-west

☒ C. North-east

☒ D. North

Q.37 A, B, C, D, E, F, G and H are sitting around a square table facing the centre of the table. Some of them are sitting at the corners, while some are sitting at the middle of the sides. D sits third to the left of E. D sits at one of the corners. H does not sit at any of the corners. G sits second to the right of H. H is not an immediate neighbour of D. Only three people sit between B and A. B is an immediate neighbour of F. B does not sit at any of the middle of the sides. Who sits third to the left of G?

Ans

☒ A. C

☒ B. B

☒ C. H

☒ D. D

Q.38 If 1 is subtracted from each odd digit and 2 is added to each even digit in the number 6472311, what will be the sum of the digits that are second from the left and second from the right in the new number thus formed?

Ans

☒ A. 6

☒ B. 7

☒ C. 8

☒ D. 9

Q.39 Which of the following numbers will replace the question mark (?) in the given series?

19, 26, 40, 61, 89, ?

Ans

☒ A. 125

☒ B. 124

☒ C. 130

☒ D. 126



- Q.40** In a certain code language, the numbers/symbols are coded using letters as per the table given below and as per the given conditions.

| Number/ Symbol | 1 | ! | 2 | @ | 3 | # | 4 | \$ | 5 | % | 6 | ^ | 7 | & | 8 | * | 9 |
|----------------|---|---|---|---|---|---|---|----|---|---|---|---|---|---|---|---|---|
| Code           | T | D | C | R | G | B | Y | H  | N | J | P | L | Q | S | D | F | Z |

**Conditions:**

- If the first element is an even number and the last is an odd number, the code for the first and last elements will be K.
- If both the second and third elements are even numbers, the codes for these two are to be interchanged.
- If the first element is a number and the last a symbol, the number code is to be used for the symbol also.

What will be the code for 6\$8^&3 ?

- Ans**
- ☒ A. KHDLSG
  - ☒ B. PHDLSG
  - ☒ C. KHDLSK
  - ☒ D. GHDLSP

- Q.41** Three statements are followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they do not conform to real world knowledge, decide which of the given conclusions/possibilities can be true on the basis of the statements.

Statements:

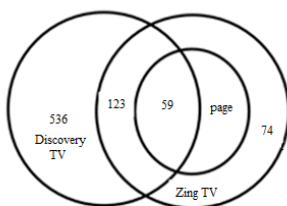
- Some mountains are hills.
- Some hills are rocks.
- All rocks are black.

Conclusions:

- Some black are hills.
- All hills are mountains is a possibility.
- Some rocks are not mountains.

- Ans**
- ☒ A. Only conclusion I is true
  - ☒ B. Only conclusion II is true
  - ☒ C. Only conclusion III is true
  - ☒ D. Only conclusion I and II are true

- Q.42** Study the following Venn diagram and answer the question that follows. The diagram represents the favourite channels of kids.



The ratio of kids who like only Discovery TV to those who like all the three, is:

- Ans**
- ☒ A. 123/59
  - ☒ B. 59/536
  - ☒ C. 536/59
  - ☒ D. 59/123

**Q.43** Each of the letters in the word 'CONFIRM' is arranged in alphabetical order. How many letters are there in the English alphabetical series between the letter which is fourth from the left and the one which is second from the right in the new word thus formed?

- Ans**
- ☒ A. 1
  - ☐ B. 2
  - ☐ C. 3
  - ☐ D. 4

**Q.44** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

4 : 6 :: 8 : 14 :: 16 : ?

- Ans**
- ☐ A. 20
  - ☐ B. 22
  - ☒ C. 30
  - ☐ D. 18

**Q.45** Select the number from among the given options that can replace the question mark (?) in the following series.

44, 50, 45, 49, 46, 48, ?

- Ans**
- ☐ A. 50
  - ☐ B. 46
  - ☐ C. 49
  - ☒ D. 47

**Q.46** 8 persons P, Q, R, S, T, U, V and W are seated around a square table facing the centre of the table in such a way that four of them sit at four corners of the table while the other four sit in the middle of each of the four sides. Out of the 8 persons, there are 3 females who are not an immediate neighbour to each other. U, who is a female, is the immediate neighbour of V and W. Q is the immediate neighbour of both S and V. R, a female, is second to the left of Q. V, a male, is 3rd to the left of T, who is a female. How many persons are seated between P and V when counted from the left of P?

- Ans**
- ☐ A. One
  - ☐ B. Two
  - ☒ C. Three
  - ☐ D. Four

**Q.47** Which of the following terms will replace the question mark (?) in the given series to make it logically complete?

21UDA, 18BKH, 15IRO, 12PYV, ?

- Ans**
- ☒ A. 9WFC
  - ☐ B. 7FCW
  - ☐ C. 7WFC
  - ☐ D. 9FCW

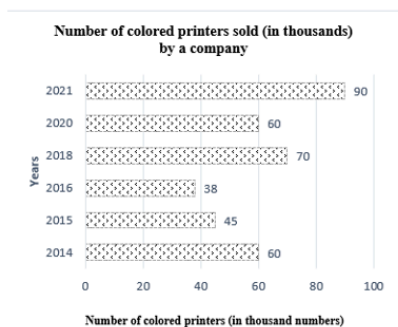
**Q.48** Refer to the following number series and answer the question.

7 2 9 6 3 8 3 8 7 7 3 2 7 3 2 2 1 3 3 9 9 7 4 9 9 0 9

Find the sum of number of occurrences of 7s and number of occurrences of 9s in the given series.

- Ans**
- ☐ A. 7
  - ☒ B. 11
  - ☐ C. 14
  - ☐ D. 5

- Q.49** The given bar chart shows number of color printers sold by a company in the years 2014, 2015, 2016, 2018, 2020 and 2021. Study the given bar chart and answer the question.



The number of coloured printers sold in 2015 is approximately what percentage of the number of coloured printers sold in 2021?

- Ans**
- ☒ A. 55%
  - ☒ B. 42%
  - ☒ C. 45%
  - ☒ D. 50%

- Q.50** Q, W, E, R, T and Y live on seven different floors of the same building with one floor being vacant. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 7. T lives on the 7<sup>th</sup> floor, and W lives on the 1<sup>st</sup> floor. Only Y lives between R and W and there is no vacant floor between R and W. The 5<sup>th</sup> floor is occupied by E. Only Q lives between T and E. Which floor is vacant?

- Ans**
- ☒ A. 6
  - ☒ B. 4
  - ☒ C. 3
  - ☒ D. 2

- Q.51** If 3 January 2006 is a Tuesday, then what will be the day of the week on 15 June 2010?

- Ans**
- ☒ A. Wednesday
  - ☒ B. Thursday
  - ☒ C. Tuesday
  - ☒ D. Sunday

- Q.52** PF 13 is related to MC 20 in a certain way. In the same way, LR 19 is related to IO 26. To which of the following is XJ 25 related following the same logic?

- Ans**
- ☒ A. UG 32
  - ☒ B. GU 32
  - ☒ C. UG 33
  - ☒ D. VG 32

**Q.53** Three statements are followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they do not conform to real world knowledge, decide which of the given conclusions/possibilities can be true on the basis of the statements.

Statements:

1. Some sports are cricket.
2. Some cricket are tennis.
3. All tennis are balls.

Conclusions:

- I. Some tennis are sports.
- II. Some balls are sports.
- III. Some balls are cricket.

- Ans**
- ☒ A. Only conclusion I is true
  - ☒ B. Only conclusion II is true
  - ☒ C. Only conclusion III is true
  - ☒ D. Only conclusion I and II are true

**Q.54** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

198 : 18 :: 253 : 23 :: 44 : ?

- Ans**
- ☒ A. 13
  - ☒ B. 4
  - ☒ C. 15
  - ☒ D. 5

**Q.55** Given below is a statement followed by two possible underlying assumptions I and II. Read the information carefully and select the correct option.

**Statement:**

Although The fashion brand 'Pick2wear' failed miserably in country X, it will surely make huge profits in a country with a higher average age like country T.

Which of the following can be assumed by the given statement?

- I. The percentage of older people are more in country T as compared to country X.
- II. 'Pick2Wear' usually does not suit the dressing preferences of youngsters.

- Ans**
- ☒ A. Only I can be assumed
  - ☒ B. Only II can be assumed
  - ☒ C. Both I and II can be assumed
  - ☒ D. Neither I nor II can be assumed

#### Section : General Science

**Q.56** Which of the following salts is used in black and white photography?

- Ans**
- ☒ A. KBr
  - ☒ B. AgBr
  - ☒ C.  $AgNO_3$
  - ☒ D. NaBr

**Q.57** An object is placed in front of a concave mirror of focal length 20 cm, at a distance of 30 cm. Its image is formed at a distance of \_\_\_\_\_ and is \_\_\_\_\_.

- Ans**
- ☒ A. 12 cm, real
  - ☒ B. 12 cm, virtual
  - ☒ C. 60 cm, real
  - ☒ D. 60 cm, virtual

**Q.58** What are the reasons for decline in the number and species of wildlife?

- a. Demand for hides and meat
- b. Deforestation resulting in lack of food and space
- c. Keeping the animals in protected areas
- d. Making and supporting laws for conserving the habitats
- e. Natural calamities like floods and earthquakes

- Ans**
- ☒ A. Only c
  - ☒ B. Only d
  - ☒ C. a, b and e
  - ☒ D. Only c and d

**Q.59** All the veins in the human circulatory system carry blood towards the heart. What is the difference between a pulmonary vein and other veins?

- Ans**
- ☒ A. Pulmonary vein carries oxygenated blood
  - ☒ B. Blood flows with pressure in the pulmonary vein
  - ☒ C. Pulmonary vein has a small lumen
  - ☒ D. Pulmonary vein has no valves

**Q.60** If P, F and C represent the pole, principal focus and centre of curvature, respectively, of a concave mirror, then PC is equal to:

- Ans**
- ☒ A.  $\left(\frac{1}{4}\right)$  PF
  - ☒ B.  $\left(\frac{1}{2}\right)$  PF
  - ☒ C. 2PF
  - ☒ D. 4PF

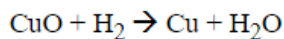
**Q.61** Two resistors, A of 10  $\Omega$  and B of 20  $\Omega$ , are connected in series with a battery of 6 V. If  $V_1$  and  $V_2$  are the potential drops across A and B and  $I_1$  and  $I_2$  are the currents through them, respectively, then  $(V_1/V_2)$  and  $(I_1/I_2)$  are respectively \_\_\_\_\_.

- Ans**
- ☒ A.  $\left(\frac{1}{2}\right)$  and  $\left(\frac{1}{2}\right)$
  - ☒ B. 2 and 1
  - ☒ C.  $\left(\frac{1}{2}\right)$  and 1
  - ☒ D. 2 and  $\left(\frac{1}{2}\right)$

**Q.62** The method of balancing a chemical equation is called:

- Ans**
- ☐ A. molar method
  - ☐ B. equivalent method
  - ☒ C. hit and trial method
  - ☐ D. chemical method

**Q.63** In the following chemical reaction, which chemical species is getting oxidised?



- Ans**
- ☐ A. CuO
  - ☒ B. H<sub>2</sub>
  - ☐ C. H<sub>2</sub>O
  - ☐ D. Cu

**Q.64** Which cells in the xylem are responsible for storing food?

- Ans**
- ☐ A. Tracheids
  - ☒ B. Parenchyma
  - ☐ C. Vessels
  - ☐ D. Xylem fibres

**Q.65** Select the incorrect statements from among the following.

- i. When Mendeléev started his work on the periodic table, 63 elements were known.
- ii. Mendeléev concentrated on the compounds formed by elements with oxygen and hydrogen.
- iii. Mendeléev examined the relationship between the atomic numbers of the elements.
- iv. Mendeléev examined the relationship between the physical and chemical properties of the elements.

- Ans**
- ☐ A. iv
  - ☒ B. iii
  - ☐ C. ii
  - ☐ D. i

**Q.66** The angle of incidence for a ray of light incident on a glass slab along its normal, is:

- Ans**
- ☒ A. 0°
  - ☐ B. 30°
  - ☐ C. 45°
  - ☐ D. 90°

**Q.67** All of the following statements about usage of contraceptive devices are true except one. Select the INCORRECT option.

- Ans**
- ☐ A. They are practiced against natural reproductive events.
  - ☐ B. They are used to prevent or delay pregnancy.
  - ☒ C. They have no side effects.
  - ☐ D. They have significant role in checking uncontrolled growth of population.

**Q.68** Four wires of the same material are connected like beads of a garland. The equivalent resistance of the garland will:

- Ans**
- ☒ A. remain same
  - ☒ B. become four times
  - ☒ C. become one-fourth
  - ☒ D. become double

**Q.69** A science book depicts magnetic field lines around two bar magnets marked A and B. In A, six lines enter into its south pole, and from B, three lines emerge from its north pole. The strength of A is \_\_\_\_\_ that of B.

- Ans**
- ☒ A. is the same as
  - ☒ B. four times
  - ☒ C. twice
  - ☒ D. half

**Q.70** Metabolic wastes are excreted by aquatic plants via \_\_\_\_\_.

- Ans**
- ☒ A. diffusion
  - ☒ B. osmosis
  - ☒ C. active transport
  - ☒ D. storing

**Q.71** During each breathing cycle, when air is taken in and thrown out, the lungs always contain some amount of air so that there is sufficient time for oxygen to be absorbed and carbon dioxide to be released. What is this amount of air called?

- Ans**
- ☒ A. Residual volume
  - ☒ B. Pulmonary volume
  - ☒ C. Alveolar volume
  - ☒ D. Breathing volume

**Q.72** A true breeding tall pea plant with yellow seeds was crossed with a true breeding dwarf pea plant with green seeds. In the F1 generation, all the plants were tall. What conclusion can be drawn from this experiment?

- Ans**
- ☒ A. Parent plants were heterozygous.
  - ☒ B. This shows independent assortment of genes.
  - ☒ C. Tallness was dominant over dwarfness.
  - ☒ D. One parent plant was homozygous and the other was heterozygous.

**Q.73** From the organisms given below, select the top predator.

- Ans**
- ☒ A. Mouse
  - ☒ B. Grasshopper
  - ☒ C. Python
  - ☒ D. Eagle

**Q.74** Three resistors of  $8\ \Omega$ ,  $12\ \Omega$  and  $24\ \Omega$  are connected in parallel. The resistance of the combination is:

- Ans**
- ☒ A.  $4\ \Omega$
  - ☒ B.  $4.8\ \Omega$
  - ☒ C.  $8\ \Omega$
  - ☒ D.  $44\ \Omega$



**Q.75** An object is placed on the principal axis of a concave lens of focal length 15 cm, at a distance of 30 cm. Its image formed is at a distance of \_\_\_\_\_.

- Ans**
- ✓ A. 10 cm
  - ✗ B. 15 cm
  - ✗ C. 20 cm
  - ✗ D. 30 cm

**Q.76** Fleming's right-hand rule is used to find the direction of:

- Ans**
- ✗ A. electric field
  - ✗ B. force
  - ✗ C. potential
  - ✓ D. induced current

**Q.77** Match the following:

| matter                             | pH               |
|------------------------------------|------------------|
| i. human body                      | a. less than 5.6 |
| ii. acid rain                      | b. less than 5.5 |
| iii. mouth when tooth decay starts | c. 7 to 7.8      |

- Ans**
- ✗ A. i-a, ii-b, iii-c
  - ✗ B. i-c, ii-b, iii-a
  - ✓ C. i-c, ii-a, iii-b
  - ✗ D. i-a, ii-c, iii-b

**Q.78** An element belongs to period 2 and group 2 the number of valence electrons in the atoms of this element is:

- Ans**
- ✓ A. 2
  - ✗ B. 4
  - ✗ C. 3
  - ✗ D. 1

**Q.79** The sunflower plant grows best in a soil having a pH range of 6.2 to 6.7. If the soil in a garden has a pH of 5, which substance needs to be added to the soil in order to grow sunflower?

- Ans**
- ✗ A. Salt
  - ✓ B. Lime
  - ✗ C. Sand
  - ✗ D. Compost



**Q.80** What is the total number of single bonds in cyclopentane?

- Ans**
- ☐ A. 5
  - ☐ B. 10
  - ☐ C. 12
  - ☒ D. 15

Section : General Awareness and Current Affairs

**Q.81** Which god is worshipped during the Hindu festival, Chhath Puja?

- Ans**
- ☒ A. Lord Surya
  - ☐ B. Lord Indra
  - ☐ C. Lord Krishna
  - ☐ D. Lord Ganesh

**Q.82** Who among the following coined the term 'geography'?

- Ans**
- ☒ A. Eratosthenes
  - ☐ B. Carl Ritter
  - ☐ C. Ptolemy
  - ☐ D. Al Idrisi

**Q.83** Which of the following teams won the Indian Super League title in March 2022?

- Ans**
- ☒ A. Hyderabad FC Football Club
  - ☐ B. Kerala Blasters Football Club
  - ☐ C. Football Club Goa
  - ☐ D. ATK Mohun Bagan Football Club

**Q.84** What is Virgin Vegetation?

- Ans**
- ☐ A. Vegetation that is grown as a part of afforestation programme
  - ☒ B. Plant community that has grown naturally without human aid and has been left undisturbed by humans for a long time
  - ☐ C. Plant community that has been grown by human aid
  - ☐ D. Vegetation that is grown by humans

**Q.85** What will be the value of elasticity of demand ( $e_D$ ) if the demand curve has a shape of rectangular hyperbola?

- Ans**
- ☒ A.  $|e_D| = 1$
  - ☐ B.  $|e_D| = 0$
  - ☐ C.  $|e_D| = \text{Above } 0 \text{ but less than } 1$
  - ☐ D.  $|e_D| = \text{Always remains above } 1$

**Q.86** Article 343(1) of the Constitution of India declares Hindi in \_\_\_\_\_ script as the official language of India.

- Ans**
- ☐ A. Indus
  - ☐ B. Brahmi
  - ☒ C. Devanagari
  - ☐ D. Kharosthi

**Q.87** Which of the following types of government is the closest to the common people?

- Ans**
- ☒ A. Central Government
  - ☒ B. Local Government
  - ☒ C. Police Administration
  - ☒ D. State Government

**Q.88** What is the name of the helpline launched in May 2021, to provide psycho-social support for children affected during the COVID-19 Pandemic launched by NCPCR?

- Ans**
- ☒ A. Samvedna
  - ☒ B. Sanyukti
  - ☒ C. Aarambh
  - ☒ D. Sukti

**Q.89** Which of following statements is correct regarding the upper house of the Parliament of India?

- Ans**
- ☒ A. It is dissolved after every 3 years
  - ☒ B. It is dissolved after every 5 years
  - ☒ C. It is dissolved after every 6 years
  - ☒ D. It is never dissolved

**Q.90** ICC Women's International World Cup Cricket 2025 will be hosted by which of the following countries?

- Ans**
- ☒ A. India
  - ☒ B. England
  - ☒ C. Australia
  - ☒ D. West Indies

**Q.91** Which of the following is NOT an AGMARK qualified product?

- Ans**
- ☒ A. Vegetables
  - ☒ B. Spices
  - ☒ C. Honey
  - ☒ D. Gold jewellery

**Q.92** \_\_\_\_\_ and UNICEF India signed a Statement of Intent (SoI) on the Sustainable Development Goals (SDGs) with a focus on children in April 2022.

- Ans**
- ☒ A. Central Vigilance Commission
  - ☒ B. Ministry of Home Affairs
  - ☒ C. National Commission for Women
  - ☒ D. NITI Aayog

**Q.93** Which of the following is an example of the tertiary sector of employment?

- Ans**
- ☒ A. Farming
  - ☒ B. Production of cotton cloth
  - ☒ C. Teaching
  - ☒ D. Forestry

**Q.94** Who among the following was one of the two recipient of the Shanti Swarup Bhatnagar Award 2021 in 'Medical Science category'?

- Ans**
- ☒ A. Kanishka Biswas
  - ☒ B. Arun Kumar Yadav
  - ☒ C. Rohit Srivastava
  - ☒ D. Amit Singh

**Q.95** The Government of India Act, 1919, which introduced several reforms, was passed on the basis of which of the following reports/reforms?

- Ans**
- ☒ A. Morley-Minto Reforms
  - ☒ B. Montague-Chelmsford Reforms
  - ☒ C. Morley-Chelmsford Reforms
  - ☒ D. Electorate Reforms

**Q.96** The Hamsa Sampradaya is a prominent sect in which the followers mainly worship Lord \_\_\_\_\_.

- Ans**
- ☒ A. Shiva
  - ☒ B. Indra
  - ☒ C. Krishna and Radha
  - ☒ D. Ram and Sita

**Q.97** Locally known as \_\_\_\_\_ in India, the fruit of 'Emblica officinalis' is used in the manufacture of Chyavanprash.

- Ans**
- ☒ A. mahua
  - ☒ B. amla
  - ☒ C. aphim
  - ☒ D. neem

**Q.98** In January 2022, the Ministry of Environment, Forest and Climate Change announced the 'Action Plan for Introduction of \_\_\_\_\_ in India' whereby the extinct species is to be reintroduced in the country.

- Ans**
- ☒ A. Pink-headed duck
  - ☒ B. Himalayan quail
  - ☒ C. Cheetah
  - ☒ D. Sumatran rhinoceros

**Q.99** Article 15 of the Indian Constitution relates to the \_\_\_\_\_.

- Ans**
- ☒ A. Right to Education
  - ☒ B. Right to Equality
  - ☒ C. Right to Freedom
  - ☒ D. Right against Exploitation

**Q.100** Project \_\_\_\_\_, developed by DBT – National Brain Research Centre, Haryana, is a unique brain initiative for managing brain disorders.

- Ans**
- ☒ A. PRASAD
  - ☒ B. SWADESH
  - ☒ C. UDAAN
  - ☒ D. AMRUT



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 05/09/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** A train crosses a telegraph post and a bridge of length 300 metres in 10 seconds and 20 seconds, respectively. Find the speed of the train.

- Ans**
- ☒ A. 69.5 km/h
  - ☒ B. 75 km/h
  - ☒ C. 89 km/h
  - ☒ D. 108 km/h

**Q.2** The marked price of a cooker is same at four shops I, II, III and IV. Shop I allows two successive discounts of 20% and 15%, shop II allows successive discounts of 18% and 17%, shop III allows successive discounts of 25% and 10% and shop IV allows successive discounts of 15%, 15%, and 5% on the marked price of the cooker. Which shop is selling the cooker at the lowest price?

- Ans**
- ☒ A. I
  - ☒ B. II
  - ☒ C. III
  - ☒ D. IV

**Q.3** Simplify the given expression.

$$\frac{3 - 5x^2}{1 - x^3} + \frac{1}{1 - x} - \frac{5x + 4}{1 + x + x^2}$$

- Ans**
- ☒ A.  $\frac{x}{1 - x^3}$
  - ☒ B.  $\frac{2x}{1 - x^3}$
  - ☒ C.  $\frac{x^2}{1 - x^3}$
  - ☒ D.  $\frac{2x^2}{1 - x^3}$

**Q.4** A certain sum amounts to ₹98,494 at the rate of 15% per annum in 2 years, interest compounded 8-monthly. What will be the amount payable (in ₹) on the same sum at the same rate and in the same time, if the interest is compounded yearly?

- Ans**
- ☒ A. 96,785
  - ☒ B. 96,578
  - ☒ C. 97,685
  - ☒ D. 97,865

**Q.5** A quadrilateral whose sides are equal and all angles between the sides are  $90^\circ$  is called a:

- Ans**
- ☒ A. trapezium
  - ☒ B. rectangle
  - ☒ C. rhombus
  - ☒ D. square

**Q.6** A trader gains 25% by selling an article after two successive discounts of 25% and 10% on its marked price. If the cost price of the article is increased by 30%, then what single discount should he now give on the same marked price to get the same profit percentage as earlier?

- Ans**
- ☒ A. 12.25%
  - ☒ B. 12.5%
  - ☒ C. 10.5%
  - ☒ D. 10%

**Q.7** A cistern has three pipes A, B and C. A and B alone can completely fill the cistern in 4 hours and 3 hours, respectively, and C can empty the completely filled cistern in 2 hours. If all the three pipes are opened simultaneously in the empty cistern, then the cistern will get completely full in:

- Ans**
- ☒ A. 10 hours
  - ☒ B. 12 hours
  - ☒ C. 14 hours
  - ☒ D. 16 hours

**Q.8** Find the volume of a cube whose edge is 8 cm.

- Ans**
- ☒ A.  $521 \text{ cm}^3$
  - ☒ B.  $264 \text{ cm}^3$
  - ☒ C.  $512 \text{ cm}^3$
  - ☒ D.  $256 \text{ cm}^3$

**Q.9** What is the median of the following distribution?

| Class     | 100-150 | 150-200 | 200-250 | 250-300 | 300-350 |
|-----------|---------|---------|---------|---------|---------|
| Frequency | 22      | 18      | 25      | 15      | 20      |

- Ans**
- ☒ A. 210
  - ☒ B. 220
  - ☒ C. 225
  - ☒ D. 240

Q.10

The value of  $\left(\frac{x^a}{x^b}\right)^c \times \left(\frac{x^b}{x^c}\right)^a \times \left(\frac{x^c}{x^a}\right)^b$  is:

Ans

- ✗ A. 0  
 ✓ B. 1  
 ✗ C. 2  
 ✗ D. 3

Q.11

P spends 36% of his income on food items and 25% of the remaining amount on clothes, medical and conveyance. He saves half of the remaining amount every month. If he saves ₹1,80,000 every year, then find his monthly income.

Ans

- ✗ A. ₹7,50,000  
 ✗ B. ₹6,50,040  
 ✗ C. ₹54,170  
 ✓ D. ₹62,500

Q.12

ABCD is a trapezium in which  $BC \parallel AD$  and  $AC = CD$ . If  $\angle ABC = 98^\circ$  and  $\angle BAC = 32^\circ$ , then what is the measure of  $\angle ACD$ ?

Ans

- ✗ A.  $65^\circ$   
 ✗ B.  $70^\circ$   
 ✗ C.  $75^\circ$   
 ✓ D.  $80^\circ$

Q.13

Rajani's father is three times older than Rajani and Rajani is twice as old as her sister Lavanya. Two years from now the sum of the given three person ages will be 60 years. Find the present age of Rajani.

Ans

- ✓ A. 12 years  
 ✗ B. 8 years  
 ✗ C. 36 years  
 ✗ D. 13 years

Q.14

In the given data, X is the size of a shirt and F denotes the sale per day. Which sized shirt is in most demand?

|   |    |    |     |    |    |    |    |    |    |
|---|----|----|-----|----|----|----|----|----|----|
| X | 24 | 26 | 28  | 30 | 34 | 36 | 38 | 40 | 42 |
| F | 45 | 67 | 120 | 46 | 76 | 53 | 41 | 22 | 33 |

Ans

- ✗ A. 42  
 ✗ B. 34  
 ✗ C. 40  
 ✓ D. 28

Q.15

What is the smallest natural number that should be added to 1225 such that a remainder of 3 is left when the resulting number is divided by each of the numbers 12, 18, 21 and 28?

Ans

- ✗ A. 35  
 ✓ B. 38  
 ✗ C. 41  
 ✗ D. 43

Q.16  $\frac{(\operatorname{cosec} \theta - \sin \theta)(\sec \theta - \cos \theta)(\tan \theta + \cot \theta)}{\cos \theta (\sec \theta - \tan \theta)^2 (\sec \theta + \tan \theta)} = \frac{1}{1-k}$ ,  $0^\circ < \theta < 90^\circ$ , then  $k = ?$

- Ans ☒ A.  $\sin \theta$   
☒ B.  $\cos \theta$   
☒ C.  $\sec \theta$   
☒ D.  $\cot \theta$

Q.17 The volume of a cylinder having diameter 14 cm and height 5 cm is:

(Use  $\pi = \frac{22}{7}$ )

- Ans ☒ A.  $990 \text{ cm}^3$   
☒ B.  $880 \text{ cm}^3$   
☒ C.  $770 \text{ cm}^3$   
☒ D.  $660 \text{ cm}^3$

Q.18 Which of the following is the least composite number?

- Ans ☒ A. 4  
☒ B. 3  
☒ C. 2  
☒ D. 1

Q.19 Express  $0.9\overline{87} - 0.7\overline{56}$  in the form  $\frac{p}{q}$ , where  $p$  and  $q$  are integers and  $q \neq 0$ .

- Ans ☒ A.  $\frac{88}{165}$   
☒ B.  $\frac{219}{495}$   
☒ C.  $\frac{164}{495}$   
☒ D.  $\frac{229}{990}$

Q.20 The roots of the quadratic equation  $x^2 - 4x + 3 = 0$  are:

- Ans ☒ A. 1 and 3  
☒ B. 1 and -3  
☒ C. -1 and 3  
☒ D. -1 and -3

Q.21 The common root of the quadratic equations  $2x^2 - 5x - 3 = 0$  and  $x^2 + x - 12 = 0$  is:

- Ans ☒ A. 2  
☒ B.  $-\frac{1}{2}$   
☒ C. -4  
☒ D. 3

**Q.22** Two pipes A and B can fill a tank in 21 hours and 18 hours, respectively. If both the pipes are opened simultaneously, then the time taken to fill the tank is:

**Ans**

☒ A.  $11\frac{27}{39}$  hours

☒ B.  $10\frac{27}{39}$  hours

☒ C.  $9\frac{27}{39}$  hours

☒ D.  $8\frac{27}{39}$  hours

**Q.23** Sujata buys 9 apples and 8 mangoes for ₹276. When the cost of an apple is decreased by 10% and that of a mango remains the same, then the cost of 5 apples and 10 mangoes is ₹210. What is the original cost of 4 apples and 3 mangoes?

**Ans**

☒ A. ₹108

☒ B. ₹116

☒ C. ₹120

☒ D. ₹123

**Q.24** Simplify the given expression.

$$\left(\frac{8}{125}\right)^{\frac{2}{3}} \times \left(\frac{27}{64}\right)^{-\frac{2}{3}} \div \left(\frac{5}{4}\right)^{-2}$$

**Ans**

☒ A.  $\frac{2}{3}$

☒ B.  $\frac{3}{5}$

☒ C.  $\frac{4}{9}$

☒ D.  $\frac{3}{8}$

**Q.25** The income of Raman is ₹45,000. He saves 12.5% of his income. If his income increases by 18% and expenditure increases by 20%, then his savings will:

**Ans**

☒ A. increase by ₹225

☒ B. decrease by ₹220

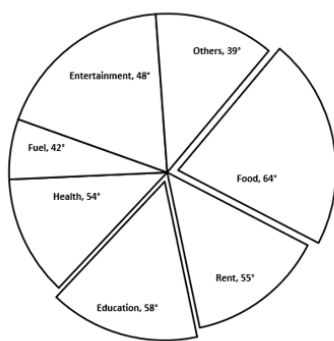
☒ C. increase by ₹250

☒ D. decrease by ₹215

Section : General Intelligence and Reasoning



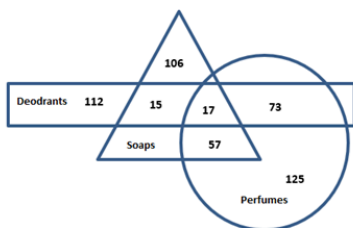
- Q.26** The given circle graph shows the monthly budget of a middle-class family in the form of central angle. Study the circle graph and answer the question.



If the amount spent on food and education during a month was ₹15,000, then what was the total approximate amount spent in that month?

- Ans**
- ☒ A. ₹30,500
  - ☒ B. ₹44,250
  - ☒ C. ₹45,000
  - ☒ D. ₹48,000

- Q.27** Study the following diagram and answer the question given below. The rectangle represents deodorants, the triangle represents Soaps, and the circle represents Perfumes.



How many perfumes are deodorants but not soaps?

- Ans**
- ☒ A. 112
  - ☒ B. 15
  - ☒ C. 17
  - ☒ D. 73

- Q.28** A, B, C, D, E and F live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2, and so on till the topmost floor is numbered 6.

F lives on an even numbered floor but not on floor number 4. Only two people live between F and B. A lives immediately below E. E lives on an even numbered floor. Neither A nor D does not live on the lowermost floor. Who lives on floor number 4?

- Ans**
- ☒ A. D
  - ☒ B. E
  - ☒ C. C
  - ☒ D. A

- Q.29** This question is based on the five, three-digit numbers given below.

(left) 221 293 320 423 426 (right)

(Example: 246 – first digit = 2, second digit = 4, third digit = 6)

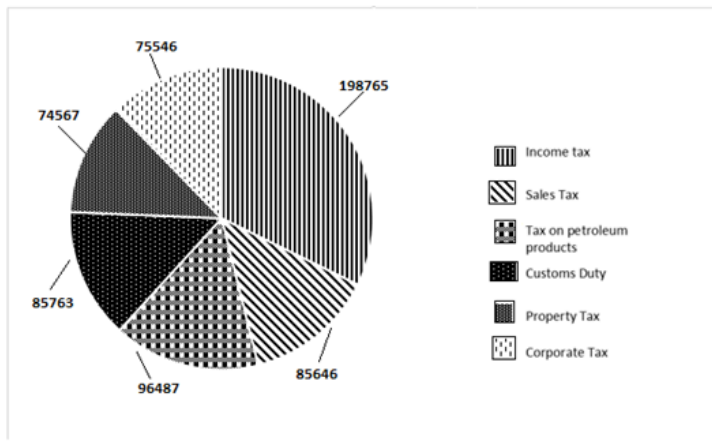
NOTE – All operations to be done from left to right.

What will be the resultant if the second digit of the largest number is added to the first digit of the smallest number?

- Ans**
- ☒ A. 5
  - ☒ B. 4
  - ☒ C. 11
  - ☒ D. 7

**Q.30** Study the given pie-chart and answer the question that follows.

The graph presents the income of the government (in ₹ crore) through various sources.



Through which source does the government receive near about 15% of the total income?

**Ans** ✓ **A. Petroleum products**

✗ **B. Sales tax**

✗ **C. Customs duty**

✗ **D. Corporate tax**

**Q.31** Which two numbers should be interchanged to make the following equation correct?

$$8 + 4 - (7 \times 5 - 6) \div 3 = 3.75$$

**Ans** ✗ **A. 8 and 5**

✗ **B. 4 and 7**

✓ **C. 3 and 4**

✗ **D. 8 and 4**

**Q.32** Three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

1. Some teachers are professors.
2. Some researchers are teachers.
3. All professors are researchers.

**Conclusions:**

- I. Some teachers are researchers.
- II. Some researchers are professors.
- III. Some professors are teachers.

**Ans** ✗ **A. Conclusions I and II follow**

✗ **B. Conclusions I and III follow**

✗ **C. Conclusions II and III follow**

✓ **D. Conclusions I, II and III follow**

- Q.33** Six friends Richa, Shobhna, Urmila, Swarna, Purnima, and Kavya, are sitting on a bench in the park. They all are facing south. Only four persons are sitting between Purnima and Richa. Swarna is sitting third to the left of Purnima. Richa and Swarna are immediate neighbour of Kavya. Purnima and Shobhna are immediate neighbours of Urmila. Who sits fourth to the left of Urmila?

**Ans** ☒ A. Kavya  
☒ B. Shobhna  
☒ C. Swarna  
☒ D. Richa

- Q.34** Given below is a decision followed by two statements I and II. Read the information carefully and select the correct option.

**Decision:**

The management of an international school P has requested all students and their parents to consider carpooling for travelling to school and minimise individual vehicles.

**Statements:**

- I. Since most students use individual vehicles, traffic has been an increasing problem since the last few months.  
II. The locality in which school P is located has reported three instances of car theft around midnight in the last four months.

**Ans** ☒ A. Statement I strengthens the decision but statement II is neutral.  
☒ B. Statement I weakens the decision but statement II strengthens the decision.  
☒ C. Both statements I and II weaken the decision.  
☒ D. Statement I is neutral but statement II strengthens the decision.

- Q.35** Each of P, Q, R, S and T has an exam on a different day of a week, starting from Monday and ending on Friday of the same week.  
Q has the exam on Thursday. Only one person has the exam between R and S. R has the exam on the day immediately before P. Who has the exam on Tuesday?

**Ans** ☒ A. S  
☒ B. R  
☒ C. P  
☒ D. T

- Q.36** A, B, C, D, E, F, G and H are sitting around a square table facing the centre of the table. Some of them are sitting at the corners, while some are sitting at the middle of the sides. B sits third to the left of H. B sits at one of the corners. G does not sit at any of the corners. C sits second to the right of G. G is not an immediate neighbour of B. Only three people sit between D and E. D is an immediate neighbour of F. D does not sit at any of the middle of the sides.  
Who sits second to the left of A?

**Ans** ☒ A. H  
☒ B. D  
☒ C. F  
☒ D. E

- Q.37** Which of the following options is the closest approximate value which will come in place of question mark(?) in the following equation?

$$2.34 + 6.01 - (3.86 \div 1.91) + 2.01 \times 4.02 = ?$$

**Ans** ☒ A. 14  
☒ B. 22  
☒ C. 86  
☒ D. 54

**Q.38** Refer to the following letter, number, symbol series and answer the question that follows.

(Left) H T Z C T & T \* % 7 & Y % 6 U K & 2 R T 7 9 Y S 3 5 E \* S & D 9 # 6 \* (Right)

If all the numbers are dropped/deleted from the series, which of the following will be fourth to the left of sixth from the right?

**Ans** ☒ A. T

☐ B. Y

☐ C. S

☐ D. E

**Q.39** Raghav starts from Point A and drives 25 km towards the north. He then takes a right turn, drives 19 km, turns right and drives 40 km. He then takes a right turn and drives 30 km. He takes a final right turn, drives 15 km and stops at Point P. How far and towards which direction should he drive in order to reach Point A from Point P in a straight line? (All turns are 90 degree turns only)

**Ans** ☐ A. 7 km towards the north

☒ B. 11 km towards the east

☐ C. 15 km towards the west

☐ D. 13 km towards the east

**Q.40** Select the option that represents the letters that, when placed from left to right in the same sequence in the blanks below, will complete the letter series.

D O \_ D \_ O L D B O L D \_ O L \_

**Ans** ☐ A. LCAO

☒ B. LCAD

☐ C. DCAD

☐ D. LCOD

**Q.41** Four friends K, L, M and N are playing on the playground. L is standing towards the east of K and is towards the north of M. M is standing towards the west of N's house. In which direction is N standing from K?

**Ans** ☐ A. North-east

☐ B. South-west

☐ C. North-west

☒ D. South-east

**Q.42** In the given question, the statement is followed by two conclusions. Which of the two conclusion(s) is/are true based on the given statement?

Statement:  $Q = R \geq T > S < U = V$

Conclusions: I.  $T \geq Q$

II.  $T < V$

**Ans** ☐ A. Only conclusion I is true

☐ B. Only conclusion II is true

☐ C. Both conclusions I and II are true

☒ D. Neither conclusion I nor II is true

**Q.43** In a certain code language, 'SOMEWHAT' is written as 'NRDLGVSZ' and 'SPECTRUM' is written as 'ORBDQSLT'. How will 'SITUATED' be written in that language?

**Ans** ☐ A. HRTSZSCD

☐ B. RHSTZSDC

☒ C. HRTSSZCD

☐ D. HTVUUBEF

**Q.44** A certain number of people are sitting in a straight row, facing north. B is fourth to the left of G; F is fourth to the right of C and second to the left of K, who is fifth to the right of A. D is not an immediate neighbour of either K or B. There are only three persons between J and A. J and K are sitting at extreme ends. G is second to the right of C. If no other person is sitting in the row, What is the total number of persons seated?

- Ans**
- ☒ A. Six
  - ☒ B. Seven
  - ☒ C. Eight
  - ☒ D. Ten

**Q.45** Which of the following numbers will replace the question mark (?) in the given series?

17, 19, 23, 29, 37, ?

- Ans**
- ☒ A. 44
  - ☒ B. 45
  - ☒ C. 47
  - ☒ D. 48

**Q.46** Refer to the following letter and symbol series and answer the question that follows.

(Left) @ \$ T & J S X G ^ K € U % & Z Y # S @ \* D X ¥ F o (Right)

How many such symbols are there in the series each of which is immediately preceded by a letter and immediately followed by a symbol?

- Ans**
- ☒ A. None
  - ☒ B. 1
  - ☒ C. 2
  - ☒ D. 3

**Q.47** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

FLM : AGH :: MLK : HGF

- Ans**
- ☒ A. RUG : MPB
  - ☒ B. FIN : ACJ
  - ☒ C. MAP : HWL
  - ☒ D. TED : PZX

**Q.48** In a certain code language, 'I like holidays' is written as 'sf vg tu', 'summer holidays started' is written as 'nj tu mk' and 'I hate summer' is written as 'sf io nj'. What is the code for the word 'summer' in that language?

- Ans**
- ☒ A. Io
  - ☒ B. vg
  - ☒ C. nj
  - ☒ D. tu

**Q.49** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 12 – Operations on 12 such as adding/subtracting/multiplying etc. to 12 can be performed. Breaking down 12 into 1 and 2 and then performing mathematical operations on 1 and 2 is not allowed)

(15, 360, 12)

(12, 120, 5)

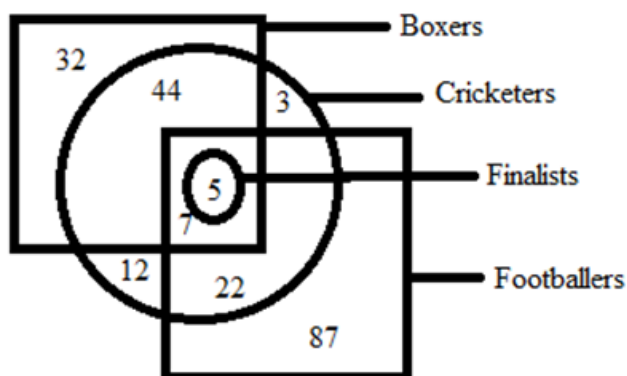
**Ans** ☒ A. (12, 4, 16)

☒ B. (14, 84, 3)

☒ C. (13, 42, 3)

☒ D. (15, 20, 30)

**Q.50** Study the Venn Diagram given below and answer the question that follows.



How many cricketers are neither boxers nor footballers?

**Ans** ☒ A. 20

☒ B. 3

☒ C. 15

☒ D. 12

**Q.51** Refer to the following letter, number, symbol series and answer the question.

(Left) J \* D 1 J 9 8 # Y W N P & 3 @ N L 2 E & H (Right)

How many such symbols are there which are immediately preceded by a letter and also immediately followed by a number?

**Ans** ☒ A. 0

☒ B. 1

☒ C. 2

☒ D. 3

**Q.52** Select the number from among the given options that can replace the question mark (?) in the following series.

1296, 6, 216, 36, 36, ?, 6

**Ans** ☒ A. 48

☒ B. 96

☒ C. 144

☒ D. 216

**Q.53** Read the given statement(s) and conclusions carefully and decide which of the conclusions logically follow(s) from the statement(s).

Statements:

$T > R \geq A > C = F \leq I < L$

Conclusions:

I.  $C < L$

II.  $R > I$

- Ans**
- ✓ A. Only conclusion I follows
  - ✗ B. Either conclusion I or II follows
  - ✗ C. Only conclusion II follows
  - ✗ D. Both conclusions I and II follow

**Q.54** If each of the digits in the number 7058153 is arranged in ascending order from left to right. The position of how many digits will remain unchanged as compared to that in the original number?

- Ans**
- ✓ A. None
  - ✗ B. One
  - ✗ C. Two
  - ✗ D. Three

**Q.55** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

72 : 90 :: 110 : 132 :: 156 : ?

- Ans**
- ✗ A. 180
  - ✓ B. 182
  - ✗ C. 190
  - ✗ D. 192

#### Section : General Science

**Q.56** The values of potential drops across, and corresponding currents in, a resistor are given in the following table. If the resistor obeys Ohm's law, then the values of X and Y are respectively:

|                |     |     |     |     |     |     |     |     |     |     |
|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| V (in volts)   | 0.8 | 1.6 | X   | 3.2 | 4.0 | 4.8 | 5.6 | 6.4 | 7.2 | 8.0 |
| I (in amperes) | 0.2 | 0.4 | 0.6 | 0.8 | 1.0 | Y   | 1.4 | 1.6 | 1.8 | 2.0 |

- Ans**
- ✓ A. 1.2 and 0.3
  - ✗ B. 0.3 and 1.2
  - ✗ C. 1.1 and 0.3
  - ✗ D. 0.3 and 1.1

**Q.57** A ray of light is incident on a convex mirror (pole P) of radius of curvature 12 cm, parallel to its principal axis. After reflection, it appears to come from a point Q on its principal axis. Following New Cartesian Sign Convention, PQ = \_\_\_\_\_.

- Ans**
- ✗ A. 12 cm
  - ✗ B. -12 cm
  - ✓ C. 6 cm
  - ✗ D. -6 cm



**Q.58** Consider the following statements about magnetic field of a Bar Magnet

- (a) It has magnitudes and directions both.
- (b) Magnetic field lines are closed curves.

Which of the above statements is/are correct?

- Ans**
- ☒ A. Only (a)
  - ☒ B. Only (b)
  - ☒ C. Both (a) and (b)
  - ☒ D. Neither (a) nor (b)

**Q.59** The kidney of a healthy adult produces 180 L of filtrate daily, but a person throws out only 1 L or 1.5 L of urine. The amount of filtrate reabsorbed depends on which factor/ factors?

- Ans**
- ☒ A. Amount of excess water and amount of dissolved waste to be excreted
  - ☒ B. Amount of excess water
  - ☒ C. Amount of dissolved waste to be excreted
  - ☒ D. No effect of these factors

**Q.60** Which of the following optical phenomena can explain the visibility of the sun, two minutes prior to actual sunrise?

- Ans**
- ☒ A. Scattering of light
  - ☒ B. Atmospheric refraction
  - ☒ C. Dispersion of light
  - ☒ D. Total Internal reflection

**Q.61** Three wires, A, B and C, of the same length and the same thickness have resistances of  $0.5\ \Omega$ ,  $0.2\ \Omega$  and  $1.0\ \Omega$ , respectively. Their resistivities are \_\_\_\_\_.

- Ans**
- ☒ A. equal
  - ☒ B. in the ratio of 2 : 5 : 10
  - ☒ C. in the ratio of 5 : 2 : 10
  - ☒ D. in the ratio of 10 : 5 : 2

**Q.62** For a ray of light undergoing refraction through a triangular glass prism, which of the following statements is/are always correct?

- (a) Angle of incidence is the angle between the incident ray and normal at the point of incidence.
- (b) Angle of incidence is equal to angle of emergence.
- (c) Angle of deviation is the angle between incident ray and emergent ray.

- Ans**
- ☒ A. Only (a)
  - ☒ B. Only (b)
  - ☒ C. Both (a) and (c)
  - ☒ D. Both (b) and (c)



**Q.63** Compound X is used in glass and soap industry. Ten molecules of water of crystallisation are present in this compound. The pH value of its solution is higher than 7. Identify compound X.

- Ans**
- ☒ A. Baking soda
  - ☒ B. Washing soda
  - ☒ C. Sodium hydroxide
  - ☒ D. Bleaching powder

**Q.64** Which of the following cellular components are known as the protein factories of a cell?

- Ans**
- ☒ A. Mitochondria
  - ☒ B. Chloroplasts
  - ☒ C. Ribosomes
  - ☒ D. Golgi bodies

**Q.65** How many oxygen atoms are present in one molecule of ozone?

- Ans**
- ☒ A. 4
  - ☒ B. 3
  - ☒ C. 2
  - ☒ D. 1

**Q.66** Which of the following devices does NOT use an electric motor?

Electric fan, Electric mixer, Galvanometer, Computer

- Ans**
- ☒ A. Electric fan
  - ☒ B. Galvanometer
  - ☒ C. Computer
  - ☒ D. Electric mixer

**Q.67** Which of the following statements is INCORRECT regarding the process of excretion in plants?

- Ans**
- ☒ A. Waste products may be stored in leaves that fall off.
  - ☒ B. Waste products are stored in cellular vacuoles.
  - ☒ C. Waste product of photosynthesis is stored as starch.
  - ☒ D. Waste products may be stored as resins and gums in old xylem.

**Q.68** Which of the following statements is INCORRECT with regard to forests?

- Ans**
- ☒ A. They provide variety of products
  - ☒ B. They do not conserve soil
  - ☒ C. They conserve water
  - ☒ D. They sustain huge diversity of flora and fauna

**Q.69** Chlorine, bromine and iodine make a Dobereiner's triad. The average of atomic masses of chlorine and Iodine would be close to \_\_\_\_\_.

- Ans**
- ☒ A. 94
  - ☒ B. 131.25
  - ☒ C. 79.9
  - ☒ D. 162.5

**Q.70** Which of the following types of asexual reproduction is shown by the bread mould *Rhizopus*?

**Ans** ✓ **A. Spore formation**

✗ **B. Budding**

✗ **C. Fission**

✗ **D. Regeneration**

**Q.71** Name the compound precipitated when the solutions of lead(II) nitrate and potassium iodide are mixed:

**Ans** ✗ **A. Potassium oxide**

✗ **B. Lead oxide**

✓ **C. Lead iodide**

✗ **D. Potassium sulphate**

**Q.72** Which of the following is NOT a use of baking soda?

(i) to make drinking water free from germs

(ii) in soda-acid fire extinguishers

(iii) an ingredient in antacids

**Ans** ✗ **A. only ii**

✗ **B. only iii**

✓ **C. only i**

✗ **D. ii and iii**

**Q.73** Corrosion is a type of:

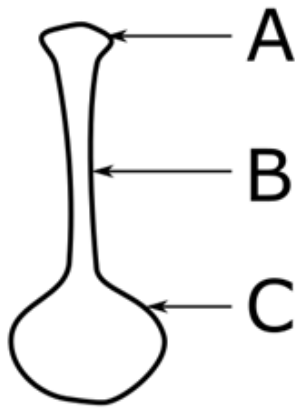
**Ans** ✓ **A. oxidation reaction**

✗ **B. decomposition reaction**

✗ **C. displacement reaction**

✗ **D. double displacement reaction**

Q.74 Identify the correct label for the following.



- Ans
- ☒ A. A – Anther; B – Filament; C – Ovary
  - ☒ B. A – Anther; B – Style; C – Ovary
  - ☒ C. A – Stigma; B – Style; C – Ovary
  - ☒ D. A – Stigma; B – Style; C – Sepal

Q.75 The earth crust has only \_\_\_\_ carbon in the form of minerals.

- Ans
- ☒ A. 0.3%
  - ☒ B. 21%
  - ☒ C. 0.02%
  - ☒ D. 7.8%

Q.76 The total number of isomers of butane and pentane, respectively, are:

- Ans
- ☒ A. 2, 3
  - ☒ B. 3, 4
  - ☒ C. 2, 4
  - ☒ D. 3, 3

Q.77 The triad of group 2 metals consists of which of the following elements?

- Ans
- ☒ A. F, Cl, I
  - ☒ B. S, N, O
  - ☒ C. C, Ca, Cu
  - ☒ D. Ca, Sr, Ba

Q.78 What is/are the balloon like structure(s) present in lungs, where exchange of gases take(s) place, called?

- Ans
- ☒ A. Trachea
  - ☒ B. Alveoli
  - ☒ C. Bronchi
  - ☒ D. Cilia

**Q.79** Three resistors of  $2\ \Omega$ ,  $3\ \Omega$  and  $6\ \Omega$  are connected in series. The resistance of the combination is:

- Ans**
- ☒ A.  $11\ \Omega$
  - ☐ B.  $8\ \Omega$
  - ☐ C.  $5\ \Omega$
  - ☐ D.  $1\ \Omega$

**Q.80** The S.I unit of focal length is:

- Ans**
- ☒ A. metre
  - ☐ B. centimetre
  - ☐ C. millimetre
  - ☐ D. decimetre

Section : General Awareness and Current Affairs

**Q.81** 'Hind Swaraj' the title of the first definitive writing of which freedom fighter is still generating critical interest around the world?

- Ans**
- ☒ A. Mahatma Gandhi
  - ☐ B. Jawaharlal Nehru
  - ☐ C. Dadabhai Naoroji
  - ☐ D. Lala Lajpat Rai

**Q.82** The Lok Sabha passed the Family Courts' Amendment Bill in \_\_\_\_\_.

- Ans**
- ☐ A. January 2022
  - ☐ B. September 2021
  - ☐ C. January 2021
  - ☒ D. July 2022

**Q.83** The temples at Khajuraho were built during which dynasty?

- Ans**
- ☐ A. Gupta Dynasty
  - ☒ B. Chandella dynasty
  - ☐ C. Lodhi dynasty
  - ☐ D. Ghazni Dynasty

**Q.84** A/an \_\_\_\_\_ is a draft of a proposed legislative law.

- Ans**
- ☐ A. Writ
  - ☒ B. Bill
  - ☐ C. Article
  - ☐ D. Budget

**Q.85** In September 2021 which state government among the following organized rural sports events in 75 of its districts ?

- Ans**
- ☐ A. Madhya Pradesh
  - ☒ B. Uttar Pradesh
  - ☐ C. Rajasthan
  - ☐ D. Karnataka

**Q.86** The total liability of the monetary authority of the country (Reserve Bank of India) is called the \_\_\_\_\_.

- Ans**
- ☐ A. Credit Reserve Ratio
  - ☐ B. Narrow and Broad Money
  - ☒ C. Base Money
  - ☐ D. Currency Deposit Reserve

**Q.87** What is the name of the new Water Management and Policy Centre that was inaugurated by the Principal Scientific Adviser to the Government of India, Prof. K. VijayRaghavan in March 2022?

- Ans**
- ☒ A. AquaMAP
  - ☐ B. WaterMAP
  - ☐ C. HydroMAP
  - ☐ D. WetMAP

**Q.88** Which of the following sectors was given maximum emphasis in the Second Five Year Plan?

- Ans**
- ☐ A. Community services
  - ☐ B. Energy
  - ☒ C. Industry
  - ☐ D. Agriculture

**Q.89** Which of the following measures is/are likely to be adopted by RBI to combat inflation?

- (A) Increase CRR.
- (B) Increase Repo Rate.

- Ans**
- ☐ A. Only A
  - ☐ B. Only B
  - ☒ C. Both A and B
  - ☐ D. Neither A nor B

**Q.90** India's border with which country runs 4,096.70 km (2,545.57 mi)?

- Ans**
- ☒ A. Bangladesh
  - ☐ B. China
  - ☐ C. Pakistan
  - ☐ D. Nepal

**Q.91** The measure of responsiveness of the demand for Tea towards the change in the price of Coffee in the market is an example of \_\_\_\_\_.

- Ans**
- ☐ A. Indirect Demand
  - ☐ B. Direct Demand
  - ☒ C. Cross Elasticity of Demand
  - ☐ D. Composite Demand

**Q.92** Which Article of the Constitution of India was amended in 2002 and a clause 'k' was inserted that said "who is a parent or guardian to provide opportunities for education to his child or, as the case may be, ward between the age of six and fourteen years."?

- Ans**
- ☐ A. Article 44 A
  - ☒ B. Article 51 A
  - ☐ C. Article 55B
  - ☐ D. Article 57B

**Q.93** Transparency International has released the Corruption Perceptions Index (CPI) 2021. What is the rank of India in this index?

- Ans**
- ☐ A. 83<sup>rd</sup>
  - ☐ B. 84<sup>th</sup>
  - ☒ C. 85<sup>th</sup>
  - ☐ D. 86<sup>th</sup>

**Q.94** Which of the following universities won the Maulana Abul Kalam Azad (MAKA) Trophy 2021?

- Ans**
- ☐ A. Chaudhary Devi Lal University
  - ☒ B. Panjab University
  - ☐ C. Guru Jambheshwar University of Science and Technology
  - ☐ D. Kurukshetra University

**Q.95** The river \_\_\_\_\_ is a part of the Brahmaputra River System.

- Ans**
- ☐ A. Ramganga
  - ☒ B. Lohit
  - ☐ C. Kosi
  - ☐ D. Gomti

**Q.96** Which of the following languages was declared a classical language in the year 2014?

- Ans**
- ☐ A. Malayalam
  - ☒ B. Odia
  - ☐ C. Kannada
  - ☐ D. Telugu

**Q.97** When there are two houses of the legislature like India, it is called a \_\_\_\_\_ legislature.

- Ans**
- ☐ A. Supreme
  - ☐ B. Unicameral
  - ☐ C. Subordinate
  - ☒ D. Bicameral

**Q.98** The Nabakalebara festival is observed at the Jagannath Temple, Odisha. In this festival, new idols are made from neem logs and are replaced during the \_\_\_\_\_.

- Ans**
- ☐ A. Paryushana
  - ☐ B. Maun Agiyaras
  - ☐ C. Dasveh Patshah
  - ☒ D. Adhik Masa

**Q.99** With how many countries does India share its land boundaries?

- Ans**
- ☐ A. 6
  - ☒ B. 7
  - ☐ C. 8
  - ☐ D. 12

**Q.100** The BrahMos supersonic cruise missile, with increased indigenous content and improved performance, was successfully test-fired from the Integrated Test Range in \_\_\_\_\_ off the coast of Odisha at 1030 hours on 20 January 2022.

- Ans**
- ☒ A. Chandipur
  - ☐ B. Puri
  - ☐ C. Paradip
  - ☐ D. Gopalpur-on-sea



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 06/09/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** At what rate per annum of simple interest will a sum of ₹7,500 become ₹9,250 in 7 years?

Ans

☐ A.  $6\frac{1}{3}\%$

☐ B.  $5\frac{1}{3}\%$

☐ C.  $4\frac{1}{3}\%$

☒ D.  $3\frac{1}{3}\%$

**Q.2** If  $\alpha$  and  $\beta$ , where  $\beta > \alpha$ , are the roots of the equation  $8x^2 + 22x - 21 = 0$ , then what is the value of  $(2\alpha + 3\beta)$ ?

Ans

☐ A.  $-\frac{21}{2}$

☐ B.  $\frac{21}{4}$

☒ C.  $-\frac{19}{4}$

☐ D.  $\frac{37}{2}$

**Q.3** The value of  $(\sin A + \operatorname{cosec} A)^2 + (\cos A + \sec A)^2$  is:

Ans

☐ A.  $5 + \sec A + \operatorname{cosec} A$

☐ B.  $5 - \operatorname{cosec}^2 A + \sec^2 A$

☐ C.  $5 + \operatorname{cosec}^2 A - \sec^2 A$

☒ D.  $5 + \operatorname{cosec}^2 A + \sec^2 A$



**Q.4** The angles opposite to equal sides of a triangle are:

- Ans**
- ☒ A. equal
  - ☐ B. unequal
  - ☐ C. supplementary
  - ☐ D. complementary

**Q.5** Nandan had some marbles. When he distributed the marbles equally among 15 children, he found that 2 marbles were left. Had he distributed the marbles equally among 24 children and 32 children, he still would have had 11 and 19 marbles, respectively, left with him. But when he distributed them equally among 31 children, no marble was left. The number of marbles that Nandan initially had may lie between:

- Ans**
- ☐ A. 2350 and 2360
  - ☐ B. 2360 and 2370
  - ☐ C. 2370 and 2380
  - ☒ D. 2380 and 2390

**Q.6** A solid metallic sphere of radius 12 cm is melted and recast into 27 identical spheres. What is the ratio of the surface area of the original sphere to the total surface area of 6 smaller spheres so formed?

- Ans**
- ☐ A. 3 : 1
  - ☒ B. 3 : 2
  - ☐ C. 9 : 4
  - ☐ D. 9 : 8

**Q.7** A straight angle is equal to

- Ans**
- ☐ A.  $100^\circ$
  - ☐ B.  $90^\circ$
  - ☒ C.  $180^\circ$
  - ☐ D.  $0^\circ$

**Q.8** Express  $4.5\overline{67}$  in the form  $\frac{p}{q}$ , where  $p$  and  $q$  are integers and  $q \neq 0$ .

- Ans**
- ☐ A.  $4\frac{63}{110}$
  - ☐ B.  $4\frac{283}{495}$
  - ☐ C.  $4\frac{94}{165}$
  - ☒ D.  $4\frac{281}{495}$

**Q.9** A train crosses a pole in 80 seconds. If the speed of the train is 36 km/h, then the length of the train is:

- Ans**
- ☐ A. 1200 metres
  - ☐ B. 1000 metres
  - ☒ C. 800 metres
  - ☐ D. 600 metres

**Q.10** The sum of the ages of 6 children born at intervals of 2 years each is 42 years. What is the age of the eldest child?

- Ans**
- ☒ A. 12 years
  - ☐ B. 15 years
  - ☐ C. 16 years
  - ☐ D. 19 years

**Q.11** If  $a = 50$ ,  $b = 20$ , find the value of  $a^3 + b^3$ .

- Ans**
- ☒ A. 1,33,000
  - ☐ B. 1,75,000
  - ☐ C. 2,03,000
  - ☐ D. 1,56,000

**Q.12** The sides of a rectangular field are 77 m and 50 m long. Its area is equal to the area of a circular field. What is the perimeter (in m) of the circular field? (Take  $\pi = \frac{22}{7}$ )

- Ans**
- ☐ A. 110
  - ☐ B. 165
  - ☒ C. 220
  - ☐ D. 330

**Q.13** The third proportional to 18 and 72 is:

- Ans**
- ☐ A. 588
  - ☐ B. 488
  - ☐ C. 388
  - ☒ D. 288

**Q.14** Convert 25 grams to kilograms, expressing the answer as a fraction.

- Ans**
- ☐ A.  $\frac{1}{400}$  kg
  - ☐ B.  $\frac{1}{4}$  kg
  - ☒ C.  $\frac{1}{40}$  kg
  - ☐ D.  $\frac{1}{4000}$  kg

**Q.15** Let  $x$  be the greatest number which, when divides 7072, 8505 and 9925, the remainders are 22, 45 and 55, respectively. What is the sum of the digits of  $x$ ?

- Ans**
- ☐ A. 5
  - ☒ B. 6
  - ☐ C. 7
  - ☐ D. 8

**Q.16** A man covers a certain distance at a speed of 75 km/h in 8 hours. To cover the same distance in 6 hours, his speed needs to be:

- Ans**
- ☐ A. 300 km/h
  - ☐ B. 200 km/h
  - ☐ C. 150 km/h
  - ☒ D. 100 km/h

**Q.17** Sampark Kranti Express left Delhi for Chennai at 14:30 hours, travelling at a speed of 75 km/h, while Rajdhani Express left Delhi for Chennai on the same day at 16:30 hours, travelling at a speed of 90 km/h, travelling on the same route. How far away from Delhi will the two trains meet?

- Ans**
- ☒ A. 950 km
  - ☒ B. 900 km
  - ☒ C. 860 km
  - ☒ D. 820 km

**Q.18** The ratio of incomes of Seema and Darshan is 7 : 5. They save ₹12,000 and ₹9,000, respectively. If the ratio of their expenditures is 17 : 12, then what is the total expenditure (in ₹) of Seema and Darshan?

- Ans**
- ☒ A. 75,000
  - ☒ B. 81,000
  - ☒ C. 87,000
  - ☒ D. 93,000

**Q.19** The mode and median of a data is 23.6 and 24, respectively. What is the mean of the data? (Use empirical formula.)

- Ans**
- ☒ A. 23.2
  - ☒ B. 23.6
  - ☒ C. 24.2
  - ☒ D. 24.8

**Q.20** The roots of the quadratic equation  $x^2 - \frac{11x}{2} + 6 = 0$  are

- Ans**
- ☒ A. 4/3 and 3/2
  - ☒ B. 4 and 3/2
  - ☒ C. 2 and 3/2
  - ☒ D. 2 and 4/3

**Q.21** A shopkeeper offers the following schemes on toys of the same marked price.

- (A) Successive discounts of 12% and 15% on any number of toys bought.
- (B) Successive discounts of 15%, 10% and 2% on any number of toys bought.
- (C) 40% discount on the first 3 toys and 15% discount on each toy thereon.
- (D) 2 toys free of cost on buying 10 toys.

A customer wants to buy 10 toys. Which of the above schemes is most beneficial to her?

- Ans**
- ☒ A. (A)
  - ☒ B. (B)
  - ☒ C. (C)
  - ☒ D. (D)

**Q.22** If  $P = \frac{x^4 - 8x}{2x^2 + 5x - 3} \times \frac{2x - 1}{x^2 + 2x + 4} \times \frac{x^2 - 9}{x^2 - 2x}$ , then  $(P^2 - 1)$  is equal to:

- Ans**
- ☒ A.  $x^2 + 6x + 8$
  - ☒ B.  $x^2 - 6x + 10$
  - ☒ C.  $x^2 + 6x + 10$
  - ☒ D.  $x^2 - 6x + 8$

**Q.23** The value of  $[89 - (\frac{336}{301}) \times \{68 - (50 \div 3 + \frac{7}{6})\} + 67]$  is:

- Ans**
- ☐ A. 120
  - ☐ B. 110
  - ☒ C. 100
  - ☐ D. 90

**Q.24** The average marks of three batches of 25, 31 and 41 students is 20, 26 and 56, respectively. Find the average marks of all the students (rounded off to two places of decimal).

- Ans**
- ☐ A. 35.45
  - ☐ B. 35.78
  - ☐ C. 36.92
  - ☒ D. 37.13

**Q.25** During a sale  $66\frac{2}{3}\%$  of the goods are sold at 26% profit, 25% of the remaining goods are sold at 20% profit and the still remaining goods are sold at a loss of 40%. If there is an overall profit of  $x\%$ , then what is the value of  $x$ ?

- Ans**
- ☐ A. 8
  - ☐ B. 8.5
  - ☒ C. 9
  - ☐ D. 9.5

#### Section : General Intelligence and Reasoning

**Q.26** Refer to the following letter, symbol series and answer the question.

D & C N E ^ & G ^ Y % % @ G Y & I & \* H K Z

How many vowels are there that are immediately followed by a symbol?

- Ans**
- ☐ A. None
  - ☐ B. One
  - ☒ C. Two
  - ☐ D. Three

**Q.27** In a certain code language, 'CLIMATE' is written as 'DUZNHMD' and 'COMPLEX' is written as 'YDMQNND'. How will 'DISPLAY' be written in that language?

- Ans**
- ☐ A. ZBMQTJE
  - ☐ B. EJTQMBZ
  - ☒ C. ZZMQTHE
  - ☐ D. ZZMOTHE

**Q.28** Refer to the following letter, number, symbol series and answer the question.

(Left) S \$ 3 & H P W 8 # J \* M 2 F A 2 \$ Y 1 V (Right)

How many such symbols are there which are immediately preceded by a letter and also immediately followed by a number?

- Ans**
- ☐ A. 0
  - ☒ B. 1
  - ☐ C. 2
  - ☐ D. 3

**Q.29** A, B, C, D, E and F live on six different floors of the same building. The lowermost floor in the building is numbered 6, the floor above it is numbered 5, and so on till the topmost floor is numbered 1.

B lives on an odd numbered floor but not on floor number 3. Neither D nor E lives on the lowermost floor. A lives on an odd numbered floor and is immediately above D. C lives on floor number 5. Who lives on floor number 2?

- Ans**
- ☒ A. D
  - ☒ B. E
  - ☒ C. B
  - ☒ D. F

**Q.30** A statement is given below, followed by four conclusions given in the options. Find out which conclusion is true based on the given statement.

Statement:  $Q \leq S \leq C < F > T \geq H > M$

- Ans**
- ☒ A.  $Q > H$
  - ☒ B.  $T > M$
  - ☒ C.  $S \geq F$
  - ☒ D.  $C = H$

**Q.31** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

11 : 132 :: 12 : 156 :: 13 : ?

- Ans**
- ☒ A. 180
  - ☒ B. 182
  - ☒ C. 190
  - ☒ D. 196

**Q.32** Seven friends Rekha, Bharti, Shilpi, Jai, Tarun, Ravi, and Nausheen have their houses on seven different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 7. Five people live between the floors where Jai and Rekha live. There are two floors between Tarun's and Ravi's house. Tarun lives on one of the floors below Ravi's floor. Ravi's house is not at the top floor. Nausheen's house is just above Tarun's house. Only two people live between Nausheen's and Jai's house. Only two people are above Bharti's house. Who among the following lives on floor number 4?

- Ans**
- ☒ A. Bharti
  - ☒ B. Tarun
  - ☒ C. Nausheen
  - ☒ D. Jai

**Q.33** Pole P is to the north of pole R. Pole Q is to the east of pole R and north of pole S. What is the position of pole R with respect to pole S?

- Ans**
- ☒ A. North
  - ☒ B. South
  - ☒ C. South-west
  - ☒ D. North-west

**Q.34** Amongst six friends A, B, C, D, E and F, each has a different height. B is taller than only two other friends. C is shorter than only one friend. E is shorter than B but taller than F. A is shorter than D. Who is the second shortest among all the friends?

- Ans**
- ☒ A. B
  - ☒ B. E
  - ☒ C. F
  - ☒ D. D

**Q.35** Refer to the following number-symbol series and answer the question that follows.

$>3^{\wedge}13\&>9384!\wedge3541*298>*#9!96$

How many such numbers are there that are immediately preceded by a symbol and immediately followed by a symbol?

**Ans**  **A. 2**

 **B. 3**

 **C. 5**

 **D. 6**

**Q.36** Three statements are followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they do not conform to real world knowledge, decide which of the given conclusions/possibilities can be true on the basis of the statements.

Statements:

1. All greens are reds.
2. Some reds are browns.
3. All greys are browns.

Conclusions:

- I. Some greys are greens.
- II. All browns are reds is a possibility.
- III. Some browns are greens.

**Ans**  **A. Only conclusion I is true**

 **B. Only conclusion II is true**

 **C. Only conclusion III is true**

 **D. Only conclusion I and II are true**

**Q.37** If

$\times$  means 'division'

$-$  means 'addition'

$\div$  means 'subtraction' and

$+$  means 'multiplication',

then what will be the value of the expression  $17 \div 17 + 21 \times 7 - 13 = ?$

**Ans**  **A. -23**

 **B. 23**

 **C. 21**

 **D. -21**

**Q.38** If we add 5 to each of the following numbers and then write the digits in each number in reverse order and then arrange the numbers in ascending order, the position of how many numbers will NOT change?

224, 637, 816, 471, 303

**Ans**  **A. Zero**

 **B. One**

 **C. Two**

 **D. Three**

- Q.39** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

UPR: YTV  
LZB: PDF

- Ans** ☒ A. BHU: CJS  
☒ B. MKN: QOR  
☒ C. MSO: NPA  
☒ D. TGH : XII

- Q.40** The following table shows the marks scored by A, B, C and D in four subjects i.e., Mathematics, Hindi, English and Science. Marks given are out of 100. Study the table and answer the question.

| Subject / Student | A  | B  | C  | D  |
|-------------------|----|----|----|----|
| Mathematics       | 90 | 85 | 83 | 78 |
| Hindi             | 86 | 78 | 74 | 82 |
| English           | 75 | 74 | 70 | 74 |
| Science           | 92 | 88 | 64 | 70 |

What is the ratio of 'the sum of the marks scored by A in Hindi and B in English' to 'the sum of the marks scored by C in English and D in Science'?

- Ans** ☒ A. 8 : 7  
☒ B. 5 : 6  
☒ C. 5 : 7  
☒ D. 7 : 6

- Q.41** Given below is a statement followed by two possible conclusions I and II. Read the information carefully and select the correct option.

**Statement:**

The most popular OTT platform (providing TV and film content over the internet) in country C - 'StreamOn' has recently signed a contract with five of the major film producers to release their movies in theatres and on 'StreamOn' together and on the same date from January 2023 onwards.

Which of the following can be concluded from the given information?

I. The number of tickets sold by theatres will decrease to some extent in 2023.

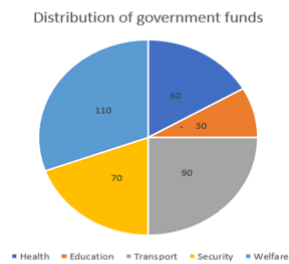
II. Each of the five film producers release at least one movie each year.

- Ans** ☒ A. Only I can be concluded from the given information.  
☒ B. Only II can be concluded from the given information.  
☒ C. Both I and II can be concluded from the given information.  
☒ D. Neither I nor II can be concluded from the given information.

- Q.42** Seven people, A, B, C, D, E, F and G, are sitting in a straight row, facing north. Only three people sit between G and F. Only two people sit to the left of G. B is not an immediate neighbour of F. B sits second to the right of D. C sits to the immediate right of E. Who sits at the extreme left end of the row?

- Ans** ☒ A. D  
☒ B. C  
☒ C. G  
☒ D. A

- Q.43** The following pie chart shows funds spent by the government on various public activities. All the values are given in crores. Study the pie chart and answer the question.



What is the sum of the 'difference between the funds spent on security and education' and the 'funds spent on health' (in crores)?

- Ans**
- ☒ A. 80
  - ☒ B. 90
  - ☒ C. 100
  - ☒ D. 120

- Q.44** Select the combination of letters that when sequentially placed from left to right in the same sequence in the blanks of the given series, will complete the series.

S L \_ \_ G S \_ \_ N G \_ \_ A N G

- Ans**
- ☒ A. ALNASL
  - ☒ B. ANLASL
  - ☒ C. LANALS
  - ☒ D. ALANLS

- Q.45** Sheetal steps out of her house and walks 160 m towards the north. She takes a left turn and walks 60 m. She takes a left turn again and walks 120 m. She takes another left turn and walks 130 m. Finally, she takes right turn and walks 40 m to reach a café. How far and in which direction is the café from Sheetal's house? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 70 m, East
  - ☒ B. 70 m, West
  - ☒ C. 60 m, East
  - ☒ D. 60 m, West

- Q.46** If '+' means '÷', '-' means '+', '×' means '-' and '÷' means '×', then what will be the value of the following expression?

$$[ \{ (19 \times 12) - (2 \div 4) \} + (2 - 3) ] \div 2$$

- Ans**
- ☒ A. 8
  - ☒ B. 4
  - ☒ C. 12
  - ☒ D. 6

- Q.47** Select the number from among the given options that can replace the question mark (?) in the following series.

53, 58, 51, 56, 49, 54, 47, 52, 45, 50, 43, 48, ?

- Ans**
- ☒ A. 43
  - ☒ B. 55
  - ☒ C. 41
  - ☒ D. 53



**Q.48** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

17 : 26 :: 5 : 14 :: 22 : ?

- Ans**
- ☒ A. 37
  - ☒ B. 35
  - ☒ C. 33
  - ☒ D. 31

**Q.49** A certain number of people are sitting in a row, facing north. S is seventh to the right of L. K is third to the right of J. L is third to the right of K. If no other person is sitting in the row, what is the total number of persons seated?

- Ans**
- ☒ A. 14
  - ☒ B. 15
  - ☒ C. 16
  - ☒ D. 17

**Q.50** In a certain code language, 'COUNT' is written as 'ESAVD' and 'FIBRE' is written as 'HMHZO'. How will 'GIANT' be written in that language?

- Ans**
- ☒ A. PMJKR
  - ☒ B. IDGBY
  - ☒ C. IMGVD
  - ☒ D. KMRPD

**Q.51** The position of how many letters will remain unchanged if each of the letters in the word BACKFIRE is arranged in the reverse alphabetical order?

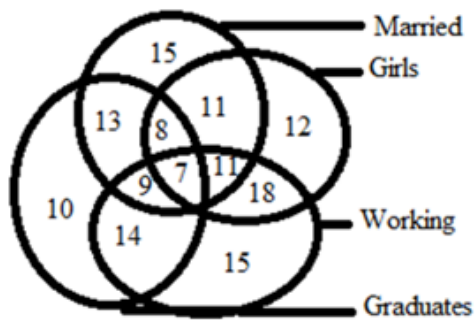
- Ans**
- ☒ A. Zero
  - ☒ B. Three
  - ☒ C. Four
  - ☒ D. Five

**Q.52** Which of the following numbers will replace the question mark (?) in the given series?

30, 35, 40, 43, 46, 51, ?

- Ans**
- ☒ A. 57
  - ☒ B. 55
  - ☒ C. 56
  - ☒ D. 58

**Q.53** Study the given Venn diagram and answer the question that follows.



How many married girls are graduates but NOT working?

- Ans**
- ☒ A. 9
  - ☒ B. 11
  - ☒ C. 8
  - ☒ D. 7

**Q.54** A, B, C, D, E, F, G and H were sitting around a square table, facing the centre. Some of them were sitting at the corners, while some were sitting at the exact centre of the sides. Only A was sitting between G and D. C was sitting fourth to the left of G. Only E was sitting between B and C. H was sitting to the immediate left of D. B was sitting second to the right of G. D is sitting at one of the corners. Who was sitting third to the right of D?

- Ans**
- ☒ A. F
  - ☒ B. C
  - ☒ C. B
  - ☒ D. E

**Q.55** Three statements are followed by three conclusions numbered I, II and III. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts. Decide which of the given conclusions logically follow(s) from the given statement.

Statements:

All paintings are arts

Some walls are doors

Some paintings are windows

Conclusions:

(I) Some arts are walls

(II) Some arts are windows

(III) Some paintings are doors

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Only conclusion III follows
  - ☒ D. None of the conclusions follow

Section : General Science

Q.56 Complete the given reaction.



Ans ☒ A.  $\text{Cl}_2$  (g)

☒ B.  $\text{H}_2$  (g)

☒ C.  $\text{Br}_2$  (g)

☒ D.  $\text{CO}_2$  (g)

Q.57 Which of the following is the correct statement for the parallel combination of 3  $\Omega$ , 2  $\Omega$  and 6  $\Omega$  resistors?

Ans ☒ A. Current passing through each resistor is equal.

☒ B. Value of resistance increases.

☒ C. Potential difference across each resistor is equal.

☒ D. Current passing through 6  $\Omega$  resistor is maximum

Q.58 Match the following:

| Functional Group | Name of group      |
|------------------|--------------------|
| i. COOH          | a. ester           |
| ii. R-CO-R       | b. ketone          |
| iii. COOR        | c. carboxylic acid |

Ans ☒ A. i-a, ii-b, iii-c

☒ B. i-c, ii-b, iii-a

☒ C. i-c, ii-a, iii-b

☒ D. i-a, ii-c, iii-b

Q.59 The refractive indices of mediums 1, 2 and 3 are 1.31, 1.36 and 1.44, respectively. If the speed of light in the mediums are  $v_1$ ,  $v_2$  and  $v_3$ , respectively, which of the following relations between them is correct?

Ans ☒ A.  $v_1 > v_2 > v_3$

☒ B.  $v_2 > v_3 > v_1$

☒ C.  $v_3 > v_1 > v_2$

☒ D.  $v_1 = v_2 = v_3$

Q.60 Which of the following group of organisms are involved in the breakdown of dead and decaying organisms?

Ans ☒ A. Consumers

☒ B. Producers

☒ C. Decomposers

☒ D. Scavengers

**Q.61** Magnetic field inside a solenoid is:

- Ans**
- ☐ A. stronger at the middle
  - ☒ B. uniform
  - ☐ C. weaker at the middle
  - ☐ D. zero

**Q.62** A ray of white light is incident on a refracting surface AB of a glass prism and emerges out of the other refracting surface AC. Consider the following statements:

- (a) The angle of refraction at surface AB is the same for different colours of white light.
- (b) The angle of refraction at the surface AC is different for different colours.

Which of the above statements is/are correct?

- Ans**
- ☐ A. Only (a)
  - ☒ B. Only (b)
  - ☐ C. Both (a) and (b)
  - ☐ D. Neither (a) nor (b)

**Q.63** The presence of which of the following does NOT let the air passage in the respiratory system of humans collapse when there is less air in it?

- Ans**
- ☐ A. Ligaments
  - ☒ B. Rings of cartilage
  - ☐ C. Tendons
  - ☐ D. Muscles

**Q.64** Cigarette smoking is harmful to our health because \_\_\_\_\_.

- Ans**
- ☐ A. it weakens the chest muscles
  - ☒ B. it damages the cilia in the upper respiratory tract
  - ☐ C. it reduces the oxygen-carrying capacity of RBCs
  - ☐ D. causes oedema in lungs

**Q.65** A wire of length L and resistance R is reformed so that its length increases by 50% with no change in its volume. The resistance of the new wire is:

- Ans**
- ☐ A.  $(\frac{4}{9}) R$
  - ☒ B.  $(\frac{9}{4}) R$
  - ☐ C.  $(\frac{3}{2}) R$
  - ☐ D.  $(\frac{2}{3}) R$

**Q.66** What is the chemical name of Plaster of Paris?

- Ans**
- ☐ A. Calcium acetate
  - ☐ B. Calcium carbonate
  - ☐ C. Calcium sulphate dihydrate
  - ☒ D. Calcium sulphate hemihydrate

**Q.67** A ray of light is incident on a concave mirror of radius of curvature 10 cm, parallel to its principal axis. After reflection, it passes through a point on the axis at a distance of \_\_\_\_\_ from the mirror.

- Ans**
- ☒ A. 5 cm
  - ☐ B. 7.5 cm
  - ☐ C. 10 cm
  - ☐ D. 12.5 cm

**Q.68** Dobereiner arranged the three elements in a triad in order of:

- Ans**
- ☒ A. increase in their atomic masses
  - ☐ B. decrease in their atomic masses
  - ☐ C. increase in their atomic numbers
  - ☐ D. decrease in their atomic numbers

**Q.69** When magnesium is burnt in the presence of air, the product formed is:

- Ans**
- ☐ A. magnesium sulphate
  - ☐ B. magnesium chloride
  - ☐ C. magnesium carbonate
  - ☒ D. magnesium oxide

**Q.70** An object of size 4.0 cm is placed in front of a convex mirror of focal length 8 cm, at a distance of 24 cm. The image formed is \_\_\_\_\_ and its height is \_\_\_\_\_.

- Ans**
- ☐ A. inverted, 1.0 cm
  - ☒ B. erect, 1.0 cm
  - ☐ C. inverted, 2.0 cm
  - ☐ D. erect, 2.0 cm

**Q.71** Which of the following is NOT a component of xylem?

- Ans**
- ☐ A. Tracheid
  - ☐ B. Vessel
  - ☒ C. Companion cell
  - ☐ D. Parenchyma

**Q.72** Which of the following plants DOES NOT reproduce by vegetative propagation?

- Ans**
- ☐ A. Grape
  - ☐ B. Rose
  - ☒ C. Mango
  - ☐ D. Sugarcane

**Q.73**  $\text{ZnO} + \text{C} \rightarrow \text{Zn} + \text{CO}$

In the given reaction, which statement is INCORRECT?

- Ans**
- ☐ A. ZnO acts as an oxidising agent
  - ☒ B. ZnO is oxidised to Zn
  - ☐ C. C acts as a reducing agent
  - ☐ D. C is oxidised to CO

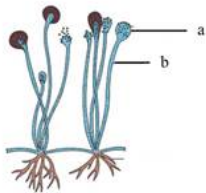
**Q.74** Three resistors of  $10\ \Omega$ ,  $15\ \Omega$  and  $30\ \Omega$  are connected in series. The resistance of the combination is:

- Ans**
- ☐ A.  $5\ \Omega$
  - ☐ B.  $25\ \Omega$
  - ☐ C.  $45\ \Omega$
  - ☒ D.  $55\ \Omega$

**Q.75** In a science book, two solenoids, P and Q, of the same average radius and the same length are shown. The number of field lines drawn inside P is thrice of that drawn inside Q. If the current in the two solenoids is the same, the number of turns in solenoid P is \_\_\_\_\_ times the number of turns in solenoid Q.

- Ans**
- ☐ A.  $\frac{1}{9}$
  - ☐ B.  $\frac{1}{3}$
  - ☒ C. 3
  - ☐ D. 9

**Q.76** Identify the vegetative part and the reproductive part in the following diagram of Rhizopus.



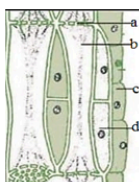
- Ans**
- ☐ A. Both a and b are vegetative parts
  - ☐ B. a is the vegetative part, whereas b is the reproductive part
  - ☐ C. Both a and b are reproductive parts
  - ☒ D. a is the reproductive part, whereas b is the vegetative part

**Q.77** Match the following:

|                                                |        |
|------------------------------------------------|--------|
| 1. Total number of elements found              | a. 94  |
| 2. Naturally available elements                | b. 24  |
| 3. Elements found through laboratory processes | c. 118 |

- Ans**
- ☐ A. 1-a, 2-b, 3-c
  - ☒ B. 1-c, 2-a, 3-b
  - ☐ C. 1-c, 2-b, 3-a
  - ☐ D. 1-a, 2-c, 3-b

**Q.78** The diagram below shows a section of phloem tissue in plants. Which labelling shows the part with perforated walls that helps in transportation?



- Ans**
- ☒ A. a
  - ☒ B. b
  - ☒ C. c
  - ☒ D. d

**Q.80** Match the following:

| Natural source   | Acid              |
|------------------|-------------------|
| i. Lemon         | a. Methanoic acid |
| ii. Nettle sting | b. Citric acid    |
| iii. Tomato      | c. Oxalic acid    |

- Ans**
- ☒ A. i-a, ii-b, iii-c
  - ☒ B. i-c, ii-b, iii-a
  - ☒ C. i-c, ii-a, iii-b
  - ☒ D. i-b, ii-a, iii-c

#### Section : General Awareness and Current Affairs

**Q.81** Which of the following is NOT true about indifference curves between two goods?

- Ans**
- ☒ A. They are downward sloping.
  - ☒ B. They are convex to the origin.
  - ☒ C. Higher IC means higher satisfaction levels.
  - ☒ D. They may intersect each other.

**Q.82** In 1928, Vallabhbhai Patel led the peasant movement in \_\_\_\_\_, a taluka in Gujarat, against enhancement of land revenue.

- Ans**
- ☒ A. Palsana
  - ☒ B. Bardoli
  - ☒ C. Chorasi
  - ☒ D. Kamrej

**Q.83** The Industrial Revolution in Britain gave a stiff competition to the handicraft industries in India due to \_\_\_\_\_.

- Ans**
- ☒ A. no raw material available for handicraft
  - ☒ B. low cost and better quality product produced by machines
  - ☒ C. lack of skills of handicraft industry
  - ☒ D. expensive factors of production



**Q.84** As on March 2022, Pradhan Mantri Jan Dhan Account holder gets an accidental insurance cover of \_\_\_\_\_.

- Ans**
- ☐ A. ₹50,000 to ₹1 lakh
  - ☒ B. ₹1 lakh to ₹2 lakh
  - ☐ C. ₹5 lakh
  - ☐ D. ₹25,000 to ₹50,000

**Q.85** What will be the increase in consumption if income increases by ₹500 (assume MPC = 0.5)?

- Ans**
- ☐ A. ₹50
  - ☒ B. ₹250
  - ☐ C. ₹500
  - ☐ D. ₹750

**Q.86** What was the role of Sreejesh PR in Indian men's hockey team during the Tokyo Olympics held in the year 2021?

- Ans**
- ☒ A. Goalkeeper
  - ☐ B. Defender
  - ☐ C. Midfielder
  - ☐ D. Forward

**Q.87** The Central Institute of Indian Languages (CIIL) was set up at \_\_\_\_\_ in 1969.

- Ans**
- ☒ A. Mysore (Mysuru)
  - ☐ B. Mangalore (Mangaluru)
  - ☐ C. Trichur (Thrissur)
  - ☐ D. Cochin (Kochi)

**Q.88** National Backward Classes Finance & Development Corporation (NBCFDC) is a Government of India undertaking under the aegis of Ministry of \_\_\_\_\_.

- Ans**
- ☐ A. Tribal Affairs
  - ☐ B. Micro, Small and Medium Enterprises
  - ☐ C. Rural Development
  - ☒ D. Social Justice and Empowerment

**Q.89** Which Indian physicist shared the Boltzmann Medal for the year 2022 with American scientist John Hopfield?

- Ans**
- ☐ A. Radha Balakrishnan
  - ☐ B. Dhiraj Bora
  - ☒ C. Deepak Dhar
  - ☐ D. Archana Bhattacharyya

**Q.90** Who is regarded as the father of local self-government in India?

- Ans**
- ☐ A. Lord Wellesley
  - ☒ B. Lord Rippon
  - ☐ C. Lord Robert Clive
  - ☐ D. Lord Warren Hasting



**Q.91** The Criminal Procedure (Identification) Bill, 2022, that was passed by the Parliament was placed by which of the following ministries?

- Ans**
- ☒ A. Ministry of Social Justice and Empowerment
  - ☒ B. Ministry of Defence
  - ☒ C. Ministry of Home Affairs
  - ☒ D. Ministry of Education

**Q.92** Which committee proposed that the local government be granted constitutional recognition in 1989?

- Ans**
- ☒ A. PK Thungon Committee
  - ☒ B. GVK Rao Committee
  - ☒ C. LM Singhvi Committee
  - ☒ D. Ashok Mehta Committee

**Q.93** The 15<sup>th</sup> edition of the Indian Premier League (IPL) was / will be played in the year \_\_\_\_\_.

- Ans**
- ☒ A. 2021
  - ☒ B. 2022
  - ☒ C. 2020
  - ☒ D. 2023

**Q.94** The Ballary-Chitradurga-Chikmagalur-Tumkur belt located in Karnataka is a rich source of which ore?

- Ans**
- ☒ A. Iron ore
  - ☒ B. Manganese ore
  - ☒ C. Titanium ore
  - ☒ D. Copper ore

**Q.95** In which of the following states is Painkuni Festival celebrated?

- Ans**
- ☒ A. Odisha
  - ☒ B. West Bengal
  - ☒ C. Kerala
  - ☒ D. Assam

**Q.96** In the reference of local winds in India, the 'Loo' can be best described as \_\_\_\_\_.

- Ans**
- ☒ A. moist and cool winds
  - ☒ B. dry and hot winds
  - ☒ C. humid and hot winds
  - ☒ D. cool and humid winds

Q.97

World TB Day is celebrated on which date?

Ans

☐ A. 2<sup>nd</sup> March

☐ B. 12<sup>th</sup> March

☒ C. 24<sup>th</sup> March

☐ D. 28<sup>th</sup> March

Q.99 Which of the following is INCORRECTLY paired?

Ans

☐ A. Lignite – Low grade brown coal

☐ B. Bituminous coal – Most popular coal in commercial use

☐ C. Metallurgical coal – Used for smelting iron in blast furnaces

☒ D. Anthracite – Lowest grade of hard coal

Q.100 How many Fundamental Duties were added to the Indian Constitution through the 42nd Amendment Act of 1976 ?

Ans

☐ A. 11

☐ B. 5

☐ C. 3

☒ D. 10



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 06/09/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** The sides of a triangle are 32 cm, 60 cm, and 68 cm. What is its area (in  $cm^2$ )?

- Ans**
- ☒ A. 1088
  - ☒ B. 1020
  - ☒ C. 990
  - ☒ D. 960

**Q.2** The least number that is exactly divisible by 24, 88 and 136 is:

- Ans**
- ☒ A. 4488
  - ☒ B. 5445
  - ☒ C. 3894
  - ☒ D. 6433

**Q.3** D and E are the midpoints of sides AB and AC of a triangle ABC, respectively, and BC = 6 cm. If DE || BC, then the length of DE is:

- Ans**
- ☒ A. 2.5 cm
  - ☒ B. 3 cm
  - ☒ C. 5 cm
  - ☒ D. 6 cm

**Q.4** Find the number whose one third part exceeds the one fifth part by 6.

- Ans**
- ☒ A. 35
  - ☒ B. 45
  - ☒ C. 50
  - ☒ D. 40

**Q.5** In two triangles DEF and PQR, if DE = QR, EF = PR and FD = PQ, then:

- Ans**
- ☒ A.  $\triangle DEF \cong \triangle PQR$
  - ☒ B.  $\triangle FED \cong \triangle PRQ$
  - ☒ C.  $\triangle EDF \cong \triangle RPQ$
  - ☒ D.  $\triangle PQR \cong \triangle EFD$

**Q.6** A sum of ₹  $x$  amounts to ₹50,578 in  $2\frac{1}{2}$  years at 12% p.a., interest compounded 10-monthly. What is the value of  $x$ ?

- Ans**
- ☐ A. 36,000
  - ☒ B. 38,000
  - ☐ C. 40,000
  - ☐ D. 42,000

**Q.7** A shopkeeper lists the price of a fan at 22% above its cost price and offers a 15% discount on its list price. If he earns a profit of ₹111, then what is the list price (in ₹) of the fan?

- Ans**
- ☐ A. 3,500
  - ☒ B. 3,660
  - ☐ C. 3,680
  - ☐ D. 4,200

**Q.8** The value of  $45 - 5 \times [2 + 3 \times \{2 - 2(3 - 5) \times 3\} \div 7]$  is:

- Ans**
- ☐ A. 1
  - ☒ B. 5
  - ☐ C. 10
  - ☐ D. 35

**Q.9** The value of  $(1 + \tan 20^\circ + \sec 20^\circ)(1 + \cot 20^\circ - \operatorname{cosec} 20^\circ)$  is:

- Ans**
- ☒ A. 2
  - ☐ B. 1
  - ☐ C. 0
  - ☐ D. -1

**Q.10** A father told his son, "At the time of your birth I was as old as you are at present." If the father's present age is 40 years, then how old was the son 5 years ago?

- Ans**
- ☐ A. 14 years
  - ☒ B. 15 years
  - ☐ C. 16 years
  - ☐ D. 18 years

**Q.11** The ratio between the third proportional of 20 and 50 and the mean proportional of 9 and 16 is:

- Ans**
- ☐ A. 25: 2
  - ☐ B. 2: 25
  - ☒ C. 125: 12
  - ☐ D. 12: 125

**Q.12** A bus covers a distance of 160 km in  $3\frac{1}{4}$  hr with one stop of 10 min and one more stop of 5 min on the way. Find the average speed of the bus.

**Ans**

☒ A.  $51\frac{1}{3}$  km/h

☒ B.  $52\frac{1}{3}$  km/h

☒ C.  $53\frac{1}{3}$  km/h

☒ D.  $50\frac{1}{3}$  km/h

**Q.13** For certain data, the mode is 24.6 and mean is 20.1. What is the median of that data?

**Ans**

☒ A. 23.5

☒ B. 22.2

☒ C. 21.6

☒ D. 24.1

**Q.14** If the mixed recurring decimal  $0.23\overline{45}$  is expressed as a fraction in its lowest terms, then the denominator exceeds the numerator by:

**Ans**

☒ A. 421

☒ B. 512

☒ C. 375

☒ D. 627

**Q.15** A conference is being organised by an educational institute, where the participants will be educators of different subjects. The number of participants in physics, chemistry and mathematics are 112, 144 and 192, respectively. In each room an equal number of participants are to be seated, and all participants in a room should be educators of the same subject. What is the minimum number of rooms required during the event?

**Ans**

☒ A. 23

☒ B. 28

☒ C. 32

☒ D. 35

**Q.16** Arvind bought an article for ₹x. He sold it to Biru at a loss of 15%. Biru spent ₹126 on its transportation and sold it to Minu at a profit of 25%. If Minu bought it for ₹1475, then what is the value of ₹x?

**Ans**

☒ A. ₹1,160

☒ B. ₹1,240

☒ C. ₹1,280

☒ D. ₹1,320

**Q.17** A can complete a piece of work in 12 days and B can complete it in 20 days. If they work on alternate days, starting with B on first day, then in how many days will the work be finished?

**Ans**

☒ A. 15

☒ B.  $15\frac{1}{5}$

☒ C.  $15\frac{2}{3}$

☒ D.  $15\frac{4}{5}$

**Q.18** The ratio between the radius of the base and the height of a cylinder is 3 : 4. If its volume is  $38808 \text{ cm}^3$  then, using  $\pi = \frac{22}{7}$ , find the radius of the cylinder.

- Ans**
- ✓ A. 21 cm
  - ✗ B. 14 cm
  - ✗ C. 28 cm
  - ✗ D. 35 cm

**Q.19** Salaries of A and B were in the ratio 3 : 4. After the salary of each of A and B is increased by ₹3,000, the new ratio becomes 18 : 23. What is A's salary after the increase?

- Ans**
- ✓ A. ₹18,000
  - ✗ B. ₹12,000
  - ✗ C. ₹23,000
  - ✗ D. ₹21,000

**Q.20** The area of a rectangle increases by  $2 \text{ m}^2$ , if its length is increased by 4 m and breadth is decreased by 2 m. If the length is decreased by 3 m and breadth is increased by 5 m, then its area increases by  $23 \text{ m}^2$ . What is the perimeter of the original rectangle (in m)?

- Ans**
- ✗ A. 42
  - ✓ B. 44
  - ✗ C. 48
  - ✗ D. 52

**Q.21** A bus travels two-fifth of the distance at a speed of 50 km/h and the remaining distance at a speed of 60 km/h. What is the average speed of the bus for the whole journey?

- Ans**
- ✗ A.  $57\frac{2}{9} \text{ km/h}$
  - ✗ B.  $56\frac{8}{9} \text{ km/h}$
  - ✓ C.  $55\frac{5}{9} \text{ km/h}$
  - ✗ D.  $54\frac{7}{9} \text{ km/h}$

**Q.22** A and B can do a work alone in 30 days and 40 days, respectively. If they worked together and got ₹2,800 for doing the work, then the share of A will be:

- Ans**
- ✗ A. ₹1,500
  - ✗ B. ₹1,400
  - ✗ C. ₹1,200
  - ✓ D. ₹1,600

**Q.23** If the equation  $2x^2 + kx + 3 = 0$ ,  $k > 0$ , has real and equal roots, then the value of  $k$  satisfies the equation:

- Ans**
- ✓ A.  $k^2 - \sqrt{6} k - 12 = 0$
  - ✗ B.  $k^2 + \sqrt{6} k - 12 = 0$
  - ✗ C.  $k^2 - \sqrt{3} k - 6 = 0$
  - ✗ D.  $k^2 + \sqrt{3} k - 6 = 0$

Q.24 If  $(\frac{512}{125})^3 \times (\frac{512}{125})^k = (\frac{8}{5})^{15}$ , then k is:

- Ans
- ☒ A. -2
  - ☒ B. -1
  - ☒ C. 2
  - ☒ D. 3

Q.25 The roots of the equation  $x^2 - 5x + 6 = 0$  are:

- Ans
- ☒ A. -2, 3
  - ☒ B. 2, -3
  - ☒ C. -2, -3
  - ☒ D. 2, 3

Section : General Intelligence and Reasoning

Q.26 If all the numbers given below are arranged in descending order, the position of how many numbers will remain unchanged?

295, 654, 653, 234, 345, 245, 634

- Ans
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

Q.27 What will come in place of the question mark (?) in the following equation, if '+' and '-' are interchanged and also '×' and '÷' are interchanged?

$16 \div 6 + 285 \times 3 + 73 - 630 \times 3 + 18 = ?$

- Ans
- ☒ A. 96
  - ☒ B. 110
  - ☒ C. 120
  - ☒ D. 84

Q.28 In a certain code language, 'ORDER' is written as 'PTGIW' and 'BRAND' is written as 'CTDRI'. How will 'SHAPE' be written in that language?

- Ans
- ☒ A. DOIFJ
  - ☒ B. TJDTJ
  - ☒ C. TJNCM
  - ☒ D. DPRNJ

Q.29 In a certain code language, 'I went home' is written as 'wrf ffg thy', 'you go home' is written as 'nui kjl thy' and 'I like you' is written as 'wrf wsc nui'. What is the code for the word 'like' in that language?

- Ans
- ☒ A. wsc
  - ☒ B. nui
  - ☒ C. wrf
  - ☒ D. thy

**Q.30** 83 persons are sitting in a row. Aru is sitting at the 27<sup>th</sup> position from the left side of the row and Pihu is sitting at the 41<sup>st</sup> position from the right side of the row. Ana is sitting exactly in the middle of Aru and Pihu. What is Ana's position from the left?

- Ans**
- ☒ A. 33
  - ☒ B. 34
  - ☒ C. 35
  - ☒ D. 37

**Q.31** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

1. All pots are jugs.
2. Some pans are pots.
3. Some pots are woks.

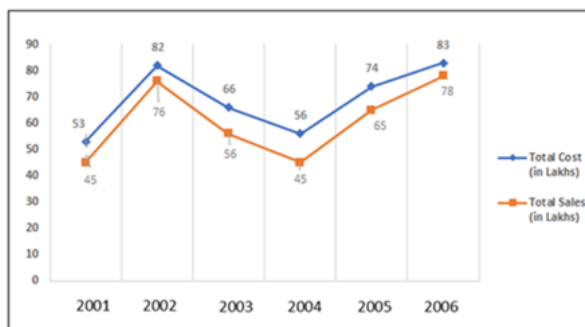
Conclusions:

- I-Some jugs are pans.
- II-Some woks are jugs.

- Ans**
- ☒ A. Only conclusion I follows.
  - ☒ B. Only conclusion II follows.
  - ☒ C. Both conclusions I and II follow.
  - ☒ D. Neither conclusion I nor II follows.

**Q.32** Study the given graph and answer the question that follows.

The graph presents total cost and total sales values (in lakh) of a firm over six years.



In which of the years given below did the firm record highest loss percentage?

- Ans**
- ☒ A. 2003
  - ☒ B. 2004
  - ☒ C. 2005
  - ☒ D. 2006

**Q.33** A certain number of people are sitting in a row, facing north. A sits third to the right of C. Only four people sit between A and B. D sits second to the left of B. Only one person sits between B and F. E sits to the immediate right of F. If no other person is sitting in the row, what is the total number of persons seated?

- Ans**
- ☒ A. 10
  - ☒ B. 12
  - ☒ C. 14
  - ☒ D. 11



**Q.34** Which of the following options is the closest approximate value which will come in place of question mark(?) in the following equation?

$$\sqrt{1025} + 98 \div 14 \times 4 - \sqrt{170} = ?$$

- Ans**
- ☒ A. 70
  - ☒ B. 60
  - ☒ C. 27
  - ☒ D. 47

**Q.35** Amongst six friends A, B, C, D, E and F, each has a different height. B is taller than only three other friends. A is taller than E. D is taller than only one friend. C is taller than D but shorter than E. Who is the third shortest among all the friends?

- Ans**
- ☒ A. C
  - ☒ B. F
  - ☒ C. E
  - ☒ D. B

**Q.36** Select the correct conclusion that can be drawn from the given statements.

**Statements:**

1.  $D \geq S$
2.  $X < W$
3.  $S = J$
4.  $W > Y$
5.  $X > D$
6.  $Y \leq O$

- Ans**
- ☒ A.  $D \geq J$
  - ☒ B.  $D = O$
  - ☒ C.  $O > S$
  - ☒ D.  $Y = J$

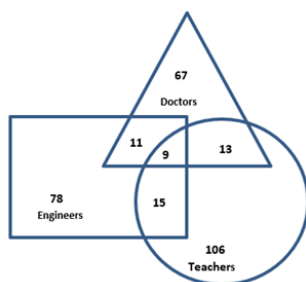
**Q.37** If 10 February 2002 is a Sunday, then what will be the day of the week on 17 March 2008?

- Ans**
- ☒ A. Friday
  - ☒ B. Saturday
  - ☒ C. Sunday
  - ☒ D. Monday

**Q.38** Study the given diagram carefully and answer the questions. The numbers in different sections indicate the number of persons.

In the figure given below, the square represents Engineers, the triangle represents Doctors, and the circle represents Teachers.

How many engineers are there who are also teachers but not doctors?



- Ans**
- ☒ A. 11
  - ☒ B. 106
  - ☒ C. 15
  - ☒ D. 78

**Q.39** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

22 : 14 :: 14 : 10 :: 34 : ?

- Ans**
- ☒ A. 26
  - ☒ B. 24
  - ☒ C. 22
  - ☒ D. 20

**Q.40** Given below is a statement followed by two possible conclusions I and II. Read the information carefully and select the correct option.

**Statement:**

The recent outbreak of the contagious virus G across country X had kept the nation worrying for months. However, the medicines used for yellow fever have been found to be effective in minimising the severity of the symptoms of virus G. Which of the following can be concluded from the given information?

- I. If a patient of virus G is given double the dose of the said medicine, they can be treated completely.
- II. The symptoms caused by virus G and those caused by yellow fever are exactly the same.

- Ans**
- ☒ A. Only I can be concluded from the given information.
  - ☒ B. Only II can be concluded from the given information.
  - ☒ C. Both I and II can be concluded from the given information.
  - ☒ D. Neither I nor II can be concluded from the given information.

**Q.41** Six friends U, V, W, X, Y, and Z are sitting in a circular arrangement and all are facing outside the circle. W is sitting to the immediate left of X and is second to the right of Y. X is sitting to the immediate left of Z. V is not an immediate neighbour of W. Who among the following is sitting to the immediate left of U?

- Ans**
- ☒ A. Y
  - ☒ B. Z
  - ☒ C. V
  - ☒ D. W

**Q.42** Seven boxes C, D, E, F, G, H and I are kept one over the other but not necessarily in the same order. Only one box is kept between H and F in the same order. I is kept immediately above G. Only one box is kept between I and D. E is kept at one of the positions below D. H is kept immediately below D. How many boxes are kept between H and G?

- Ans**
- ✓ A. 1
  - ✗ B. 2
  - ✗ C. 3
  - ✗ D. 4

**Q.43** Three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

1. Some reds are green.
2. All greens are yellow.
3. All yellows are pink.

**Conclusions:**

- I. Some reds are yellow.
- II. Some yellows are red.
- III. All greens are pink.

- Ans**
- ✗ A. Conclusions I and II follow
  - ✗ B. Conclusions I and III follow
  - ✗ C. Conclusions II and III follow
  - ✓ D. Conclusions I, II and III follow

**Q.44** One morning Abhay started walking from his home. He walked 500 m toward the south and then turned to the right. After walking 300 m he turned to the left and walked 500 m. In which direction is he from his house now? (All turns are 90 degree turns only)

- Ans**
- ✗ A. North
  - ✗ B. South
  - ✓ C. South-west
  - ✗ D. North-east

**Q.45** Six people K, L, M, N, O and P are sitting around a circular table facing the center. Only two people are sitting between N and P. K and M are immediate neighbours of P. L and O are immediate neighbours of N. N is sitting at second place to the right of K. M is sitting to the immediate left of P and immediate right of L. Who is sitting third to the right of O?

- Ans**
- ✗ A. L
  - ✗ B. N
  - ✓ C. M
  - ✗ D. K

**Q.46** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.  
YZA : BAZ

MOP : NLK

- Ans**
- ✗ A. JOB : Q LX
  - ✗ B. TNE : GMW
  - ✗ C. TOP : HLK
  - ✓ D. HPE : SKV

**Q.47** Study the following number arrangement and answer the question given below. All numbers given below are 2 digit numbers.

74 45 76 56 52 54 36 28 43 78 25 59 48 36 85 86 94 87

What will be 70% of the mean score of the numbers in this above series?

- Ans**
- ☒ A. 57.50
  - ☒ B. 52.36
  - ☒ C. 44.80
  - ☒ D. 41.30

**Q.48** Select the number from among the given options that can replace the question mark (?) in the following series.

110, 114, 106, 122, 90, ?

- Ans**
- ☒ A. 127
  - ☒ B. 136
  - ☒ C. 154
  - ☒ D. 168

**Q.49** Select the combination of letters and numbers that when sequentially placed from left to right in the same sequence in the blanks of the given series, will complete the series.

4 \_ \_ E 6 7 F \_ \_ 9 H I

- Ans**
- ☒ A. 5DG8
  - ☒ B. 4EH8
  - ☒ C. D5H9
  - ☒ D. E4G9

**Q.50** Select the number from among the given options that can replace the question mark (?) in the following series.

64, 32, 128, 64, 256, ?

- Ans**
- ☒ A. 128
  - ☒ B. 192
  - ☒ C. 224
  - ☒ D. 284

**Q.51** Refer to the following letter, number, symbol series and answer the question.

(Left) C 2 A 5 8 P ^ # 9 3 J 8 C % K P X R 3 5 4 S % & R % (Right)

If all the numbers are dropped from the series, which of the following will be fifth from the left?

- Ans**
- ☒ A. P
  - ☒ B. #
  - ☒ C. C
  - ☒ D. S

**Q.52** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

40 : 45 :: 68 : 77 :: 104 : ?

- Ans**
- ☒ A. 115
  - ☒ B. 117
  - ☒ C. 119
  - ☒ D. 121

**Q.53** What will come in the place of the question mark (?) in the following equation if '+' and '-' are interchanged and also '×' and '÷' are interchanged?

$$25 - 18 \times 2 + 4 \div 7 = ?$$

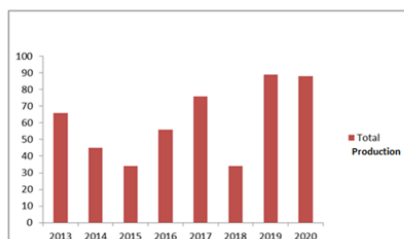
- Ans**
- ☐ A. 2
  - ☐ B. 3
  - ☐ C. 4
  - ☒ D. 6

**Q.54** Sushma started walking towards the south. After 40 metres she turned right and walked for 15 metres. From there she turned right again and walked for 50 metres. Then she again turned to her right and walked for 15 meters. At last she followed the path which was an angle of  $45^\circ$  towards her left. In which direction is she walking now? (All turns unless specified are 90 degree turns only)

- Ans**
- ☐ A. North-east
  - ☐ B. South-west
  - ☒ C. North-west
  - ☐ D. South-east

**Q.55** Study the given graph and answer the question that follows.

The graph presents the total production of a company (in lakh tonnes) over the given years.



In which year did the company record maximum percentage increase in production as compared to the previous year?

- Ans**
- ☐ A. 2014
  - ☐ B. 2016
  - ☐ C. 2018
  - ☒ D. 2019

#### Section : General Science

**Q.56** Out of 118 elements in the Modern Periodic Table, there are \_\_\_\_\_ naturally occurring elements.

- Ans**
- ☐ A. 89
  - ☐ B. 91
  - ☒ C. 94
  - ☐ D. 108

**Q.57** How can paper waste be minimised?

I. By discarding

II. By recycling

III. By reusing

IV. By burning

**Ans** ☒ A. Only I and II

☒ B. Only II and III

☒ C. Only III and IV

☒ D. Only I and IV

**Q.58** SI unit of resistivity is

**Ans** ☒ A. Ohm

☒ B. Ohm/metre

☒ C. Ohm-metre

☒ D. Metre

**Q.59** A science book depicts magnetic field lines around two bar magnets marked A and B. From A, five lines emerge from its north pole, and in B, ten lines enter into its south pole. The strength of A is \_\_\_\_\_ that of B.

**Ans** ☒ A. twice

☒ B. half

☒ C. four times

☒ D. equal to

**Q.60** An object is placed at a distance of 26 cm in front of a concave mirror of focal length 12 cm, on its principal axis. Its image is formed at:

**Ans** ☒ A. 24 cm

☒ B. a point beyond 26 cm

☒ C. a point between 12 cm and 24 cm

☒ D. a point behind the mirror

**Q.61** Two identical resistors are connected in parallel to a 12 V battery. The total power dissipated in the circuit is 6 W. The current in each resistor is:

**Ans** ☒ A. 0.25 A

☒ B. 0.5 A

☒ C. 1.0 A

☒ D. 2.0 A

- Q.62** The values of potential drops across, and corresponding currents in, a resistor are given in the following table. If the resistor obeys Ohm's law, then the values of X and Y are respectively:

|                |     |     |     |     |     |     |     |     |     |     |
|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| V (in volts)   | 0.8 | 1.6 | X   | 3.2 | 4.0 | 4.8 | 5.6 | 6.4 | 7.2 | 8.0 |
| I (in amperes) | 0.2 | 0.4 | 0.6 | 0.8 | 1.0 | Y   | 1.4 | 1.6 | 1.8 | 2.0 |

- Ans** ☒ A. 1.2 and 2.4  
☒ B. 2.4 and 1.2  
☒ C. 2.2 and 1.1  
☒ D. 1.1 and 2.2
- Q.63** The modern periodic classification was given by:
- Ans** ☒ A. J W Dobereiner  
☒ B. John Newlands  
☒ C. D I Mendeleev  
☒ D. Henry Moseley
- Q.64** Which of the following is produced as a waste product during photosynthesis?
- Ans** ☒ A. Carbon dioxide  
☒ B. Urea  
☒ C. Oxygen  
☒ D. Nitrogen
- Q.65** In human beings, which of the following parts of the alimentary canal excretes waste material?
- Ans** ☒ A. Large intestine  
☒ B. Appendix  
☒ C. Anus  
☒ D. Small intestine
- Q.66** What will be the value of  $a$ ,  $b$ ,  $c$ , and  $d$ , respectively?
- $$a \text{ Mg}_3\text{N}_2 + b \text{ H}_2\text{O} \rightarrow c \text{ Mg(OH)}_2 + d \text{ NH}_3$$
- Ans** ☒ A. 1, 3, 2 and 6  
☒ B. 2, 3, 1 and 6  
☒ C. 1, 6, 3 and 2  
☒ D. 1, 4, 3 and 2
- Q.67** An object is placed in front of a concave mirror at a point between its focus F and centre of curvature C. The image is formed at a point \_\_\_\_\_ and is \_\_\_\_\_.
- Ans** ☒ A. between F and C, diminished  
☒ B. between F and C, enlarged  
☒ C. beyond C, diminished  
☒ D. beyond C, enlarged

**Q.68** A precipitation reaction is one in which:

- Ans**
- ☐ A. water soluble salt is formed
  - ☒ B. a precipitate is formed
  - ☐ C. a homogeneous mixture of all the products in aqueous solution is formed
  - ☐ D. a homogeneous mixture of all the reactants in aqueous solution is formed

**Q.69** When silver nitrate solution is added to sodium chloride solution:

- Ans**
- ☐ A. silver will deposit on the surface of the reaction vessel
  - ☐ B. a white precipitate of sodium nitrate is obtained
  - ☐ C. no reaction occurs
  - ☒ D. a white precipitate of silver chloride is formed

**Q.70** What is the information source for making proteins in organisms?

- Ans**
- ☒ A. DNA
  - ☐ B. Chromosomes
  - ☐ C. Ribosomes
  - ☐ D. Nucleus

**Q.71** Consider the following statements:

(a) Light from the sun near the horizon passes thicker layers of air and larger distance in the earth's atmosphere before reaching our eyes.

(b) Near the horizon, most of the blue light and light of shorter wavelengths are scattered away by the particles, and the light that reaches our eyes is of longer wavelengths.

Which of the above statements help(s) us to understand the red colour of the sun at sunrise and sunset?

- Ans**
- ☐ A. Neither (a) nor (b)
  - ☒ B. Both (a) and (b)
  - ☐ C. Only (a)
  - ☐ D. Only (b)

**Q.72** Consider the below statements and identify the correct answer.

Statement-I: During indigestion the stomach produces too much acid, and this causes pain and irritation.

Statement-II: To get rid of this pain, people use bases called antacids like magnesium hydroxide

- Ans**
- ☒ A. Both the statements are true.
  - ☐ B. Both the statements are false.
  - ☐ C. Statement-I is true, and statement-II is false.
  - ☐ D. Statement-II is true, and statement-I is false.

**Q.73** The waste products gums and resins are stored in which part of the plant?

- Ans**
- ☐ A. Leaves
  - ☐ B. Fruits
  - ☒ C. Old Xylem
  - ☐ D. Cellular Vacuole



Q.74 Who is referred to as the 'Father of Genetics'?

- Ans
- ☐ A. Charles Robert Darwin
  - ☐ B. James Watson
  - ☐ C. Robert Hooke
  - ☒ D. Gregor Johann Mendel

Q.75 Which part of the nephron collects the initial filtrate from blood?

- Ans
- ☐ A. Collection duct
  - ☐ B. Glomerulus
  - ☐ C. Renal vein
  - ☒ D. Bowman's capsule

Q.76 Which of the following statements is correct?

- Ans
- ☐ A. Methane has four carbon atoms.
  - ☐ B. Ethanol has three carbon atoms.
  - ☒ C. Acetic acid has two carbon atoms.
  - ☐ D. Chloroform has three carbon atoms.

Q.77 Which of the following statements is NOT true?

- Ans
- ☒ A. Sodium carbonate is used in making cake.
  - ☐ B. Sodium hydrogencarbonate is an ingredient in antacids
  - ☐ C. Sodium carbonate can be used as a cleaning agent for domestic purposes
  - ☐ D. sodium hydrogencarbonate is used for making baking powder

Q.78 Today, we need to use our resources judiciously and work towards sustainability of these resources. Select the option that is NOT a reason for this.

- Ans
- ☒ A. Resources are unlimited
  - ☐ B. There is great demand due to increase in population
  - ☐ C. It takes millions of years to replenish them
  - ☐ D. We have to preserve them for our future generations

Q.79 Consider three points P, Q and S at distances  $r$ ,  $2r$  and  $3r$  from a straight conductor carrying current  $I$ .

Which of the following relations is true about the magnitude of the magnetic fields  $B_P$ ,  $B_Q$  and  $B_S$  at points P, Q and S, respectively?

- Ans
- ☐ A.  $B_P = B_Q = B_S$
  - ☒ B.  $B_P > B_Q > B_S$
  - ☐ C.  $B_Q > B_S > B_P$
  - ☐ D.  $B_S > B_P > B_Q$

**Q.80** A beam of white light passes through a glass prism and a spectrum is obtained. Which of the following colour components bends the most?

Green, Red, Indigo, Blue

- Ans**
- ☒ A. Green
  - ☒ B. Red
  - ☒ C. Indigo
  - ☒ D. Blue

**Note:** For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

Section : General Awareness and Current Affairs

**Q.81** Which one of the following was the first Micro-finance initiative in India?

- Ans**
- ☒ A. SEWA Bank
  - ☒ B. Bandhan Bank
  - ☒ C. Equitas Small Finance Bank
  - ☒ D. Fincare Small Finance Bank

**Q.82** What is long-run production function?

- Ans**
- ☒ A. In this production function, all the factors of production are variable.
  - ☒ B. In this production function, one factor of production is variable and all others are fixed.
  - ☒ C. It is the sum total of explicit and implicit costs.
  - ☒ D. In this production, only two factors of production are fixed.

**Q.83** The main objective of which of the following financial institutions is to provide funds to enable sustainable irrigation practices for the rural infrastructure of India?

- Ans**
- ☒ A. NABARD
  - ☒ B. BRAC
  - ☒ C. FINCA
  - ☒ D. BHARAT

**Q.84** The Industrial Policy Resolution of 1956 classified industries in India into \_\_\_\_\_ categories based on ownership.

- Ans**
- ☒ A. five
  - ☒ B. two
  - ☒ C. three
  - ☒ D. four

**Q.85** Surendranath Banerjee and Ananda Mohan Bose formed the Indian Association in the year \_\_\_\_\_.

- Ans**
- ☒ A. 1876
  - ☒ B. 1896
  - ☒ C. 1906
  - ☒ D. 1916

**Q.86** The largest population of the greater one-horned Rhino is found in ..... state of India.

- Ans**
- ☐ A. Kerala
  - ☐ B. Tamil Nadu
  - ☐ C. Sikkim
  - ☒ D. Assam

**Q.87** Article 18 of the Indian Constitution deals with which of the following rights?

- Ans**
- ☐ A. Abolition of untouchability
  - ☐ B. Equality before law
  - ☐ C. Right to education
  - ☒ D. Abolition of titles

**Q.88** In March 2022, which state government launched a new Sports Policy 2022-27?

- Ans**
- ☐ A. Haryana
  - ☐ B. Punjab
  - ☒ C. Gujarat
  - ☐ D. Himachal Pradesh

**Q.89** In February 2022, researchers from which institute created a biodegradable nanoparticle that can be used as an alternative to chemical-based insecticides to protect crops from bacterial and fungal diseases?

- Ans**
- ☒ A. Indian Institute of Technology, Kanpur
  - ☐ B. Indian Institute of Science, Bengaluru
  - ☐ C. Birla Institute of Technology & Science, Pilani
  - ☐ D. National Institute of Technology, Rourkela

**Q.90** What is the role of the Subordinate Court?

- Ans**
- ☒ A. To consider cases of civil and criminal nature
  - ☐ B. To consider appeals on decisions given by lower courts
  - ☐ C. To issue writs for restoring Fundamental Rights
  - ☐ D. To move cases from any court to itself

- Q.91** Which of the following statements about the Prohibition of Child Marriage (Amendment) Bill 2021 is INCORRECT?
- Ans** ☒ A. It was introduced in the Rajya Sabha by Smriti Irani, Union Minister for Women and Child Development.
- ☒ B. It proposes to define a 'child' as 'a male or female who has not completed twenty-one years of age'.
- ☒ C. It will apply to all communities/religions in the country.
- ☒ D. It seeks to amend the Prohibition of Child Marriage Act, 2006.
- Q.92** According to National Statistical Office (NSO) data as of 2021, India's average literacy rate is \_\_\_\_\_.
- Ans** ☒ A. 70.10%
- ☒ B. 72.23%
- ☒ C. 75.60%
- ☒ D. 77.70%
- Q.93** The one-horned rhinoceros is found in the swampy and marshy lands of \_\_\_\_\_.
- Ans** ☒ A. Assam and West Bengal
- ☒ B. Gujarat and Rajasthan
- ☒ C. Kerala and Karnataka
- ☒ D. Himachal and Madhya Pradesh
- Q.94** How many languages are declared as classical languages by the Government of India as of March 2022?
- Ans** ☒ A. five
- ☒ B. six
- ☒ C. seven
- ☒ D. eight
- Q.95** Which of the following festivals is mainly celebrated in the state of Manipur?
- Ans** ☒ A. Halda
- ☒ B. Gandhalepana Yatra
- ☒ C. Lai Haraoba
- ☒ D. Losar
- Q.96** Which of the following statements about India is INCORRECT?
- Ans** ☒ A. The Indian mainland extends between latitudes 8° 4' and 37° 6' north, longitudes 68° 7' and 97° 25' east.
- ☒ B. Indian Standard Time is 5 hours and 30 minutes ahead of Greenwich Mean Time.
- ☒ C. India lies entirely in the southern hemisphere.
- ☒ D. India is surrounded by the Bay of Bengal in the east, the Arabian Sea in the west, and the Indian Ocean to the south.
- Q.97** In July 2022, who among the following became the youngest Indian to hit 100 sixes in international cricket?
- Ans** ☒ A. Rishabh Pant
- ☒ B. Dinesh Karthik
- ☒ C. Hanuma Vihari
- ☒ D. Suryakumar Yadav

**Q.98** The green hydrogen and green ammonia policy launched in February 2022 aimed at boosting the domestic production of green hydrogen to \_\_\_\_\_ tonnes by 2030 and making India an export hub for the clean fuel.

- Ans**
- ☐ A. 1 million
  - ☐ B. 3 million
  - ☒ C. 5 million
  - ☐ D. 10 million

**Q.99** The Hijri Year (Islamic Year) consistently falls about \_\_\_\_\_ days short of the Solar Year.

- Ans**
- ☒ A. 11 days
  - ☐ B. 2 days
  - ☐ C. 29 days
  - ☐ D. 30 days

**Q.100** Which of the following statements is INCORRECT?

- Ans**
- ☐ A. Gram Panchayat is chaired by the Gram Pradhan or Sarpanch or Mukhia.
  - ☒ B. Panchayat Samiti is the grass root institution of the Panchayati Raj System.
  - ☐ C. Zilla Parishad is the apex body of Panchayati Raj System.
  - ☐ D. Members of the Gram Panchayat are elected by a secret ballot.



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 06/09/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** How much will a sum of ₹16,000 become after one year if the interest is compounded half-yearly at 20% per annum compound interest?

- Ans**
- ☒ A. ₹19,200
  - ☒ B. ₹19,360
  - ☐ C. ₹19,480
  - ☐ D. ₹19,720

**Q.2** What is the mode of the following data?

66, 69, 83, 69, 84, 74, 71, 83, 69, 84, 73, 83, 69, 71, 84, 74, 83, 66, 74, 71, 83, 66, 90, 90

- Ans**
- ☐ A. 74
  - ☒ B. 83
  - ☐ C. 84
  - ☐ D. 90

**Q.3** A two-digit number is equal to 7 times the sum of its digits. The number obtained by interchanging the digits is 18 less than the original number. The product of the digits of the number is:

- Ans**
- ☒ A. 8
  - ☐ B. 12
  - ☐ C. 10
  - ☐ D. 18

**Q.4** If  $\left(\frac{3}{7}\right)^8 \times \left(\frac{3}{7}\right)^{-14} = \left(\frac{3}{7}\right)^{3p-3}$ , then the value of  $p$  is:

- Ans**
- ☐ A. -2
  - ☒ B. -1
  - ☐ C. 0
  - ☐ D. 1

**Q.5** A and B can do a work in 18 days, B and C can do the same work in 15 days, while A and C can do the work in 12 days. The time taken by them to complete the work by working together is:

- Ans**
- ☒ A.  $11\frac{27}{37}$  days
  - ☒ B.  $10\frac{27}{37}$  days
  - ☒ C.  $9\frac{27}{37}$  days
  - ☒ D.  $8\frac{27}{37}$  days

**Q.6** The fourth proportional to 15, 10 and 12 is:

- Ans**
- ☒ A. 10
  - ☒ B. 12
  - ☒ C. 8
  - ☒ D. 6

**Q.7** A pipe can fill a tank in 15 hours. Another pipe can empty the filled tank in 24 hours. If both the pipes are opened simultaneously, then the time in which the tank will be filled is:

- Ans**
- ☒ A. 70 hours
  - ☒ B. 60 hours
  - ☒ C. 50 hours
  - ☒ D. 40 hours

**Q.8** In quadrilateral ABCD, AB = 17 cm, BC = 8 cm, CD = 9 cm, AD = 12 cm, and AC = 15 cm. What is the area (in  $cm^2$ ) of the quadrilateral?

- Ans**
- ☒ A. 110
  - ☒ B. 114
  - ☒ C. 140
  - ☒ D. 144

**Q.9** 3 men and 2 women can complete a piece of work in 8 days, while 2 men and 3 women can complete the same work in 10 days. In how many days can 2 men and 1 women complete the same work?

- Ans**
- ☒ A. 15
  - ☒ B. 13.5
  - ☒ C. 13
  - ☒ D. 12.5

**Q.10** Express  $7.8\overline{964}$  in the form  $\frac{p}{q}$ , where  $p$  and  $q$  are integers and  $q \neq 0$ .

- Ans**
- ☒ A.  $7\frac{166}{185}$
  - ☒ B.  $7\frac{4478}{4995}$
  - ☒ C.  $7\frac{996}{1111}$
  - ☒ D.  $7\frac{8956}{9999}$



**Q.11** If  $\alpha$  and  $\beta$  are the roots of  $x^2 - 5x + 3 = 0$ , then a quadratic equation whose roots are  $\alpha^2$  and  $\beta^2$  is:

- Ans**
- ✓ **A.**  $x^2 - 19x + 9 = 0$
  - ✗ **B.**  $x^2 + 19x - 9 = 0$
  - ✗ **C.**  $x^2 + 19x + 9 = 0$
  - ✗ **D.**  $x^2 - 19x - 9 = 0$

**Q.12** Find the value of  $\frac{183 \times 183 \times 183 - 73 \times 73 \times 73}{183 \times 183 + 183 \times 73 + 73 \times 73}$ .

- Ans**
- ✗ **A.** 256
  - ✗ **B.** 136
  - ✗ **C.** 210
  - ✓ **D.** 110

**Q.13** A man sold an article for ₹405 by first giving a  $d\%$  discount on its marked price, and then another discount having the same nominal value (in ₹). If the marked price of the article is ₹540, then what is the value of  $d$ ?

- Ans**
- ✗ **A.** 10.5
  - ✗ **B.** 12
  - ✓ **C.** 12.5
  - ✗ **D.** 15

**Q.14** Let  $P = \left(\frac{1}{x} - \frac{1}{y}\right)[(x+y)^2 - xy] + \left(\frac{1}{x} + \frac{1}{y}\right)[(x-y)^2 + xy]$  and  $Q = \frac{y}{x}$ , then  $P + Q$  is equal to:

- Ans**
- ✓ **A.**  $2y$
  - ✗ **B.**  $2x$
  - ✗ **C.**  $\frac{x}{y}$
  - ✗ **D.**  $\frac{y}{x}$

**Q.15** The number of sides of a regular polygon whose sum of all interior angles is  $2700^\circ$  is:

- Ans**
- ✗ **A.** 18
  - ✓ **B.** 17
  - ✗ **C.** 16
  - ✗ **D.** 15

**Q.16** Last year, Ganga's monthly salary was ₹12,000 and Saraswathi's monthly salary was ₹10,000. This year, Ganga's monthly salary is ₹14,400 while Saraswathi's monthly salary is ₹12,500. If the percentage increase in Saraswathi's monthly salary this year over her monthly salary last year is denoted by  $x\%$ , and the percentage increase in Ganga's monthly salary this year over her monthly salary last year is denoted by  $y\%$ , then what is the value of  $\left(\frac{x-y}{y} \times 100\right)\%$ ?

- Ans**
- ✗ **A.** 20%
  - ✗ **B.** 24%
  - ✓ **C.** 25%
  - ✗ **D.** 22%

**Q.17** An article is sold for ₹303.60 after offering three successive discounts of 25%, 8% and  $x\%$  on its marked price of ₹500. If the same article is sold after giving a single discount of  $(33 + x)\%$ , then its selling price (in ₹) will be:

- Ans**
- ✓ **A.** 275
  - ✗ **B.** 280
  - ✗ **C.** 285
  - ✗ **D.** 300



Q.18 The value of  $\frac{(\sin 70^\circ - 2 \sin^2 70^\circ)}{(2 \cos^2 70^\circ - \cos 70^\circ)}$  is:

- Ans
- ☐ A.  $\cot 70^\circ$
  - ☐ B.  $\operatorname{cosec} 70^\circ$
  - ☐ C.  $\sec 70^\circ$
  - ☒ D.  $\tan 70^\circ$

Q.19 For certain data, the mode is 6 more than the mean and its median is 13. What is the mode of that data?

- Ans
- ☐ A. 14
  - ☒ B. 17
  - ☐ C. 15
  - ☐ D. 11

Q.20 In finding the HCF of two numbers by division method, the quotients are 1, 5 and 2, respectively, and the last divisor is 15. What is the LCM of the two numbers?

- Ans
- ☐ A. 3045
  - ☐ B. 2115
  - ☐ C. 2130
  - ☒ D. 2145

Q.21 If 2 and  $-3$  are the roots of a quadratic equation, then the equation is:

- Ans
- ☐ A.  $x^2 - x + 6 = 0$
  - ☐ B.  $x^2 - x - 6 = 0$
  - ☐ C.  $x^2 + x + 6 = 0$
  - ☒ D.  $x^2 + x - 6 = 0$

Q.22 A person spent ₹273 on buying a total of 50 pens and pencils. If the cost of each pen is ₹6 and that of each pencil is ₹5, then how many pens did he buy?

- Ans
- ☒ A. 23
  - ☐ B. 27
  - ☐ C. 25
  - ☐ D. 21

Q.23 The total count of prime numbers less than 50 is:

- Ans
- ☐ A. 17
  - ☒ B. 15
  - ☐ C. 14
  - ☐ D. 13

Q.24 Triangle ABC is similar to triangle PQR with  $\frac{BC}{QR} = \frac{1}{5}$ .  $\frac{\text{Area (triangle PQR)}}{\text{Area (triangle ABC)}}$  is:

- Ans
- ☒ A. 25
  - ☐ B. 5
  - ☐ C.  $1/25$
  - ☐ D.  $1/5$

**Q.25** If the radius of the base of a right circular cylinder is decreased by 20% and its height is increased by 125%, then what is the percentage increase in its volume?

- Ans**
- ☒ A. 36%
  - ☒ B. 44%
  - ☒ C. 60%
  - ☒ D. 65%

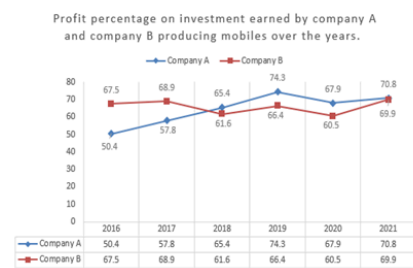
# Section : General Intelligence and Reasoning

**Q.26** Which of the following numbers will replace the question mark (?) in the given series?

375, 250, 186, 159, 151, ?

- Ans**
- ☒ A. 145
  - ☒ B. 146
  - ☒ C. 150
  - ☒ D. 148

**Q.27** Study the following graph carefully and answer the question.



If the amount of profit earned on investment by Company A in 2021, was ₹24.60 lakh, what was the total investment?

- Ans**
- ☒ A. ₹34,47,576.92
  - ☒ B. ₹34,75,576.78
  - ☒ C. ₹34,74,576.27
  - ☒ D. ₹34,54,776.49

**Q.28** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(13, 8, 40)

(21, 16, 80)

- Ans**
- ☒ A. 11, 5, 30
  - ☒ B. 15, 20, 50
  - ☒ C. 19, 14, 70
  - ☒ D. 17, 10, 60

**Q.29** Which of the following terms will replace the question mark (?) in the given series to make it logically complete?

F15UN, L19AT, R23GJZ, X27MF, ?

- Ans**
- ☒ A. D31SL
  - ☒ B. S31LD
  - ☒ C. D13SL
  - ☒ D. S13DL

**Q.30** Which of the following numbers will replace the question mark (?) in the given series?

45, 61, 86, 122, ?

**Ans** ☒ A. 171

☒ B. 186

☒ C. 172

☒ D. 174

**Q.31** Refer to the following letter, number and symbol series and answer the question.

(Left) 4 T 6 S 2 A D & C E 2 4 + & 7 6 U 5 H U K 8 E W @ E A & P (Right)

If all the letters are dropped from the series, which of the following will be tenth from the left?

**Ans** ☒ A. &

☒ B. 6

☒ C. +

☒ D. 7

**Q.32** If  $\times$  means  $+$ ,  $-$  means  $\times$ ,  $+$  means  $+$  and  $+$  means  $-$ , what will come in place of the question mark (?) in the following equation?

$(12 - 17 \div 21) \times 15 + 9 = ?$

**Ans** ☒ A. 6

☒ B. 13

☒ C. 17

☒ D. 18

**Q.33** Reena and Meena are walking together. From the park they started walking towards the south. After walking for 50 metres they turned to their left and walked for 30 metres. After this they turned to the right and walked for 50 metres. Which direction is Reena facing now? (All turns are 90 degree turns only)

**Ans** ☒ A. East

☒ B. West

☒ C. North

☒ D. South

**Q.34** Seven boxes A, B, C, D, E, F and G are kept one over the other but not necessarily in the same order. B is kept third from the bottom. Only one box is kept between B and C. Only three boxes are kept between A and E. A is kept at one of the positions above E. F is kept immediately below D. How many boxes are kept between G and B?

**Ans** ☒ A. 1

☒ B. 2

☒ C. 3

☒ D. 4

**Q.35** Given below is a statement followed by two possible conclusions I and II. Read the information carefully and select the correct option.

**Statement:**

Five of the biggest MNCs in country X have announced their hiring plan of the next eight years under which they plan to hire three times the number of MBA graduates than the usual number of MBA graduates hired every year.

Which of the following can be concluded from the given information?

I: All colleges offering MBA courses will double their fees from the next academic year.

II. The number of applicants in MBA courses in country X will increase to some extent in the coming few years.

- Ans**
- ☒ A. Only I can be concluded from the given information.
  - ☒ B. Only II can be concluded from the given information.
  - ☒ C. Both I and II can be concluded from the given information.
  - ☒ D. Neither I nor II can be concluded from the given information.

**Q.36** When Rajesh reached the toy shop he noted that he lost his brother Anoop in the market. He walked for 60 m to the east and then turned right and went 10 m. He then turned right again and walked for 10 m to look for his brother at the ice cream shop but his brother was not there. He then turned towards the north and walked for 10 m before he saw his brother in the street. In which direction is the toy shop from Rajesh's present position? (All turns are 90 degree turns only)

- Ans**
- ☒ A. East
  - ☒ B. West
  - ☒ C. North
  - ☒ D. South

**Q.37** If 2 is subtracted from each odd digit and 1 is added to each even digit in the number 83752964, what will be the sum of the digits which are third from the left and second from the right in the new number thus formed?

- Ans**
- ☒ A. 12
  - ☒ B. 8
  - ☒ C. 16
  - ☒ D. 6

**Q.38** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

3 : 12 :: 5 : 30 :: 9 : ?

- Ans**
- ☒ A. 88
  - ☒ B. 90
  - ☒ C. 81
  - ☒ D. 99

**Q.39** On their anniversary Mr. and Mrs. Singh received five gift boxes. They numbered these boxes from one to five as and when they received them. In the evening they opened a box and found a pair of rings in it. They found a dinner set in an even numbered box. The first box sent by Mr. Singh's sister contained a photo collage and the box which was received as the last box contained a wind chime. They found a beautiful dress in an even numbered box. In which box did they receive a pair of rings?

- Ans**
- ☒ A. 1
  - ☒ B. 3
  - ☒ C. 5
  - ☒ D. Either 3 or 5

**Q.40** Participating in a race of 32 athletes, Mayank gained 12<sup>th</sup> rank from the top. What is his position from the bottom?

- Ans**
- ☐ A. 22
  - ☐ B. 20
  - ☒ C. 21
  - ☐ D. 23

**Q.41** 15 PK is related to 225 SQ in a certain way. In the same way, 16 TQ is related to 256 WW. To which of the following is 14 OK related following the same logic?

- Ans**
- ☐ A. 56 RQ
  - ☐ B. 198 RQ
  - ☒ C. 196 RQ
  - ☐ D. 196 RR

**Q.42** B, C, D, E, F, G, H and I are eight nurses sitting in a straight row, facing north. G sits to the immediate right of D. Only B sits to the left of H. D sits second to the right of C. G sits second to the left of I. E and G are immediate neighbours. C and F are immediate neighbours. Who sits at the fourth position from the left end?

- Ans**
- ☐ A. D
  - ☒ B. F
  - ☐ C. G
  - ☐ D. C

**Q.43** Seven people, A, B, C, D, E, F and G, are sitting in a straight row, facing north. Only three people sit between A and F. Only two people sit to the left of A. G is not an immediate neighbour of F. G sits second to the right of C. B sits to the immediate right of D. Who sits at the extreme left end of the row?

- Ans**
- ☐ A. G
  - ☐ B. B
  - ☒ C. E
  - ☐ D. A

**Q.44** Refer to the following number, symbol series and answer the question.

7 4 & @ 3 4 % @ \$ 4 @ 3 4 % 4 \$ 5 \* @ 4 3 4 5 \* 3

How many symbols are there that are immediately followed by a number?

- Ans**
- ☐ A. Eleven
  - ☐ B. Nine
  - ☒ C. Seven
  - ☐ D. Ten

**Q.45** Three statements are followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they do not conform to real world knowledge, decide which of the given conclusions/possibilities can be true on the basis of the statements.

Statements:

1. All cats are dogs.
2. Some dogs are birds.
3. All bears are birds.

Conclusions:

- I. Some bears are cats.
- II. All birds are dogs is a possibility.
- III. Some birds are cats.

**Ans**  **A. Only conclusion I is true**  
 **B. Only conclusion II is true**  
 **C. Only conclusion III is true**  
 **D. Only conclusion I and II are true**

**Q.46** This question is based on the five, three-digit numbers given below.

(left) 724 893 720 525 492 (right)

(Example: 246 – first digit = 2, second digit = 4, third digit = 6)

NOTE – All operations to be done from left to right.

What will be the resultant if the third digit of the largest number is added to the first digit of the smallest number?

**Ans**  **A. 7**  
 **B. 9**  
 **C. 8**  
 **D. 10**

**Q.47** If each of the digits in the number 6287451 is arranged in ascending order from left to right, then the position of how many digits will remain unchanged as compared to that in the original number?

**Ans**  **A. One**  
 **B. Two**  
 **C. Three**  
 **D. Four**

**Q.48** Read the given statements and conclusions carefully and decide which of the given conclusions logically follow(s) from the statements.

Statements:

1.  $M = L \geq G$
2.  $O > G$
3.  $I = O > Q$

Conclusions:

- I.  $L > O$
- II.  $M > Q$

**Ans**  **A. Only conclusion I follows**  
 **B. Only conclusion II follows**  
 **C. Neither conclusion I nor conclusion II follows**  
 **D. Both conclusions I and II follow**

- Q.49** In a certain code language, the numbers/symbols are coded using letters as per the table given below and as per the given conditions.

| Number/<br>Symbol | 2 | \$ | 7 | @ | 4 | # | 9 | & | 1 | ! | 3 | * |
|-------------------|---|----|---|---|---|---|---|---|---|---|---|---|
| Code              | T | D  | C | R | G | B | Y | H | N | J | P | L |

**Conditions:**

- I. If the first element is a symbol and the last a number, the codes for these two (the first and the last elements) are to be interchanged.
- II. If the first element is an odd number and the last an even number, the first and last elements are to be coded as ©.
- III. If both the second and third elements are perfect squares, the third element is to be coded as the code for the second element.

What will be the code for !927\$3 ?

- Ans**
- ☒ A. PYYCDJ
- ☒ B. JYGCDP
- ☒ C. JGGCDP
- ☒ D. PYTCDJ

- Q.50** Study the given table and answer the question that follows.

The table presents the total number of employees as well as the number of employees who left various departments of a company over a period of four years.

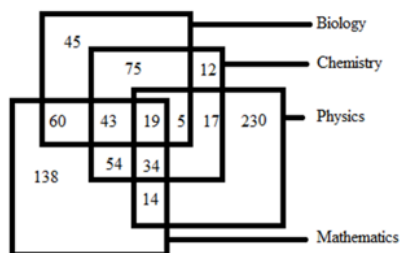
|             | 2001            |                | 2002            |                | 2003            |                | 2004            |                |
|-------------|-----------------|----------------|-----------------|----------------|-----------------|----------------|-----------------|----------------|
| Departments | Total Employees | Employees left | Total Employees | Employees left | Total Employees | Employees left | Total Employees | Employees left |
| Sales       | 110             | 19             | 121             | 20             | 245             | 38             | 222             | 40             |
| Production  | 245             | 37             | 224             | 45             | 432             | 50             | 345             | 38             |
| HR          | 43              | 8              | 45              | 11             | 45              | 24             | 34              | 17             |
| Marketing   | 423             | 65             | 423             | 92             | 511             | 80             | 500             | 99             |
| Finance     | 44              | 4              | 45              | 9              | 45              | 30             | 56              | 22             |

In which year have more than 20% employees left the company in all the departments taken together?

- Ans**
- ☒ A. 2003
- ☒ B. 2004
- ☒ C. 2002
- ☒ D. 2001

**Q.51** Study the given Venn diagram and answer the question that follows.

The given Venn diagram presents the number of students taking various subjects in a college.



How many students are studying Physics but NOT studying Mathematics?

- Ans**
- ☒ A. 230
  - ☒ B. 247
  - ☒ C. 252
  - ☒ D. 271

**Q.52** A statement is given below, followed by four conclusions given in the options. Find out which conclusion is true based on the given statement.

Statement:  $A \geq C > D = B \leq F > G$

- Ans**
- ☒ A.  $D > G$
  - ☒ B.  $A > D$
  - ☒ C.  $C = G$
  - ☒ D.  $A \leq F$

**Q.53** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the condition is your answer.

| Number/Symbol | 3 | 5 | & | @ | ? | 7 | < | # | 2 | % | ! | 4 | / | 6 |
|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code          | J | K | R | T | U | P | W | Y | M | V | C | X | D | S |

Conditions:

- (i) If the first element is a symbol and the third a number, the codes for these two are to be interchanged.
- (ii) If the first element is an odd number and the last an even number, the first and the last elements are to be coded as O.
- (iii) If both the second and third elements are perfect squares, the third element is to be coded as the code for the second element.

How will  $\div 5 2 < @$  be coded?

- Ans**
- ☒ A. MRDWU
  - ☒ B. TKMWD
  - ☒ C. DKMWT
  - ☒ D. MKDWT

**Q.54** Refer to the following letter, number, symbol series and answer the question.

(Left) R 5 \$ 3 9 G C P \$ E 2 # 8 @ M # 1 D Z 4 Q & (Right)

If all symbols are dropped from the series, which of the following will be fifth from the right?

- Ans**
- ☒ A. D
  - ☒ B. 1
  - ☒ C. Z
  - ☒ D. M



**Q.55** Three statements are followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they do not conform to real world knowledge, decide which of the given conclusions/possibilities can be true on the basis of the statements.

Statements:

1. Some toys are pianos.
2. Some pianos are white.
3. All white are guitars.

Conclusions:

- I. Some white are toys.
- II. Some guitars are toys.
- III. Some guitars are pianos.

- Ans**
- ☒ A. Only conclusion I is true
  - ☒ B. Only conclusion II is true
  - ☒ C. Only conclusion III is true
  - ☒ D. Only conclusion I and II are true

Section : General Science

**Q.56** Substances that can be broken down by biological process are called:

- Ans**
- ☒ A. non-biodegradable substances
  - ☒ B. biodegradable substances
  - ☒ C. chemical substances
  - ☒ D. toxic substances

**Q.57** A fuse works on the principle of:

- Ans**
- ☒ A. Light produced electric current
  - ☒ B. Heat produced by electric current
  - ☒ C. Magnetic effect produced current
  - ☒ D. Heat absorbed by electric current

**Q.58** Which of the following enzymes breaks down starch into simple sugar?

- Ans**
- ☒ A. Amylase
  - ☒ B. Trypsin
  - ☒ C. Pepsin
  - ☒ D. Lipase

**Q.59** In solar panel, energy conversion is from \_\_\_\_\_ to \_\_\_\_\_.

- Ans**
- ☒ A. Heat, light
  - ☒ B. Electrical, light
  - ☒ C. Electrical, magnetic
  - ☒ D. Solar, electrical

Q.60 Which of the following is a combination reaction?

- (i)  $\text{ZnCO}_3 (\text{s}) \rightarrow \text{ZnO} (\text{s}) + \text{CO}_2 (\text{g})$
- (ii)  $\text{Mg} (\text{s}) + 2\text{HCl} (\text{aq}) \rightarrow \text{MgCl}_2 (\text{aq}) + \text{H}_2 (\text{g})$
- (iii)  $2\text{KBr} (\text{aq}) + \text{BaI}_2 (\text{aq}) \rightarrow 2\text{KI} (\text{aq}) + \text{BaBr}_2 (\text{s})$
- (iv)  $\text{H}_2 (\text{g}) + \text{Cl}_2 (\text{g}) \rightarrow 2 \text{HCl} (\text{g})$

Ans ☒ A. (i)  
☒ B. (ii)  
☒ C. (iii)  
☒ D. (iv)

Q.61 According to Ohm's law:

Ans ☒ A.  $V \propto \frac{1}{I}$  at constant pressure  
☒ B.  $V \propto I$  at constant position  
☒ C.  $V \propto \frac{1}{I}$  at constant temperature  
☒ D.  $V \propto I$  at constant temperature

Q.62 HIV is transmitted through \_\_\_\_\_.

Ans ☒ A. transfusion of contaminated blood  
☒ B. consumption of food kept in open  
☒ C. drinking polluted water  
☒ D. working in soil without gloves on

Q.63 Which of the following is considered a medicinal plant?

Ans ☒ A. Neem  
☒ B. Teak Plant  
☒ C. Sal  
☒ D. Deodar

Q.64 Which gas is evolved during the burning of natural gas ( $\text{CH}_4$ )?

Ans ☒ A.  $\text{N}_2$   
☒ B.  $\text{CO}_2$   
☒ C.  $\text{H}_2$   
☒ D.  $\text{NH}_3$

**Q.65** An object is placed at a distance of 30 cm in front of a concave mirror of focal length 15 cm, on its principal axis. Its image is formed at:

- Ans**
- ☐ A. 15 cm
  - ☐ B. a point between 15 cm and 30 cm
  - ☒ C. 30 cm
  - ☐ D. a point beyond 30 cm

**Q.66** The total number of electrons present in a valence shell of carbon atoms is:

- Ans**
- ☐ A. 2
  - ☐ B. 3
  - ☒ C. 4
  - ☐ D. 5

**Q.67** Which of the following is NOT a metalloid?

- Ans**
- ☐ A. Silicon
  - ☐ B. Arsenic
  - ☐ C. Antimony
  - ☒ D. Selenium

**Q.68** Milk appears white in the surrounding of white light because the particles in milk are \_\_\_\_\_ than the wavelength of different colours in white light that falls on it, and all colours of white light are scattered by \_\_\_\_\_ amount(s).

- Ans**
- ☐ A. smaller, different
  - ☐ B. larger, different
  - ☐ C. smaller, about the same
  - ☒ D. larger, about the same

**Q.69** An element X has total of 16 proton and 16 neutrons. It belongs to \_\_\_\_\_.

- Ans**
- ☐ A. 2<sup>nd</sup> Period and 3<sup>rd</sup> Group
  - ☐ B. 4<sup>th</sup> Period and 13<sup>th</sup> Group
  - ☒ C. 3<sup>rd</sup> Period and 16<sup>th</sup> Group
  - ☐ D. 3<sup>rd</sup> Period and 2<sup>nd</sup> Group

**Q.70** Magnetic fields produced by a current carrying conductor are:

- Ans**
- ☐ A. semi-circular in shape
  - ☐ B. parallel to each other
  - ☐ C. intersecting lines
  - ☒ D. concentric circles

**Q.71** Neha is suffering from hyper acidity. Which of the following compounds can be given for relief from it?

- Ans**
- ☐ A. NaCl
  - ☒ B. Mg(OH)<sub>2</sub>
  - ☐ C. NaOH
  - ☐ D. C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>

**Q.72** An object is placed at a distance of 12 cm in front of a concave mirror. Its image is formed at a distance at 18 cm on the same side. The focal length of the mirror is:

- Ans**
- ☒ A. 7.2 cm
  - ☒ B. -7.2 cm
  - ☒ C. 36 cm
  - ☒ D. -36 cm

**Q.73** Consider the following statements about magnetic fields:

- (a) The relative strength of a magnetic field is shown by the degree of closeness of lines.
- (b) Magnetic field lines have magnitudes only and no directions.

Which of the above statements is/are correct?

- Ans**
- ☒ A. Only (a)
  - ☒ B. Only (b)
  - ☒ C. Both (a) and (b)
  - ☒ D. Neither (a) nor (b)

**Q.74** Atmospheric pressure and the rate of transpiration are \_\_\_\_\_.

- Ans**
- ☒ A. inversely proportional
  - ☒ B. directly proportional
  - ☒ C. equal
  - ☒ D. They are not related

**Q.75** Match the following:

| Soda              | Chemical formula            |
|-------------------|-----------------------------|
| i. caustic soda   | a. $\text{NaHCO}_3$         |
| ii. baking soda   | b. $\text{Na}_2\text{CO}_3$ |
| iii. washing soda | c. $\text{NaOH}$            |

- Ans**
- ☒ A. i-a, ii-b, iii-c
  - ☒ B. i-c, ii-b, iii-a
  - ☒ C. i-c, ii-a, iii-b
  - ☒ D. i-a, ii-c, iii-b

**Q.76** An object is placed on the principal axis of a convex lens of focal length 15 cm, at a distance of 40 cm. The magnification produced by the lens is \_\_\_\_\_ and the image is \_\_\_\_\_.

- Ans**
- ☒ A. less than 1, inverted
  - ☐ B. less than 1, erect
  - ☐ C. more than 1, inverted
  - ☐ D. more than 1, erect

**Q.77** Buccal cavity is a part of the human \_\_\_\_\_ system.

- Ans**
- ☐ A. excretory
  - ☐ B. respiratory
  - ☐ C. circulatory
  - ☒ D. digestive

**Q.78** Which of the following DOES NOT make an individual susceptible to HIV infection?

- Ans**
- ☐ A. Sharing syringes while taking intravenous injection of drugs
  - ☐ B. Repeated blood transfusions
  - ☐ C. Being born to an HIV-positive mother
  - ☒ D. Sharing toilet with an HIV patient

**Q.79**  $3Fe + 4H_2O \rightarrow Fe_3O_4 + 4H_2$  find the total number of atoms in products.

- Ans**
- ☐ A. 08
  - ☒ B. 15
  - ☐ C. 10
  - ☐ D. 04

**Q.80** The presence of which of the following is a distinctive feature of complex plants that has made their survival in terrestrial environment possible?

- Ans**
- ☐ A. Meristematic tissue
  - ☒ B. Vascular tissue
  - ☐ C. Parenchyma tissue
  - ☐ D. Sclerenchyma tissue

#### Section : General Awareness and Current Affairs

**Q.81** The \_\_\_\_\_ covers a wide range of activities from commerce, administration, transport, and financial and real estate activities, to business and personal services, education, health and social work.

- Ans**
- ☒ A. tertiary sector
  - ☐ B. secondary sector
  - ☐ C. primary sector
  - ☐ D. mixed sector

**Q.82** Which of the following schemes of the Government of India supports students belonging to minority communities clearing prelims conducted by UPSC/SSC, State Public Service Commission (PSC), etc?

- Ans**
- ✓ **A. Nai Udaan**
  - ✗ **B. Nai Manzil**
  - ✗ **C. Naya Savera**
  - ✗ **D. Maulana Azad National Fellowship**

**Q.83** The aviation sector in India was inaugurated with the introduction of Tata Airlines in \_\_\_\_\_.

- Ans**
- ✗ **A. 1935**
  - ✓ **B. 1932**
  - ✗ **C. 1939**
  - ✗ **D. 1936**

**Q.84** In February 2022, which former Indian footballer passed away at the age of 71?

- Ans**
- ✗ **A. Arun Ghosh**
  - ✗ **B. Subhas Bhowmick**
  - ✓ **C. Surajit Sengupta**
  - ✗ **D. Sukhwinder Singh**

**Q.85** "The State shall provide free and compulsory education to all children of the age of six to fourteen years in such a manner as the State may, by law, determine" has been added to the Indian Constitution under \_\_\_\_\_.

- Ans**
- ✗ **A. Article 19A**
  - ✓ **B. Article 21A**
  - ✗ **C. Article 27B**
  - ✗ **D. Article 42B**

**Q.86** Which of the following is a non-conventional source of energy?

- Ans**
- ✗ **A. Coal**
  - ✗ **B. Natural gas**
  - ✓ **C. Solar energy**
  - ✗ **D. Crude oil**

**Q.87** Which of the following languages belongs to the Classical Language category?

- Ans**
- ✗ **A. Pali**
  - ✓ **B. Sanskrit**
  - ✗ **C. Hindi**
  - ✗ **D. Prakrit**

**Q.88** According to Hinduism, which deity symbolises as the preserver and protector of the world?

**Ans** ☒ A. God Vishnu

☒ B. God Shiva

☒ C. Goddess Sarasvati

☒ D. Goddess Lakshmi

**Q.89** Which of the following statements related to the river Godavari is INCORRECT?

**Ans** ☒ A. It rises from the slopes of the Western Ghats.

☒ B. It drains into the Bay of Bengal.

☒ C. Its drainage basin covers Andhra Pradesh and some other states.

☒ D. The Ghatprabha is one of its many tributaries.

**Q.90** Who among the following launched the Digital Dashboard for District Ganga Committees Performance Monitoring System in April 2022?

**Ans** ☒ A. Raj Nath Singh

☒ B. Gajendra Singh Shekhawat

☒ C. Nitin Jairam Gadkari

☒ D. Piyush Goyal

**Q.91** In which year did the Indian state of Rajasthan get India's first Panchayati Raj system?

**Ans** ☒ A. 1947

☒ B. 1952

☒ C. 1959

☒ D. 1961

**Q.92** The Ministry of Education approved a new scheme 'New India Literacy Programme' in February 2022 to cover all the features of \_\_\_\_\_ education.

**Ans** ☒ A. elementary

☒ B. pre-primary

☒ C. adult

☒ D. special

**Q.93** Who among the following gives a speech on Republic Day at Rajpath?

**Ans** ☒ A. The President of India

☒ B. The Vice-President of India

☒ C. The Prime Minister of India

☒ D. The Lieutenant Governor of Delhi



**Q.94** Who among the following founded the Ahmedabad Textile Labour Association (*Majoor Mahajan Sangh*), India's oldest union of textile workers, in 1920?

- Ans**
- ☐ A. Indumati Chamamlal
  - ☒ B. Anasuya Sarabhai
  - ☐ C. Hansa Jivraj Mehta
  - ☐ D. Poornima Arvind Pakvasa

**Q.95** Which of the following terms correctly represents public goods?

- Ans**
- ☐ A. Rivalrous goods
  - ☒ B. Non-excludable
  - ☐ C. ecosystem services
  - ☐ D. Government-owned goods

**Q.96** What is the name of a kit developed by Tata Medical and Diagnostics in 2021 to detect the omicron virus?

- Ans**
- ☐ A. OmiKit
  - ☐ B. OmiFinder
  - ☒ C. OmiSure
  - ☐ D. OmiCheck

**Q.97** Who among the following broke a 30-year-old national record in the men's 5000 m when he clocked 13:25:65 at the Sound Running Track Meet in San Juan Capistrano, USA in 2022?

- Ans**
- ☐ A. Rahamatulla Molla
  - ☐ B. Ayyasamy Dharun
  - ☐ C. Siddhanth Thingalaya
  - ☒ D. Avinash Sable

**Q.98** As per Economic Survey Report 2022, \_\_\_\_\_ emerged as the leading state with ₹1,02,866 crore FDI inflow in 2021-22.

- Ans**
- ☐ A. Gujarat
  - ☐ B. Tamil Nadu
  - ☒ C. Karnataka
  - ☐ D. Uttar Pradesh

**Q.99** The \_\_\_\_\_ Amendment to the Constitution of India envisaged the Gram Sabha as the foundation of the Panchayat Raj System.

- Ans**
- ☐ A. 71<sup>st</sup>
  - ☒ B. 73<sup>rd</sup>
  - ☐ C. 79<sup>th</sup>
  - ☐ D. 76<sup>th</sup>



**Q.100** Which of the following is a soft dehydrate naturally occurring mineral composed of calcium sulphate dihydrate widely used to manufacture wallboards that are used to cover walls and ceilings?

- Ans**
- ☐ A. Dolomite
  - ☐ B. Limestone
  - ☒ C. Gypsum
  - ☐ D. Barytes



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 08/09/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** If ₹2,400 is to be distributed between A and B in the ratio of 7: 5, then the share of B is:

- Ans**
- ☒ A. ₹1,900
  - ☒ B. ₹1,600
  - ☒ C. ₹1,300
  - ☒ D. ₹1,000

**Q.2** A sum of ₹5,800 is invested at 6% per annum simple interest. How much will the sum become after 4 years?

- Ans**
- ☒ A. ₹9,192
  - ☒ B. ₹8,192
  - ☒ C. ₹7,192
  - ☒ D. ₹6,192

**Q.3** Express  $0.3\overline{59}$  in the form  $\frac{p}{q}$ , where  $p$  and  $q$  are integers and  $q \neq 0$ .

- Ans**
- ☒ A.  $\frac{178}{495}$
  - ☒ B.  $\frac{179}{495}$
  - ☒ C.  $\frac{359}{990}$
  - ☒ D.  $\frac{119}{330}$

**Q.4** Two positive numbers differ by 3422. When the greater number is divided by the smaller number, the quotient is 4 and the remainder is 290. What is the HCF of the greater of the two given numbers and 4292?

- Ans**
- ☒ A. 58
  - ☒ B. 74
  - ☒ C. 116
  - ☒ D. 148

**Q.5** The sum of the age of A and twice the age of B is 42 years. When two times the age of A is added to three times the age of B, the result is 69 years. The sum of the ages (in years) of A and B is:

- Ans** ☒ A. 27  
☐ B. 29  
☐ C. 30  
☐ D. 31

**Q.6** The curved surface area of a cylinder having radius 15 cm and height 32 cm is:

- Ans** ☐ A.  $1060 \pi \text{ cm}^2$   
☒ B.  $960 \pi \text{ cm}^2$   
☐ C.  $860 \pi \text{ cm}^2$   
☐ D.  $760 \pi \text{ cm}^2$

**Q.7** If one root of the equation  $4x^2 - 2x + k - 4 = 0$  is reciprocal of the other, the value of k is:

- Ans** ☐ A. -8  
☒ B. 8  
☐ C. -4  
☐ D. 4

**Q.8**  $8 : 4 :: 3.2 : x$  and  $3 : 6 :: 6 : y$ . What is the ratio of  $x$  to  $y$ ?

- Ans** ☒ A. 2 : 15  
☐ B. 4 : 9  
☐ C. 1 : 3  
☐ D. 3 : 8

**Q.9** What is the mode of the following data?

43, 41, 46, 48, 43, 50, 54, 41, 48, 54, 46, 43, 48, 50, 46, 48, 50, 54

- Ans** ☐ A. 46  
☒ B. 48  
☐ C. 50  
☐ D. 54

**Q.10** A train overtakes two persons who are walking at 15 m/s and 35 m/s, respectively, in the same direction as that of the train in 20 seconds and 40 seconds, respectively. The length of the train is:

- Ans** ☐ A. 1000 m  
☐ B. 900 m  
☒ C. 800 m  
☐ D. 700 m

**Q.11** Which of the following is a quadratic equation whose roots are 7 and 12?

- Ans** ☒ A.  $x^2 - 19x + 84 = 0$   
☐ B.  $x^2 - 14x + 84 = 0$   
☐ C.  $x^2 - 19x + 34 = 0$   
☐ D.  $2x^2 - 19x + 84 = 0$

**Q.12** The total expenditure of Krishna in a year is ₹4,20,000. If his salary per month is ₹45,000, then find his average savings per month.

- Ans**
- ✓ A. ₹10,000
  - ✗ B. ₹12,000
  - ✗ C. ₹14,000
  - ✗ D. ₹16,000

**Q.13** A can do a piece of work in 12 days, B can do the same work in 15 days. C can do the same work in 9 days. The time taken by them to finish the same work if they work together is:

- Ans**
- ✗ A.  $5\frac{39}{47}$  days
  - ✗ B.  $4\frac{39}{47}$  days
  - ✓ C.  $3\frac{39}{47}$  days
  - ✗ D.  $2\frac{39}{47}$  days

**Q.14** If the angles  $(3x - 5)^\circ$  and  $80^\circ$  form a pair of supplementary angles, then the value of x is:

- Ans**
- ✗ A.  $90^\circ$
  - ✗ B.  $50^\circ$
  - ✗ C.  $45^\circ$
  - ✓ D.  $35^\circ$

**Q.15** The value of

$$5^3 - 9^2 + (12 \div 4)^2 - 32 + 8 \times 0 =$$

- Ans**
- ✓ A. 21
  - ✗ B. -15
  - ✗ C. 25
  - ✗ D. 61

**Q.16** The circumference of the base of a solid right circular cylinder is 136.4 cm and its height is 50 cm. What is the volume (in  $cm^3$ ) of the cylinder? (Take  $\pi = \frac{22}{7}$ ).

- Ans**
- ✗ A. 10571
  - ✗ B. 31713
  - ✗ C. 63426
  - ✓ D. 73997

**Q.17** The list price of an article is ₹1,200 and a discount of 15% is offered on the list price. What additional discount per cent on the already discounted price must be offered to a customer to bring the net selling price to ₹887.40?

- Ans**
- ✗ A. 11.5%
  - ✗ B. 12%
  - ✗ C. 12.5%
  - ✓ D. 13%

**Q.18** A person can complete a journey in 14 hours. He covers the first one-third of the distance at the rate of 40 km/h and the remaining distance at the rate of 60 km/h. What is the total distance of his journey?

- Ans**
- ☐ A. 360 km
  - ☐ B. 480 km
  - ☐ C. 540 km
  - ☒ D. 720 km

**Q.19** The value of  $2 + [2 + 2 \div \{2 + 2 \div (2 + \frac{1}{3})\}]$  is:

- Ans**
- ☐ A.  $\frac{37}{10}$
  - ☐ B.  $\frac{67}{10}$
  - ☐ C.  $\frac{57}{10}$
  - ☒ D.  $\frac{47}{10}$

**Q.20** Gopal went to a bank to withdraw ₹4,000. He asked the cashier to give the cash in ₹50 and ₹100 notes only. Gopal got 50 notes in all. How many ₹50 notes did he receive?

- Ans**
- ☐ A. 32
  - ☐ B. 30
  - ☐ C. 24
  - ☒ D. 20

**Q.21** An article is sold at a profit of 28%. If the cost price is increased by ₹50 and the selling price is reduced by ₹18, then the profit would be 11.6%. What is the original cost price (in ₹) of the article?

- Ans**
- ☐ A. 350
  - ☐ B. 400
  - ☒ C. 450
  - ☐ D. 480

**Q.22** The value of  $[\frac{\cos 40^\circ}{1 + \sin 40^\circ}] + [\frac{1 + \sin 40^\circ}{\cos 40^\circ}]$  is:

- Ans**
- ☐ A.  $2 \tan 40^\circ$
  - ☐ B.  $2 \cot 40^\circ$
  - ☐ C.  $2 \operatorname{cosec} 40^\circ$
  - ☒ D.  $2 \sec 40^\circ$

**Q.23** Three children are making cards for people at an old age home. They take 12 min, 18 min and 20 min respectively to complete a card. If they start making the cards at the same time, after how many minutes, will they again start a new card together?

- Ans**
- ☒ A. 180 min
  - ☐ B. 140 min
  - ☐ C. 130 min
  - ☐ D. 110 min

**Q.24** Six years ago, the average age of L and M was 39 years and the average of the present ages of L, M and N is 54 years. What will be the age of N 5 years from now?

- Ans**
- ☒ A. 97 years
  - ☒ B. 92 years
  - ☒ C. 77 years
  - ☒ D. 72 years

**Q.25** A hollow spherical shell is made of a metal of density  $6 \text{ g/cm}^3$ . Its internal and external radii are 8 cm and 9 cm, respectively. What is the weight (in kg) of the shell (take  $\pi = \frac{22}{7}$ )?

- Ans**
- ☒ A. 4.546
  - ☒ B. 5.456
  - ☒ C. 6.642
  - ☒ D. 6.462

### Section : General Intelligence and Reasoning

**Q.26** A school has four sections i.e. A, B, C, D in Class IX. The result of annual exams and half yearly exams for the students of these four sections is given in the following table. Study the table carefully and answer the question that follows.

| Result                                                    | No. of Students |           |           |           |
|-----------------------------------------------------------|-----------------|-----------|-----------|-----------|
|                                                           | Section A       | Section B | Section C | Section D |
| Students failed in both exams                             | 27              | 25        | 23        | 26        |
| Students failed in half-yearly but passed in annual exams | 17              | 15        | 18        | 19        |
| Students passed in half-yearly but failed in annual exams | 6               | 8         | 9         | 7         |
| Students passed in both exams                             | 62              | 57        | 60        | 59        |

A student is declared pass if he passes in at least one of the two examinations (half-yearly/ annual). Which section has the maximum pass percentage?

- Ans**
- ☒ A. Section A
  - ☒ B. Section B
  - ☒ C. Section C
  - ☒ D. Section D

**Q.27** Which of the following numbers will replace the question mark (?) in the given series?

33, 36, 42, 51, 63, ?

- Ans**
- ☒ A. 79
  - ☒ B. 78
  - ☒ C. 80
  - ☒ D. 75

- Q.28** Each of P, Q, R, S, T, U and V has an exam on a different day of a week, starting from Monday and ending on Sunday of the same week.  
S has the exam on Thursday. Only one person has the exam between S and V. Q has the exam on the day immediately before V but not on a Monday. Only two people have exams between Q and U. P's exam is on one of the days before T but on one of the days after R. Who among the following has the exam on Monday?

**Ans** ☒ A. T  
☒ B. R  
☒ C. P  
☒ D. Q

- Q.29** In the given letter-cluster triads, the letter-clusters in a particular triad are related following a certain logic. Study the given triads carefully and from the given options, select the triad that follows the same logic.

(ACE : BDF : CEG)

(SUW : TVX : UWY)

**Ans** ☒ A. (ACF : BDE : CFH)  
☒ B. (SUW : TVX : YAC)  
☒ C. (QRS : TUV : WXY)  
☒ D. (KMO : LNP : MOQ)

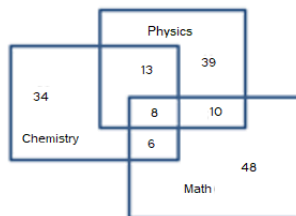
- Q.30** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

1 : 10 :: 3 : 18 :: 9 : ?

**Ans** ☒ A. 79  
☒ B. 42  
☒ C. 54  
☒ D. 71

- Q.31** The diagram given below represents those students who study Physics, Chemistry and Math. Find the number of students who study Physics and Chemistry but not Math.



**Ans** ☒ A. 8  
☒ B. 6  
☒ C. 13  
☒ D. 10

**Q.32** Three statements are followed by three conclusions numbered I, II and III. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts. Decide which of the given conclusions logically follow(s) from the given statement.

Statements:

Few melons are bananas

No banana is a cherry

All cherries are litchis

Conclusions:

(I) Some litchis are not bananas

(II) All bananas are melons

(III) All litchis are cherries

- Ans** ☒ A. Only conclusion I follows  
☐ B. Only conclusion II follows  
☐ C. Only conclusion I and III follows  
☐ D. None of the conclusions follow

**Q.33** What will come in place of the question mark (?) in the following equation, if '+' and '-' are interchanged and also '×' and '÷' are interchanged?

$$17 \div 5 + 216 \times 3 + 33 - 930 \times 3 + 28 = ?$$

- Ans** ☐ A. 232  
☐ B. 246  
☐ C. 222  
☒ D. 262

**Q.34** Refer to the following letter, symbol series and answer the question.

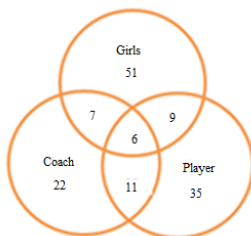
D & C N E ^ & G ^ Y % % @ G Y & I & \* H K Z

How many consonants are there that are immediately preceded by a symbol?

- Ans** ☐ A. Six  
☐ B. Eight  
☐ C. Four  
☒ D. Five

**Q.35** Study the given diagram carefully and answer the questions. The numbers in different sections indicate the number of persons.

In the following Venn diagram, how many girls are there who are players but not coaches?



- Ans** ☐ A. 7  
☐ B. 6  
☒ C. 9  
☐ D. 11



**Q.36** Gulshan drove his car for 77 km towards north, then he turned left and drove for 109 km. Again, he turned left and drove yet another 77 km. Again, he turned left, drove his car 127 km and stopped. What is the shortest distance between the starting point and the stopping point?

(All turns are 90 degree turns only)

- Ans**
- ☒ A. 154 km
  - ☒ B. 127 km
  - ☒ C. 18 km
  - ☒ D. 109 Km

**Q.37** Seven people are sitting in a straight row all facing towards north. E is not an immediate neighbour of M and N. N is also not an immediate neighbour of M. M is sitting 4th to the right of L. I is sitting on extreme right end of the row. N is sitting fourth to the left of B. P is sitting third to the left of M and second to the right of N. Who is sitting at extreme left end?

- Ans**
- ☒ A. P
  - ☒ B. E
  - ☒ C. N
  - ☒ D. I

**Q.38** Select the term from among the given options that can replace the question mark (?) in the following series.

A3J5R, E6K6S, I9L7T, O12M8U, ?, A18O10W

- Ans**
- ☒ A. U15N9V
  - ☒ B. U15N9A
  - ☒ C. U15N10A
  - ☒ D. P15N9A

**Q.39** Refer to the following number-symbol series and answer the question that follows.

1 \* 2 9 8 4 ! ^ 3 5 4 # 9 ! \$ 3 ^ 1 3 & 9 6 8 \$ \* \$ 9 3

How many such symbols are there that are immediately preceded by a number and immediately followed by a number?

- Ans**
- ☒ A. 2
  - ☒ B. 3
  - ☒ C. 4
  - ☒ D. 6

**Q.40** Refer to the following letter, symbol series and answer the question.

D & C N ^ E G ^ Y T % @ G R I & \* H K & Z S P \* ^

How many consonants are there that are immediately preceded by a consonant and immediately followed by symbol?

- Ans**
- ☒ A. Four
  - ☒ B. Two
  - ☒ C. Six
  - ☒ D. Three

**Q.41** Amongst six friends G, H, I, J, K and L, each has a different height. G is taller than only two other friends. I is shorter than only one friend. K is shorter than G but taller than J. H is shorter than L. Who is the shortest among all the friends?

- Ans**
- ☒ A. K
  - ☒ B. J
  - ☒ C. L
  - ☒ D. G

- Q.42** In a code language, the numbers/symbols are coded using letters as per the table given below and as per the given conditions.

| Number/ Symbol | 2 | \$ | 7 | @ | 4 | # | 9 | & | 1 | ! | 3 | * |
|----------------|---|----|---|---|---|---|---|---|---|---|---|---|
| Code           | T | D  | C | R | G | B | Y | H | N | J | P | L |

**Conditions:**

- If the first element is a symbol and the last, a number, the codes for these two (the first and the last elements) are to be interchanged.
- If the first element is an odd number and the last, an even number, the first and last elements are to be coded as  $\odot$ .
- If both the second and third elements are perfect squares, the third element is to be coded as the code for the second element.

What will be the code for @4#3\*9 ?

- Ans**
- ☒ A. RGBPLY
  - ☒ B. YGBPLR
  - ☒ C. RGCPLY
  - ☒ D. YGCPLR

- Q.43** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

4 : 20 :: 15 : 240 :: 19 : ?

- Ans**
- ☒ A. 380
  - ☒ B. 390
  - ☒ C. 391
  - ☒ D. 388

- Q.44** Pole E is to the east of pole R. Pole G is to the west of pole R and north of pole A. Pole T is to the south of pole A. What is the position of pole R with respect to pole A?

- Ans**
- ☒ A. North
  - ☒ B. North-east
  - ☒ C. North-west
  - ☒ D. South-east

- Q.45** Given below is a statement followed by two possible underlying assumptions I and II. Read the information carefully and select the correct option.

**Statement:**

As per reports by International recruiters, around 25% of the candidates are rejected just on the basis of insufficient data in their CVs or due to the format of the CVs auto-created by some websites.

Which of the following can be assumed from the given statement?

- I. CVs manually created by job seekers have more chances of being viewed / selected than auto created CVs.  
 II. No criteria other than insufficient information and formatting results in rejection of CVs.

- Ans**
- ☒ A. Only I can be assumed
  - ☒ B. Only II can be assumed
  - ☒ C. Both I and II can be assumed
  - ☒ D. Neither I nor II can be assumed

**Q.46** Which of the following options is the closest approximate value which will come in place of question mark(?) in the following equation?

$$4.99 \div .99 - 4.01 \times 2 + 3.59 = ?$$

- Ans**
- ☒ A. 5
  - ☒ B. 3
  - ☒ C. 2
  - ☒ D. 1

**Q.47** This question is based on the five, three-digit numbers given below.

(Left) 577 534 249 842 718 (Right)

(Example: 697 – first digit = 6, second digit = 9, third digit = 7)

NOTE: All operations to be done from left to right.

If 2 is added to the second digit of every number, in how many numbers will the second digit be exactly divided by the first digit of that number?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.48** Each of D, E, F, G, H, I and J has a football match to participate on a different day of a week, starting from Monday to Sunday of the same week. E has a match on the day immediately after I. G has a match immediately after H. J has a match immediately after E, but not on Sunday. D has a match on Wednesday. Who among the following has a match on Sunday?

- Ans**
- ☒ A. H
  - ☒ B. F
  - ☒ C. G
  - ☒ D. E

**Q.49** In a certain code language, the numbers/symbols are coded using letters as per the table given below and as per the given conditions.

| Number/<br>Symbol | * | 1 | & | 2 | > | 3 | ^ | 4 | % | 5 | \$ | 11 | # | 6 | @ | 7 | ! | 8 |
|-------------------|---|---|---|---|---|---|---|---|---|---|----|----|---|---|---|---|---|---|
| Code              | Q | A | Z | X | S | W | E | D | C | V | F  | R  | T | G | B | N | H | Y |

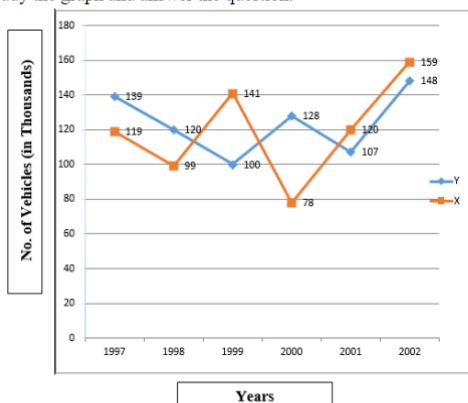
Conditions:

- If the first element is an odd number and the last also is an odd number, the code for the first element will be P and for the last element will be K.
- If the last two elements are numbers the codes for these two are to be interchanged.
- If the first two elements are symbols, both these elements will be coded as UU.

What will be the code for 3\$7%68 ?

- Ans**
- ☒ A. PFNCGK
  - ☒ B. WFNCYG
  - ☒ C. WFNCGY
  - ☒ D. WUNCYG

- Q.50** The number of vehicles caught for speeding in different years in two cities X and Y are shown in the following graph. Study the graph and answer the question.



Which city has more total number of vehicles which are caught speeding between the years 1998 – 2001? In which year, the difference in the number of vehicles caught between the two cities is maximum?

- Ans**
- ☒ A. X, 2000
  - ☒ B. X, 1999
  - ☒ C. Y, 1999
  - ☒ D. Y, 2000

- Q.51** Seven people, A, B, C, D, E, F and G, are sitting in a straight row, facing north. Only three people sit between B and D. Only two people sit to the left of B. F is not an immediate neighbour of D. F sits second to the right of G. A sits to the immediate right of E. Who sits at the extreme left end of the row?

- Ans**
- ☒ A. G
  - ☒ B. B
  - ☒ C. C
  - ☒ D. D

- Q.52** Select the number from among the given options that can replace the question mark (?) in the following series.

5, 12, ?, 96, 285, 852

- Ans**
- ☒ A. 56
  - ☒ B. 48
  - ☒ C. 33
  - ☒ D. 27

- Q.53** Five boxes A, B, C, D and E are kept one over the other but not necessarily in the same order. A is kept third from the bottom. Only one box is kept between A and B. There are only three boxes between D and B. C is placed immediately above B. How many boxes are placed between A and D?

- Ans**
- ☒ A. 0
  - ☒ B. 1
  - ☒ C. 2
  - ☒ D. 3

- Q.54** Amongst six friends B, I, H, J, O and U, each has a different height. H is taller than only four other friends. O is taller than only one friend. B is taller than U but shorter than J. J is not the tallest. Who is the shortest among all the friends?

- Ans**
- ☒ A. H
  - ☒ B. I
  - ☒ C. U
  - ☒ D. B

**Q.55** Which of the following options is the closest approximate value which will come in place of question mark(?) in the following equation?

$$7.98 - (6.064 + 6.003 \div 6.003) + 2.003 - 1.02 = ?$$

- Ans**
- ☐ A. 8
  - ☐ B. 12
  - ☒ C. 2
  - ☐ D. 22

Section : General Science

**Q.56** If the current passing through a heater is tripled by keeping resistance and time of the current flow unaltered, then the heat produced is:

- Ans**
- ☐ A. Tripled
  - ☐ B. Becomes six times
  - ☒ C. Becomes nine times
  - ☐ D. Doubled

**Q.57** The amount of carbon dioxide in the atmosphere is:

- Ans**
- ☐ A. 21%
  - ☒ B. 0.03 %
  - ☐ C. 71%
  - ☐ D. 0.3%

**Q.58** What will be the next homologous member of compound  $\text{CH}_3\text{OH}$ ?

- Ans**
- ☐ A.  $\text{C}_3\text{H}_5\text{OH}$
  - ☐ B.  $\text{C}_3\text{H}_7\text{OH}$
  - ☐ C.  $\text{C}_2\text{H}_3\text{OH}$
  - ☒ D.  $\text{C}_2\text{H}_5\text{OH}$

**Q.59** Which of the following has the fastest breathing rate?

- Ans**
- ☐ A. Elephant
  - ☐ B. Human
  - ☐ C. Pigeon
  - ☒ D. Fish

**Q.60** Why do we measure the presence of starch in the experiments of photosynthesis?

- Ans**
- ☐ A. Starch is formed as a result of photosynthesis
  - ☒ B. Glucose formed is converted into starch
  - ☐ C. Starch is soluble in water
  - ☐ D. Glucose is insoluble in water

**Q.61** What is the product of UV radiations acting on oxygen molecules at higher levels of the atmosphere?

- Ans**
- ☐ A. Carbon dioxide
  - ☐ B. Chlorofluorocarbons
  - ☒ C. Ozone
  - ☐ D. Water

**Q.62** Which Indian River that starts from Gangotri is polluted largely by human activities and industries?

- Ans**
- ☐ A. Brahmaputra
  - ☐ B. Krishna
  - ☐ C. Cauvery
  - ☒ D. Ganga

**Q.63** When a coil carrying a current is placed in a magnetic field, a force is produced on it. This is the working principle of:

- Ans**
- ☐ A. generator
  - ☐ B. cooler
  - ☒ C. motor
  - ☐ D. turbine

**Q.64** Consider the following statements about a commercial motor:

- (a) It uses an electromagnet in place of a permanent magnet.
- (b) It uses a soft-iron core.

Which of the above statements is/are correct?

- Ans**
- ☐ A. Only (a)
  - ☐ B. Only (b)
  - ☒ C. Both (a) and (b)
  - ☐ D. Neither (a) nor (b)

**Q.65** Consider the below statements and identify the correct answer.

Statement I: The reaction between an acid and a base to form salt and water is known as a neutralisation reaction.

Statement II: A neutralisation reaction can be written as: Acid + Base → Salt + Water

- Ans**
- ☐ A. Statement I is correct, and Statement II is incorrect.
  - ☐ B. Statement II is correct, and Statement I is incorrect.
  - ☒ C. Both statements are correct.
  - ☐ D. Both statements are incorrect.

**Q.66** Plants use a completely different process for excretion as compared to animals. Which of the following processes is NOT followed by plants for excretion?

- Ans**
- ☐ A. Excess water thrown out by transpiration
  - ☐ B. Store waste products in Vacuoles
  - ☐ C. Excrete some waste into the soil
  - ☒ D. Filter toxic substances through the leaves

**Q.67** The focus of a convex mirror is at a distance of 30 cm from its pole. Its centre of curvature will be at a distance of \_\_\_\_\_ from the focus.

- Ans**
- ☐ A. 15 cm
  - ☒ B. 30 cm
  - ☐ C. 45 cm
  - ☐ D. 60 cm

**Q.68** Washing soda is used in the manufacture of which of the following compounds?

- Ans**
- ☐ A. Blue vitriol
  - ☐ B. Green vitriol
  - ☐ C. Bleaching powder
  - ☒ D. Borax

**Q.69** A ray of light in air is incident at an angle of  $30^\circ$  on the surface of water in a jar. The ray is refracted in the water at an angle of \_\_\_\_\_ and \_\_\_\_\_ in the plane of the incident ray.

- Ans**
- ☐ A. more than  $30^\circ$ , lies
  - ☐ B. more than  $30^\circ$ , does not lie
  - ☒ C. less than  $30^\circ$ , lies
  - ☐ D. less than  $30^\circ$ , does not lie

**Q.70** How do contraceptive pills help in birth control?

- Ans**
- ☒ A. By preventing release of eggs from the ovary
  - ☐ B. By killing the zygote
  - ☐ C. By blocking sperm production
  - ☐ D. By inhibiting menstruation

**Q.71** Two identical bulbs are connected in parallel to a battery of 4 V. If the current in the circuit is 0.2 A, the power dissipated by the battery is:

- Ans**
- ☐ A. 0.05 W
  - ☒ B. 0.8 W
  - ☐ C. 10 W
  - ☐ D. 20 W

**Q.72** A bulb draws a current of 5 A when connected to a battery of 12 V. The power of the bulb is:

- Ans**
- ☐ A. 0.41 W
  - ☐ B. 1.2 W
  - ☐ C. 2.4 W
  - ☒ D. 60 W

Q.73

Match the following characteristics in Modern Periodic Table:

|                                    |             |
|------------------------------------|-------------|
| i. smallest atom                   | a. cesium   |
| ii. metalloid                      | b. Fluorine |
| iii. most metallic natural element | c. silicone |
| iv. most electronegative           | d. iodine   |
| v. least electronegative           | e. lithium  |

Ans

☒ A. i-a, ii-b, iii-c, iv-d, v-e☒ B. i-a, ii-d, iii-b, iv-e, v-c☒ C. i-e, ii-c, iii-a, iv-b, v-d☒ D. i-e, ii-c, iii-a, iv-d, v-b

Q.74

A ray of light is incident on a concave mirror (pole P) of radius of curvature 8 cm, parallel to its principal axis. After reflection, it passes through a point Q on its principal axis. Following New Cartesian Sign Convention, PQ = \_\_\_\_\_.

Ans

☒ A. 4 cm☒ B. -4 cm☒ C. 8 cm☒ D. -8 cm

Q.75

What would be the colour of the sky as viewed by an astronaut at the International Space Station?

Ans

☒ A. Red☒ B. Black☒ C. Blue☒ D. White

Q.76

Complete the double displacement reaction.

 $2\text{NaOH} + \text{CuSO}_4 \rightarrow \text{X} + \text{Na}_2\text{SO}_4$ , here X will be \_\_\_\_\_.

Ans

☒ A.  $\text{CaCl}_2$ ☒ B.  $\text{Cu}(\text{OH})_2$ ☒ C.  $\text{Ca}(\text{OH})_2$ ☒ D.  $\text{CuCl}_2$ 

Q.77

Mendeleev's Periodic Law could not explain the position of \_\_\_\_\_ in the periodic table.

Ans

☒ A. Isotopes☒ B. Isotones☒ C. Isobars☒ D. Isodiaphers



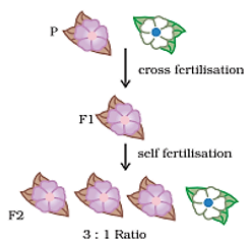
**Q.78** There is an aqueous solution X, whose pH is 2.6. It represents that the solution is:

- Ans**
- ✓ **A.** strongly acidic in nature
  - ✗ **B.** strongly basic in nature
  - ✗ **C.** neutral in nature
  - ✗ **D.** weakly basic in nature

**Q.79** Which of the following is NOT a part of the human excretory system?

- Ans**
- ✗ **A.** Ureters
  - ✗ **B.** Urinary bladder
  - ✓ **C.** Bronchioles
  - ✗ **D.** Urethra

**Q.80** The image below shows a cross between two plants up to F<sub>2</sub> generation. Some conclusions that can be drawn from this cross are stated below. Which option gives the INCORRECT conclusion?



- Ans**
- ✗ **A.** Only red colour is dominant.
  - ✓ **B.** Both red and green are dominant though less number of green are produced.
  - ✗ **C.** Green is recessive.
  - ✗ **D.** Traits are inherited but not expressed.

#### Section : General Awareness and Current Affairs

**Q.81** In February 2022, the Ministry of Women and Child Development, Government of India extended the PM Cares for Children Scheme till \_\_\_\_\_.

- Ans**
- ✓ **A.** 28 February 2022
  - ✗ **B.** 31 March 2022
  - ✗ **C.** 30 June 2022
  - ✗ **D.** 31 December 2022

**Q.82** For excellence in the field of medical services, which of the following awards is given?

- Ans**
- ✓ **A.** Dhanvantari Award
  - ✗ **B.** Borlaug Award
  - ✗ **C.** Shanti Swarup Bhatnagar Award
  - ✗ **D.** Daly Memorial Award

**Q.84** In which stage of production does the marginal product curve become negative?

- Ans**
- ✗ **A.** Stage 1
  - ✗ **B.** Stage 2
  - ✓ **C.** Stage 3
  - ✗ **D.** Stage 4

**Q.85** The then Indonesian President \_\_\_\_\_ was the first chief guest to grace Republic Day of India in 1950.

- Ans**
- ☒ A. Suharto
  - ☒ B. B.J. Habibie
  - ☒ C. Abdurrahman Wahid
  - ☒ D. Sukarno

**Q.86** India's first fisheries business incubator was inaugurated by the Union Minister of Fisheries, Animal Husbandry and Dairying in \_\_\_\_\_.

- Ans**
- ☒ A. Noida
  - ☒ B. Rohtak
  - ☒ C. Gurugram
  - ☒ D. Karnal

**Q.87** The 'Stree Manoraksha' project aimed at extending mental health training to 6000 OSC (One Stop Centre) functionaries across India was launched by \_\_\_\_\_ in March 2022.

- Ans**
- ☒ A. Smriti Zubin Irani
  - ☒ B. Narendra Modi
  - ☒ C. Amit Shah
  - ☒ D. Dr. Mansukh Mandaviya

**Q.88** Under which Article of the Indian Constitution is the annual financial statement prepared?

- Ans**
- ☒ A. Article 112
  - ☒ B. Article 130
  - ☒ C. Article 140
  - ☒ D. Article 101

**Q.89** The drug Diclofenac is one of the prime reasons for wiping out most of the \_\_\_\_\_ population in India.

- Ans**
- ☒ A. blackbuck
  - ☒ B. one- horned rhinoceros
  - ☒ C. vulture
  - ☒ D. sparrow

**Q.90** Which of the following is the world's largest basaltic impact crater lake found in India?

- Ans**
- ☒ A. Loktak Lake
  - ☒ B. Wular Lake
  - ☒ C. Pulicat Lake
  - ☒ D. Lonar Lake

**Q.91** Which of the following banks was the organiser of the global hackathon, HARBINGER 2021 - Innovation for Transformation, with the theme 'Smarter Digital Payments'?

- Ans**
- ☒ A. HSBC Bank
  - ☒ B. HDFC Bank
  - ☒ C. Reserve Bank of India
  - ☒ D. State Bank of India

**Q.92** During which period were the Khilafat movement and Non-Cooperation movement organised to oppose British rule in India?

- Ans**
- ☐ A. 1943-1947
  - ☐ B. 1931-1933
  - ☐ C. 1850-1857
  - ☒ D. 1919-1922

**Q.93** Which constitutional authority established under Article 148 of the Constitution of India, has the power to audit the receipts and expenditure of the Central and the Governments of each State and Union Territory?

- Ans**
- ☐ A. Finance Commission of India
  - ☐ B. Attorney General of India
  - ☒ C. Comptroller and Auditor General of India
  - ☐ D. Advocate General of the India

**Q.94** Which of the following teams won the Tata Indian Premier League (IPL) 2022?

- Ans**
- ☒ A. Gujarat Titans (GT)
  - ☐ B. Rajasthan Royals (RR)
  - ☐ C. Kolkata Knight Riders (KKR)
  - ☐ D. Chennai Super Kings (CSK)

**Q.95** As per Article 51A (d) of the Constitution of India, \_\_\_\_\_.

- Ans**
- ☒ A. a citizen of the country must defend the country and render national service when called upon to do so
  - ☐ B. every adult is entitled to be registered as a voter at an election
  - ☐ C. the State shall not deny to any person equality before the law or the equal protection of the laws within the territory of India
  - ☐ D. untouchability is abolished and its practice in any form is forbidden

**Q.96** Which of the following is a classical Dravidian language?

- Ans**
- ☐ A. Odia
  - ☒ B. Tamil
  - ☐ C. Gujarati
  - ☐ D. Bengali

**Q.97** The Eleventh Schedule to the Constitution of India lists \_\_\_\_\_ subjects.

- Ans**
- ☐ A. 26
  - ☐ B. 21
  - ☐ C. 23
  - ☒ D. 29

**Q.98** Which of the following Veda is also called the "Book of Song," "Veda of Chants" or even "Yoga of Song"?

- Ans**
- ☐ A. Rig Veda
  - ☐ B. Yajur Veda
  - ☒ C. Sama Veda
  - ☐ D. Atharva Veda

**Q.99** How many petroleum products were kept outside the purview of GST as on 31<sup>st</sup> December 2021?

**Ans** ☒ A. 12

☒ B. 3

☒ C. 5

☒ D. 9

**Q.100** In which of the following countries was the Men's T-20 ICC World Cup -2021 staged?

**Ans** ☒ A. India -Bangladesh

☒ B. Oman- UAE

☒ C. Sri Lanka-Maldives

☒ D. South Africa-Namibia



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 08/09/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** The average of 10 observations is 46. It was realised later that an observation was misread as 42 in place of 142. Find the correct average.

- Ans**
- ✓ A. 56
  - ✗ B. 65
  - ✗ C. 54
  - ✗ D. 45

**Q.2** The value of  $(\operatorname{cosec} A + \cot A)(1 - \cos A)$  is:

- Ans**
- ✓ A.  $\sin A$
  - ✗ B.  $\cos A$
  - ✗ C.  $\tan A$
  - ✗ D.  $\cot A$

**Q.3** The areas of three adjacent faces of a solid cuboid are  $66 \text{ cm}^2$ ,  $108 \text{ cm}^2$  and  $198 \text{ cm}^2$ . What is the volume (in  $\text{cm}^3$ ) of the cuboid?

- Ans**
- ✗ A. 594
  - ✗ B. 891
  - ✓ C. 1188
  - ✗ D. 1782

**Q.4** Two numbers are in the ratio 7: 5. If their sum is 360, then the difference between them is:

- Ans**
- ✗ A. 90
  - ✗ B. 80
  - ✗ C. 70
  - ✓ D. 60

**Q.5** Three chairs and two tables cost ₹7,000 and five chairs and three tables cost ₹11,000. What is the cost of four chairs and two tables?

- Ans**
- ✗ A. ₹6,000
  - ✓ B. ₹8,000
  - ✗ C. ₹9,000
  - ✗ D. ₹9,600

Q.6 If  $\left(\frac{12}{7}\right)^5 \times \left(\frac{7}{12}\right)^8 \times \left(\frac{12}{7}\right)^{16} = \left(\frac{7}{12}\right)^{2m+10}$ , then  $m =$

Ans

☐ A.  $\frac{23}{2}$

☒ B.  $-\frac{23}{2}$

☐ C.  $\frac{19}{2}$

☐ D.  $-1$

Q.7 When  $x$  is added to each of 11, 14, 31 and 38, then the numbers so obtained, in this order, are in proportion. Then, if  $3x : y :: y : (8x - 5)$ , and  $y > 0$ , what is the value of  $y$ ?

Ans

☐ A. 12

☐ B. 15

☐ C. 16

☒ D. 18

Q.8 If  $\alpha, \beta$  ( $\alpha > \beta$ ) are the roots of the quadratic equation  $x^2 - 10x + 16 = 0$ , then the value of  $\alpha^4 - \beta^4$  is:

Ans

☐ A.  $-5080$

☐ B.  $-4080$

☐ C.  $5080$

☒ D.  $4080$

Q.9 By selling an article at  $\frac{7}{12}$  of its actual selling price, Manav incurs a loss of 16%. If he sells it at 80% of its actual selling price, then the profit percentage is:

Ans

☐ A. 14.5%

☐ B. 14.8%

☒ C. 15.2%

☐ D. 15.5%

Q.10 Two parallel lines intersect at:

Ans

☐ A. one point

☐ B. two points

☐ C. three points

☒ D. no point

Q.11 The volume of a cylinder having height 21 cm and radius 10 cm is:

(Use  $\pi = \frac{22}{7}$ )

Ans

☐ A.  $9900 \text{ cm}^3$

☐ B.  $8800 \text{ cm}^3$

☐ C.  $7700 \text{ cm}^3$

☒ D.  $6600 \text{ cm}^3$

Q.12 The value of  $\frac{(9.8 \times 9.8 - 5.8 \times 5.8)}{2 \times (7.8)}$  is:

- Ans
- ☐ A. 6
  - ☐ B. 5
  - ☒ C. 4
  - ☐ D. 3

Q.13 The ratio of the present ages of P and Q is 5: 8. After 5 years, Q's age will be 45 years. Six years ago, the age of P was:

- Ans
- ☐ A. 34 years
  - ☐ B. 29 years
  - ☐ C. 24 years
  - ☒ D. 19 years

Q.14 A can complete a piece of work in 35 days. B is 30% less efficient than A. C is 25% more efficient than B. B and C work together for 10 days. A alone will complete the remaining work in:

- Ans
- ☐ A. 18 days
  - ☐ B.  $18\frac{1}{2}$  days
  - ☒ C.  $19\frac{1}{4}$  days
  - ☐ D. 20 days

Q.15 If the mean of the following data is 18, then the value of  $X$  is:

|       |    |     |    |    |
|-------|----|-----|----|----|
| $x_i$ | 10 | 15  | 20 | 25 |
| $f_i$ | 5  | $X$ | 7  | 8  |

- Ans
- ☐ A. 9
  - ☒ B. 10
  - ☐ C. 11
  - ☐ D. 13

Q.16 The diagonals of a rhombus shaped field are 96 m and 110 m long. What is the perimeter (in m) of the field?

- Ans
- ☐ A. 288
  - ☒ B. 292
  - ☐ C. 296
  - ☐ D. 300

Q.17 When 1833, 2482 and 3190 are divided by the greatest number  $x$ , the remainder in each case is  $y$ . What is the value of  $(3x - 14y)$ ?

- Ans
- ☒ A. 121
  - ☐ B. 123
  - ☐ C. 131
  - ☐ D. 133

**Q.18** Rajesh has 180 litres of Oil A and 220 litres of Oil B. He fills a number of identical containers with the two types of oil in a manner that each container has only one type of oil, and all containers are completely filled. What can be the maximum volume (in litres) of each container that Rajesh uses, so that all the oil that Rajesh has, of both the types, can be poured into these containers?

- Ans** ☒ A. 20  
☐ B. 40  
☐ C. 60  
☐ D. 80

**Q.19** Find the nature of the roots of  $2x^2 + 4 - 10x = 0$ .

- Ans** ☐ A. No real roots  
☐ B. Real and equal roots  
☒ C. Real and distinct roots  
☐ D. Imaginary roots

**Q.20** A shopkeeper mixes 30 kg wheat costing ₹13.65 per kg with 20 kg wheat costing ₹18.15 per kg. At what rate per kg should he sell the mixed variety of wheat to earn 30% profit (correct to the nearest rupee)?

- Ans** ☐ A. ₹15  
☐ B. ₹17  
☐ C. ₹18  
☒ D. ₹20

**Q.21** The value of  $20 + \frac{24}{7} \times \{(1 \div 2) + (2 \div 3)\}$  is:

- Ans** ☐ A. 28  
☐ B. 32  
☐ C. 34  
☒ D. 24

**Q.22** Two mini trains of length 80 m and 120 m, respectively, are moving on parallel tracks in opposite directions at 30 m/s and 20 m/s respectively. The time taken (in seconds) by both the mini trains to cross each other is:

- Ans** ☐ A. 10  
☐ B. 8  
☐ C. 6  
☒ D. 4

**Q.23** Train A running at a speed of 63 km/h takes 21 seconds to completely cross train B running at 45 km/h in the opposite direction. The length of train B is 2.5 times the length of train A. Train B crosses a bridge completely in 76 seconds. The length of the bridge (in m) is:

- Ans** ☐ A. 480  
☒ B. 500  
☐ C. 660  
☐ D. 880

**Q.24** Three times the present age of P exceeds the present age of Q by 25 years. After 10 years, twice the age of Q will be 18 years less than thrice the age of P. The present age of Q is (in years):

- Ans** ☐ A. 16  
☒ B. 17  
☐ C. 19  
☐ D. 21



**Q.25** If a discount of 10% is given on the marked price of a book, the bookseller gains 20%. If the discount is increased to 12.5%, then what is the gain percent of the bookseller?

- Ans**
- ☒ A.  $18\frac{2}{3}\%$
- ☒ B.  $17\frac{2}{3}\%$
- ☒ C.  $16\frac{2}{3}\%$
- ☒ D.  $15\frac{2}{3}\%$

Section : **General Intelligence and Reasoning**

**Q.26** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

IGE : QOM :: YWU : GEC

- Ans**
- ☒ A. PNM : UTS
- ☒ B. PQR : MLK
- ☒ C. NLJ : VTR
- ☒ D. ONL : XWU

**Q.27** Three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

1. Some men are gentle.
2. Some gentle are lovers.
3. All lovers are committed.

**Conclusions:**

- I. No committed is lover.
- II. Some gentle are committed.
- III. Some committed are men.

- Ans**
- ☒ A. Only conclusions I follows
- ☒ B. Only conclusions II follows
- ☒ C. Conclusions II and III follow
- ☒ D. Conclusions I and II follow

**Q.28** If '+' means '-', '-' means '+', '×' means '+', and '÷' means '×', what will come in place of the question mark (?) in the following equation?

$$30 - 7 \div 2 + 15 \times 3 = ?$$

- Ans**
- ☒ A. 35
- ☒ B. 38
- ☒ C. 39
- ☒ D. 42

**Q.29** A, B, C, D, E, F, G and H are sitting around a circular table facing the centre. H is second to the left of E and third to the right of C. F is third to the right of B, who is an immediate neighbour of D. E is third to the left of C. A is second to the left of B and second to the right of G. Who among the following is an immediate neighbour of C and G (both)?

- Ans**
- ☒ A. D
  - ☒ B. F
  - ☒ C. H
  - ☒ D. A

**Q.30** Read the given statement(s) and conclusions carefully and decide which of the conclusions logically follow(s) from the statement(s).

Statement:

$$M \leq A \geq K \geq C \geq E < R$$

Conclusions:

I.  $E < A$

II.  $A = E$

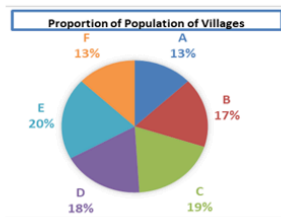
- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Either conclusion I or II follows
  - ☒ D. Neither conclusion I nor II follows

**Q.31** Study the following pie-chart and the table and answer the question based on them.

Table : Percentage of population below poverty line in six villages in 2021

| Village | Percentage of population below poverty line |
|---------|---------------------------------------------|
| A       | 30%                                         |
| B       | 34%                                         |
| C       | 32%                                         |
| D       | 28%                                         |
| E       | 27%                                         |
| F       | 36%                                         |

**Pie Chart: Proportion of population of villages in 2021**



If the population of village D in 2021 is 70,200, then what will be the population of village F below poverty line in that year?

- Ans**
- ☒ A. 19,656
  - ☒ B. 18,252
  - ☒ C. 17,560
  - ☒ D. 16,254

**Q.32** Which of the following terms will replace the question mark (?) and complete the given alpha-numeric series?

Y35, T55, P80, M115, ?

- Ans**
- ☒ A. K170
  - ☒ B. L170
  - ☒ C. K160
  - ☒ D. K150

**Q.33** Given below is a statement followed by two possible conclusions I and II. Read the information carefully and select the correct option.

**Statement:**

In 2021, the government of country M regulated the fishing industry by announcing that each fisherman can take their boat for fishing only once a day.

Which of the following can be concluded from the given information?

I. The sale of fishing boats in country M will double in the coming years.

II. Fishermen with bigger boats will benefit more from this regulation as compared to those who have smaller boats.

- Ans**
- ☒ A. Only I can be concluded from the given information.
  - ☒ B. Only II can be concluded from the given information.
  - ☒ C. Both I and II can be concluded from the given information.
  - ☒ D. Neither I nor II can be concluded from the given information.

**Q.34** Which of the following two numbers should be interchanged to make the following equation correct?

$$35 \times 13 \div 7 + 9 - 14 = 44$$

- Ans**
- ☒ A. 35 and 14
  - ☒ B. 13 and 7
  - ☒ C. 9 and 13
  - ☒ D. 7 and 9

**Q.35** In this question, a group of numbers is coded using letters/symbols as per the table given below, and the conditions that follow. The correct combination of codes following the conditions is your answer.

| Number/Digit | 3 | 2 | 1 | 6 | 5 | 4 | 9 | 8 | 7 |
|--------------|---|---|---|---|---|---|---|---|---|
| Code         | @ | A | # | S | S | F | % | G | & |

Conditions:

1. If the first as well as the last digit is odd, both are to be coded as =.

2. If the first as well as the last digit is even, their codes are to be swapped.

What will be the code for 8546372?

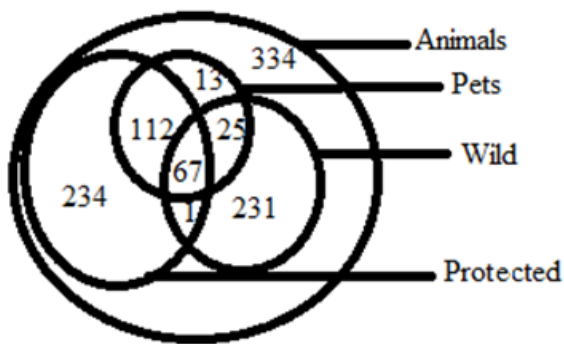
- Ans**
- ☒ A. ASFS&@G
  - ☒ B. GSFS@&A
  - ☒ C. GSF@S&A
  - ☒ D. ASFS@&G

**Q.36** Deepak rode his bicycle in the north direction from a point A to reach point B, then turned left and rode 3 km to reach point C and again turned left and rode 4 km to reach point D. He found himself 3 km west of his starting point. How far did he ride from point A to point B?

(All turns are 90 degree turns only)

- Ans**
- ☒ A. 10 kms
  - ☒ B. 7 kms
  - ☒ C. 5 kms
  - ☒ D. 4 kms

**Q.37** Study the Venn Diagram given below and answer the question that follows.



How many animals are pets but not protected?

- Ans**
- ☒ A. 67
  - ☒ B. 25
  - ☒ C. 13
  - ☒ D. 38

**Q.38** Select the number from among the given options that can replace the question mark (?) in the following series.

22, 21, 24, 19, 26, 17, 28, 15, ?

- Ans**
- ☒ A. 32
  - ☒ B. 2
  - ☒ C. 30
  - ☒ D. 34

**Q.39** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

1. Some caps are headbands.
2. All headbands are hats.
3. Some berets are hats.

Conclusions:

- I-Some caps are hats.
- II-Some hats are berets.

- Ans**
- ☒ A. Only conclusion I follows.
  - ☒ B. Only conclusion II follows.
  - ☒ C. Both conclusions I and II follow.
  - ☒ D. Neither conclusion I nor II follows.

**Q.40** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(4, 24)

(11, 143)

- Ans**
- ☒ A. (9, 102)
  - ☒ B. (7, 42)
  - ☒ C. (2, 8)
  - ☒ D. (5, 40)

- Q.41** In this question, a group of numbers/symbols is coded using letters as per the table given below, and the conditions that follow. The correct combination of codes following the conditions is your answer.

| Number/Digit | 2 | 5 | 8 | 1 | 4 | 7 | 3 | 6 | 9 |
|--------------|---|---|---|---|---|---|---|---|---|
| Code         | A | S | D | G | H | J | K | L | R |

Conditions:

1. If the first and last digit are odd, both are to be coded as L.
2. If the first and last digit are even, both are to be coded as Z.

What will be the code for 564783?

- Ans**
- ☒ A. SLHJDK
  - ☒ B. LLHJKL
  - ☒ C. SLHJDL
  - ☒ D. LLHJDL

- Q.42** A, B, C, D and E live on five different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it number 2, and so on till the topmost floor is numbered 5.

B lives on an even numbered floor but not on floor number 4. Only two people live between A and E. C lives immediately below A. Who lives on floor number 5?

- Ans**
- ☒ A. D
  - ☒ B. C
  - ☒ C. A
  - ☒ D. E

- Q.43** This question is based on the five, three-digit numbers given below:

(Left) 478      635      316      253      675 (Right)

(Example: 697 – First digit = 6, second digit = 9 and third digit = 7)

(NOTE - All operations to be done from left to right.)

What will be the resultant if the second digit of the largest number is added to the first digit of the smallest number?

- Ans**
- ☒ A. 10
  - ☒ B. 6
  - ☒ C. 8
  - ☒ D. 9

- Q.44** Refer to the following letter, number, symbol series and answer the question.

(Left) K & ^ 5 G T S P T & B 4 @ 3 # 1 A 3 P H 9 L (Right)

If all symbols are dropped from the series, which of the following will be ninth from the right?

- Ans**
- ☒ A. B
  - ☒ B. T
  - ☒ C. 4
  - ☒ D. 3

- Q.45** Seven boxes A, B, C, D, E, F and G are kept one over the other but not necessarily in the same order. D is kept third from the bottom. Only one box is kept between C and D. Only three boxes are kept between B and F. B is kept at one of the positions above F. A is kept immediately below G. How many boxes are kept between D and E?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.46** Study the given alphanumeric symbol series carefully and answer the question based on it.

P 5 & 8 V O 9 # T 6 H S 7 F W \* 1 L N 4 ? 2 / C U Q ! J 3 > A

If all the odd numbers are dropped from the above series, then find the product of the numbers that come between the third consonant from the right end and &.

- Ans**
- ☐ A. 256
  - ☐ B. 246
  - ☐ C. 192
  - ☒ D. 384

**Q.47** A certain number of people are sitting in a row, facing north. C sits fourth to the right of D. E sits third to the right of C. B sits third to the left of D. There are only two persons between E and A. If no other person is sitting in the row, what is the total number of persons seated?

- Ans**
- ☐ A. 16
  - ☐ B. 10
  - ☒ C. 14
  - ☐ D. 18

**Q.48** Eight friends A, B, C, D, E, F, G, and H are sitting around a square table. Four persons are sitting at the corners and the other four are sitting in the middle of each side. They all are facing towards the centre of the table. E is sitting second to the left of F. A is sitting somewhere to the left of B and B is sitting third to the left of F. G is an immediate neighbour of both A and B. C is sitting to the immediate left of F. F is sitting to the immediate left to D. Who is sitting second to the left of H?

- Ans**
- ☐ A. D
  - ☒ B. F
  - ☐ C. B
  - ☐ D. E

**Q.49** Refer to the following letter, number, symbol series and answer the question that follows.

(Left)  $\Omega$  R 7 & S  $\infty$  5 ! D @ 4 Y 3 D # W A 6 & F O 7 % D C (Right)

How many such symbols are there in the above series, each of which is immediately preceded by a letter and immediately followed by a number?

- Ans**
- ☐ A. Zero
  - ☐ B. One
  - ☒ C. Two
  - ☐ D. Three

**Q.50** Read the given statement(s) and conclusions carefully and decide which of the conclusions logically follow(s) from the statement(s).

Statements:

I < N < S = R  $\geq$  O > M; N > C

Conclusions:

I. N < M

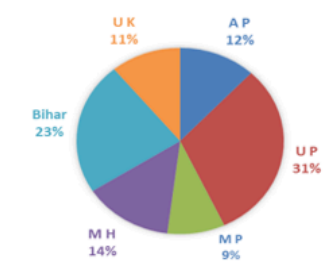
II. O  $\geq$  N

- Ans**
- ☐ A. Either conclusion I or II follows
  - ☒ B. Neither conclusion I nor II follows
  - ☐ C. Only conclusion I follows
  - ☐ D. Only conclusion II follows

**Q.51** Raghav starts from Point A and drives 20 km towards the north. He then takes a right turn, drives 40 km, turns right and drives 50 km. He then takes a right turn and drives 120 km. He takes a final right turn, drives 30 km and stops at Point P. How far and towards which direction should he drive in order to reach Point A from Point P in a straight line? (All turns are 90 degree turns only)

- Ans**
- ☐ A. 80 km towards the west
  - ☐ B. 100 km towards the west
  - ☒ C. 80 km towards the east
  - ☐ D. 120 km towards the south

**Q.52** The following pie-chart shows the population distribution in different States in 2019. Study the following pie-chart and answer the question based on it.



If the total population of the given states is 44,94,000, and male-female ratio is 3 : 2 in UP, what was the number of males in UP in the year 2019?

- Ans**
- ☐ A. 8,65,478
  - ☐ B. 8,45,623
  - ☒ C. 8,35,884
  - ☐ D. 8,21,478

**Q.53** If 1 is subtracted from each odd digit and 2 is added to each even digit in the number 6249729, what will be the sum of the digits that are second from the left and second from the right in the new number thus formed?

- Ans**
- ☐ A. 6
  - ☒ B. 8
  - ☐ C. 10
  - ☐ D. 12

**Q.54** Select the number from among the given options that can replace the question mark (?) in the following series.

82, 23, 69, 30, 56, 37, 43, 44, 30, ?

- Ans**
- ☒ A. 51
  - ☐ B. 37
  - ☐ C. 27
  - ☐ D. 55

**Q.55** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

13 : 195 :: 2 : 8 :: 12 : ?

- Ans**
- ☐ A. 24
  - ☐ B. 180
  - ☐ C. 48
  - ☒ D. 168

Section : General Science

**Q.56** Who is known as India's 'Waterman', who won the prestigious Stockholm Water Prize in 2015?

- Ans**
- ☐ A. Dr. AK Banerjee
  - ☒ B. Dr. Rajendra Singh
  - ☐ C. Sunder Lal Bahuguna
  - ☐ D. Chandi Prasad Bhatt

**Q.57** How many elements were discovered till the time Newland's Law of Octaves came in to existence?

- Ans**
- ☐ A. 53
  - ☐ B. 61
  - ☒ C. 56
  - ☐ D. 63

**Q.58** Consider the following statements about magnetic field due to a bar magnet:

- (a) There is no field inside the bar magnet.
- (b) The field lines inside the bar magnet are directed from its north pole to the south pole.

Which of the above statements is/are correct?

- Ans**
- ☐ A. Only (a)
  - ☐ B. Only (b)
  - ☒ C. Neither (a) nor (b)
  - ☐ D. Both (a) and (b)

**Q.59** Consider two wires, A and B, of same thickness but lengths L and 5L, respectively. If the resistances of A and B are 1.0  $\Omega$  and 2.5  $\Omega$ , respectively, the ratio of the resistivity of A to the resistivity of B is:

- Ans**
- ☐ A.  $\frac{1}{2}$
  - ☐ B. 1
  - ☐ C. 2
  - ☐ D. 5

**Note:** For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.



**Q.60** Which of the following are biodegradable substances?

- Ans**
- ☒ A. Paper and cotton
  - ☐ B. Plastic goods
  - ☐ C. Industrial wastes
  - ☐ D. Chemicals

**Q.61** A ray of light in glass is incident at an angle of  $30^\circ$  on the surface separating glass from air. The ray is refracted in the air at an angle of \_\_\_\_\_ and the refracted ray \_\_\_\_\_ in the plane of the incident ray.

- Ans**
- ☒ A. more than  $30^\circ$ , lies
  - ☐ B. less than  $30^\circ$ , lies
  - ☐ C. more than  $30^\circ$ , does not lie
  - ☐ D. less than  $30^\circ$ , does not lie

**Q.62** An object is placed on the principal axis of a convex lens of focal length 16 cm, at a distance of 8 cm. Its image formed is at a distance of \_\_\_\_\_.

- Ans**
- ☐ A.  $\frac{16}{3}$  cm
  - ☐ B. 8 cm
  - ☒ C. -16 cm
  - ☐ D. 24 cm

**Q.63** How are the products of photosynthesis transported from leaves to other parts of the plant?

- Ans**
- ☐ A. Through the xylem
  - ☒ B. Through the phloem
  - ☐ C. Through the tracheid
  - ☐ D. Through the stomata

**Q.64** A diverging mirror of focal length 20 cm forms an image one-third the size of the object. At what distance from the mirror is the object located?

- Ans**
- ☒ A. -40 cm
  - ☐ B. -20 cm
  - ☐ C. -10 cm
  - ☐ D. -5 cm

**Q.65** The compound containing 5 carbon atoms with the general formula  $C_nH_{2n+2}$  is:

- Ans**
- ☒ A. pentane
  - ☐ B. butane
  - ☐ C. hexane
  - ☐ D. heptane

**Q.66** Two identical resistors are connected in parallel to a 6 V battery. The total power dissipated in the circuit is 12 W. The current in each resistor is:

- Ans**
- ☐ A. 0.5 A
  - ☒ B. 1.0 A
  - ☐ C. 2.0 A
  - ☐ D. 4.0 A

**Q.67** Which of the following statements is correct regarding the process of waste excretion in plants?

- Ans**
- ☒ A. Carbon dioxide is a waste product in photosynthesis.
  - ☒ B. In plants, excess water is removed by translocation.
  - ☒ C. Plants do not excrete waste substances into the soil.
  - ☒ D. In some plants, waste products are stored as resins.

**Q.68** A beam of parallel rays close to the principal axis are incident on a convex lens. At which point will they converge:

- Ans**
- ☒ A. At F
  - ☒ B. Beyond 2F
  - ☒ C. At 2F
  - ☒ D. Between F and 2F

**Q.69** Which of the following is an example of neutralisation reaction?

- Ans**
- ☒ A.  $\text{CuSO}_4 (\text{aq}) + \text{BaCl}_2 (\text{aq}) \rightarrow \text{BaSO}_4 (\text{s}) + \text{CuCl}_2 (\text{aq})$
  - ☒ B.  $\text{Fe}(\text{s}) + \text{CuSO}_4 (\text{aq}) \rightarrow \text{FeSO}_4 (\text{aq}) + \text{Cu} (\text{s})$
  - ☒ C.  $\text{NaOH} (\text{aq}) + \text{HCl} (\text{aq}) \rightarrow \text{NaCl} (\text{aq}) + \text{H}_2\text{O} (\text{l})$
  - ☒ D.  $\text{Zn}(\text{s}) + \text{CuSO}_4 (\text{aq}) \rightarrow \text{ZnSO}_4 (\text{aq}) + \text{Cu} (\text{s})$

**Q.70** You have two solutions A and B. The pH of solution A is 6 and that of solution B is 9. Based on this information, select the correct answer.

- Ans**
- ☒ A. Solution A is acidic, and Solution B is basic.
  - ☒ B. Solution A is basic, and Solution B is acidic.
  - ☒ C. Both the solutions are basic.
  - ☒ D. Both the solutions are acidic.

**Q.71** Which of the following is the female reproductive part of a flower?

- Ans**
- ☒ A. Petal
  - ☒ B. Pistil
  - ☒ C. Stamen
  - ☒ D. Sepal

**Q.72** Lymph transports digested and absorbed intestinal \_\_\_\_\_.

- Ans**
- ☒ A. carbohydrates
  - ☒ B. proteins
  - ☒ C. fats
  - ☒ D. enzymes

**Q.73** When a piece of limestone reacts with dilute HCl, a gas X is produced. When gas X is passed through lime water, a white precipitate Y is formed. On passing excess of gas X, the white precipitate dissolves, forming a soluble compound Z. X, Y and Z, respectively, are:

- Ans**
- ☒ A.  $\text{CO}_2$ ,  $\text{CaCO}_3$ ,  $\text{Ca}(\text{HCO}_3)_2$
  - ☒ B.  $\text{CO}_2$ ,  $\text{Ca}(\text{HCO}_3)_2$ ,  $\text{CaCO}_3$
  - ☒ C.  $\text{CO}_2$ ,  $\text{CaCO}_3$ ,  $\text{CaO}$
  - ☒ D.  $\text{CO}_2$ ,  $\text{CaCO}_3$ ,  $\text{Ca}(\text{OH})_2$

Q.74 A DC generator is based on the principle of:

- Ans
- ☐ A. heating effect of current
  - ☐ B. magnetic effect of current
  - ☒ C. electromagnetic induction
  - ☐ D. inductive effect

Q.75 The Modern Periodic Table consists of \_\_\_\_\_ groups and \_\_\_\_\_ periods, respectively.

- Ans
- ☐ A. 7; 18
  - ☐ B. 6; 17
  - ☒ C. 18; 7
  - ☐ D. 17; 6

Q.76 Which factor is the most important for deciding the success rate of birth control programmes in controlling population growth?

- Ans
- ☐ A. Tubectomy
  - ☐ B. Use of contraceptives
  - ☐ C. Vasectomy
  - ☒ D. Acceptability of the contraceptive methods by the people

Q.77 Which of the following is a unicellular organism?

- Ans
- ☐ A. Cuscuta
  - ☒ B. Paramecium
  - ☐ C. Bread mould
  - ☐ D. Lice

Q.78 The succeeding members of alkane homologous series differ by the formula unit:

- Ans
- ☐ A.  $H_2$
  - ☒ B.  $CH_2$
  - ☐ C.  $C_2$
  - ☐ D.  $OH$

Q.79 The tendency of conductor to oppose the flow of current is:

- Ans
- ☐ A. Power
  - ☒ B. resistance
  - ☐ C. electric potential
  - ☐ D. conductance

Q.80 During the process of respiration, how many oxygen molecules combine with one molecule of glucose?

- Ans
- ☐ A. Four
  - ☐ B. Five
  - ☒ C. Six
  - ☐ D. Seven

**Q.81** Which law states that “if we keep increasing the employment of an input, with other inputs fixed, eventually a point will be reached after which the resulting addition to output will start falling”?

- Ans**
- ✓ **A. Law of Diminishing Marginal Product**
  - ✗ **B. Law of Variable Proportions**
  - ✗ **C. Law of Increasing Profit Generation**
  - ✗ **D. Law of Production**

**Q.82** Of those listed below, which is the LEAST spoken language in the country as per the Census of India 2011?

- Ans**
- ✗ **A. Bengali**
  - ✗ **B. Marathi**
  - ✗ **C. Telugu**
  - ✓ **D. Tamil**

**Q.83** In July 2022, which institution was upgraded by the Union Cabinet from a deemed-to-be-university to a Central University with its name as Gati Shakti University?

- Ans**
- ✗ **A. National Academy of Indian Railways (NAIR)**
  - ✗ **B. Institute of Road Traffic Education (IRTE)**
  - ✓ **C. National Rail and Transportation Institute (NRTI)**
  - ✗ **D. Institute of Road Transport (IRT)**

**Q.84** The Minister of State for Culture and Parliamentary Affairs launched a \_\_\_\_\_ workshop 'Paramarsh 2022' in Bikaner.

- Ans**
- ✗ **A. food and nutrition**
  - ✗ **B. health and wellness**
  - ✓ **C. career counselling**
  - ✗ **D. hospitality and tourism**

**Q.85** Which is the seven-day long festival celebrated in the north-eastern state of Assam that marks the beginning of the Assamese New Year?

- Ans**
- ✗ **A. Majuli Festival**
  - ✓ **B. Bohag Bihu Festival**
  - ✗ **C. Dehing Patkai Festival**
  - ✗ **D. Moatsu Festival**

**Q.86** Which of the following is a complex mixture of hydrocarbons that occur on Earth in liquid, gaseous or solid form, that can be refined into fuel?

- Ans**
- ✗ **A. Bitumen**
  - ✗ **B. Coke**
  - ✓ **C. Petroleum**
  - ✗ **D. Coal**

**Q.87** In which of the following years was the Wildlife Protection Act first implemented in India after independence?

- Ans**
- ✓ **A. 1972**
  - ✗ **B. 1976**
  - ✗ **C. 1977**
  - ✗ **D. 1978**

**Q.88** Which Indian cricketer broke Kapil Dev's long-standing record for the highest score by an Indian coming to bat at number 7 or below in test cricket?

- Ans**
- ☐ A. Ravichandran Ashwin
  - ☒ B. Ravindra Jadeja
  - ☐ C. Akshar Patel
  - ☐ D. Shardul Thakur

**Q.89** Which one among the following is the oldest High Court of India?

- Ans**
- ☐ A. Patna High Court
  - ☐ B. Delhi High Court
  - ☐ C. Bombay High Court
  - ☒ D. Calcutta High Court

**Q.90** Which of the following does not qualify as a source of factor income?

- Ans**
- ☐ A. Rent
  - ☐ B. Wages
  - ☐ C. Profit
  - ☒ D. Donation

**Q.91** When was the Essential Defence Services Act passed?

- Ans**
- ☐ A. 2018
  - ☐ B. 2019
  - ☐ C. 2020
  - ☒ D. 2021

**Q.92** The 11th Schedule of the Indian Constitution was added in 1992 by the \_\_\_\_\_ Constitution Amendment Act.

- Ans**
- ☐ A. 74th
  - ☐ B. 72nd
  - ☐ C. 42nd
  - ☒ D. 73rd

**Q.93** How many stars (hotter than the sun) did an Indian team led by Barnali Das discover in the year 2021?

- Ans**
- ☐ A. 2
  - ☐ B. 5
  - ☒ C. 8
  - ☐ D. 10

**Q.94** Which river system's tributaries are Purna and Girna Rivers?

- Ans**
- ☐ A. Narmada
  - ☐ B. Godavari
  - ☒ C. Tapti
  - ☐ D. Kaveri

**Q.95** The Smart Event Tracking System, a Google Maps-based planning and analysis tool launched in March 2022 is an in-house software of the \_\_\_\_\_.

- Ans**
- ☒ A. Indian Air Force
  - ☒ B. Indian Railways
  - ☒ C. Airports Authority of India
  - ☒ D. Inland Waterways Authority of India

**Q.96** Which Article of the Constitution of India prohibits discrimination on the grounds of religion?

- Ans**
- ☒ A. Article 14
  - ☒ B. Article 16
  - ☒ C. Article 15
  - ☒ D. Article 17

**Q.97** National Women Ice Hockey Championship - 2022 was hosted by:

- Ans**
- ☒ A. Himachal Pradesh
  - ☒ B. Jammu and Kashmir
  - ☒ C. Ladakh
  - ☒ D. Uttarakhand

**Q.98** The banknotes of denomination of \_\_\_\_\_ introduced in the Mahatma Gandhi (New) Series post demonetisation (2016) have an image of Mangalyaan representing India's first interplanetary space mission.

- Ans**
- ☒ A. ₹2000
  - ☒ B. ₹500
  - ☒ C. ₹200
  - ☒ D. ₹50

**Q.99** Indian economy on the eve of independence was:

- Ans**
- ☒ A. developed
  - ☒ B. undeveloped
  - ☒ C. developing
  - ☒ D. underdeveloped and stagnant

**Q.100** The famous Jagannath Temple is located in which of the following cities?

- Ans**
- ☒ A. Madurai
  - ☒ B. Puri
  - ☒ C. Ayodhya
  - ☒ D. Varanasi



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 08/09/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** The marked price of an item is ₹250 and a shopkeeper allows a discount of 30%. The selling price of the item is:

- Ans**
- ☒ A. ₹195
  - ☒ B. ₹185
  - ☒ C. ₹175
  - ☒ D. ₹165

**Q.2** A started a business with a capital of ₹4,50,000. After 3 months, B joined him with a certain amount of capital. At the end of a year of A's starting the business, the profit was shared in the ratio 3 : 2. How much (in ₹) did B invest?

- Ans**
- ☒ A. 3,20,000
  - ☒ B. 3,60,000
  - ☒ C. 4,00,000
  - ☒ D. 4,20,000

**Q.3** The value of  $\sqrt{625} + \sqrt{0.25} - \sqrt{0.000025}$  is:

- Ans**
- ☒ A. 25.395
  - ☒ B. 25.495
  - ☒ C. 25.5
  - ☒ D. 25.405

**Q.4** The ratio of the present ages of a father and son is 7: 4. The product of their ages is 6300. The age of the son is:

- Ans**
- ☒ A. 80 years
  - ☒ B. 70 years
  - ☒ C. 60 years
  - ☒ D. 50 years



**Q.5** 12 unskilled and 14 skilled workers together complete a certain piece of work in 9 days. If each unskilled worker takes twice the time taken by a skilled worker to finish the work, in how many days will 12 skilled workers finish the same work?

- Ans**
- ☒ A. 10 days
  - ☒ B. 12 days
  - ☒ C. 15 days
  - ☒ D. 18 days

**Q.6** The marked price of an article is ₹100. If the article is sold at a discount of 25%, then 25% profit is realised. The percentage loss or percentage profit made (approximately) if it is sold for ₹20 less than the marked price is:

- Ans**
- ☒ A.  $33\frac{1}{3}\%$  profit
  - ☒ B. 25% profit
  - ☒ C.  $12\frac{1}{2}\%$  loss
  - ☒ D. 35% loss

**Q.7** The HCF of  $(x^4 - y^4)$ ,  $(x^8 - y^8)$  and  $(x^2 - y^2)$  is:

- Ans**
- ☒ A.  $(x - y)(x + y)$
  - ☒ B.  $(x + y)(x + y)$
  - ☒ C.  $(x - y)(x + y)(x + y)$
  - ☒ D.  $(x - y)(x + y)(x - y)(x + y)$

**Q.8** The value of

$$\frac{\sin^2 54^\circ + \sin^2 36^\circ}{\tan^2 40^\circ - \operatorname{cosec}^2 50^\circ} \text{ is:}$$

- Ans**
- ☒ A. 1
  - ☒ B. 0
  - ☒ C. -1
  - ☒ D. 2

**Q.9** A solid cube with an edge of 10 cm is cast into cuboids of dimensions 4 cm × 2 cm × 1 cm. The number of such cuboids that can be cast through it is:

- Ans**
- ☒ A. 125
  - ☒ B. 130
  - ☒ C. 120
  - ☒ D. 100

**Q.10** The compound interest earned in 1 year on ₹40,000 at the rate of 40% per annum, compounded quarterly, is:

- Ans**
- ☒ A. ₹28,564
  - ☒ B. ₹18,564
  - ☒ C. ₹18,264
  - ☒ D. ₹28,264



**Q.11** A man is 4 times as old his son. After 6 years, the man's age will be three times that of his son. The sum of their present ages is:

- Ans**
- ☒ A. 90 years
  - ☒ B. 80 years
  - ☒ C. 70 years
  - ☒ D. 60 years

**Q.12** One year ago, a man was 7 times as old as his daughter. Now his age is equal to the square of his daughter's age. If the daughter has already celebrated her first year birthday, then their present ages are:

- Ans**
- ☒ A. 6 and 36
  - ☒ B. 7 and 49
  - ☒ C. 5 and 25
  - ☒ D. 4 and 28

**Q.13** The third proportional to  $(x^3 - y^3)$  and  $(x - y)$  is:

- Ans**
- ☒ A.  $\frac{x - y}{x^2 - xy + y^2}$
  - ☒ B.  $\frac{(x - y)^2}{x^2 - xy + y^2}$
  - ☒ C.  $\frac{x - y}{x^2 + xy + y^2}$
  - ☒ D.  $\frac{(x - y)^2}{x^2 + xy + y^2}$

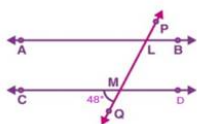
**Q.14** The HCF and LCM of two numbers are 24 and 456, respectively. If one number is 96, then the other number is:

- Ans**
- ☒ A. 192
  - ☒ B. 114
  - ☒ C. 112
  - ☒ D. 216

**Q.15** The total surface area of a cube whose main diagonal length is  $16\sqrt{3}$  cm is:

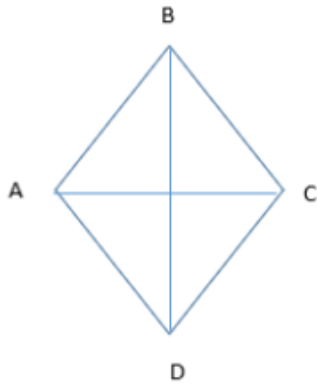
- Ans**
- ☒ A.  $1764 \text{ cm}^2$
  - ☒ B.  $1854 \text{ cm}^2$
  - ☒ C.  $1868 \text{ cm}^2$
  - ☒ D.  $1536 \text{ cm}^2$

**Q.16** In the given figure, AB and CD are parallel lines intersected by a transversal PQ at L and M, respectively. If  $\angle CMQ = 48^\circ$ , then  $\angle PLA$  is:



- Ans**
- ☒ A.  $110^\circ$
  - ☒ B.  $120^\circ$
  - ☒ C.  $132^\circ$
  - ☒ D.  $125^\circ$

Q.17 If ABCD is a rhombus such that  $\angle ACB = 50^\circ$ , then  $\angle BDC$  will be:



Ans ☒ A.  $40^\circ$

☐ B.  $50^\circ$

☐ C.  $55^\circ$

☐ D.  $60^\circ$

Q.18 If  $x^4 + \frac{1}{x^4} = 27$ , then what is the value of  $x^2 + \frac{1}{x^2}$ ?

Ans ☐ A. 31

☐ B. 29

☐ C.  $\sqrt{31}$

☒ D.  $\sqrt{29}$

Q.19 The value of  $5\sqrt{6} - \sqrt{[3(4-2)]} + \left(\frac{12}{\sqrt{6}}\right)$  is:

Ans ☐ A.  $5\sqrt{6}$

☒ B.  $6\sqrt{6}$

☐ C.  $7\sqrt{6}$

☐ D.  $8\sqrt{6}$

Q.20 The average sale of cars by a dealer per day in the month of March, other than on Saturdays and Sundays, is 125. The average sale of cars per day on Sundays is 150. What is the average sale of cars per day on Saturdays, if the first Saturday is on the 3<sup>rd</sup> of March and average sale of cars per day for the whole month is 130?

Ans ☐ A. 140

☐ B. 138

☒ C. 136

☐ D. 132

**Q.21** A man goes from place A to B at a speed of 18 km/h and returns from B to A at a speed of 30 km/h using the same route. The average speed for the whole journey is:

**Ans**

☒ A.  $52\frac{1}{2}$  km/h

☒ B.  $42\frac{1}{2}$  km/h

☒ C.  $32\frac{1}{2}$  km/h

☒ D.  $22\frac{1}{2}$  km/h

**Q.22** The value of  $47 + \{7 + [61 - (21 \div 3)] \div 9\}$  is:

**Ans**

☒ A. 100

☒ B. 80

☒ C. 60

☒ D. 40

**Q.23** Roots of the equation  $x^2 - 5x - 14 = 0$  are:

**Ans**

☒ A. 7, -2

☒ B. 2, -7

☒ C. 3, -2

☒ D. 5, -3

**Q.24** If  $x+y = 8$ , product of  $x$  and  $y$  is 15, then the value of  $x^4 + y^4$  is:

**Ans**

☒ A. 906

☒ B. 806

☒ C. 706

☒ D. 606

**Q.25** There are 20 members in group A, 32 members in group B and 28 members in group C. All the members of these groups went to a restaurant. The average amount spent on each member of group A, B and C is ₹120, ₹125 and ₹100, respectively. The total average amount (in ₹) spent per member is:

**Ans**

☒ A. 112

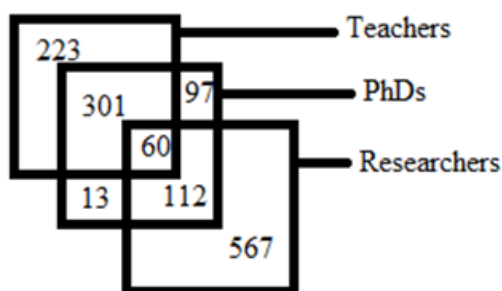
☒ B. 115

☒ C. 116

☒ D. 118

Section : General Intelligence and Reasoning

**Q.26** Study the Venn Diagram given below and answer the question that follows.



How many PhDs are neither teachers nor researchers?

- Ans** ☒ A. 110  
☒ B. 112  
☒ C. 60  
☒ D. 301

**Q.27** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

(13, 9, 5)

(14, 11, 8)

- Ans** ☒ A. (18, 26, 36)  
☒ B. (22, 19, 16)  
☒ C. (14, 10, 12)  
☒ D. (22, 32, 24)

**Q.28** Eight coloured boxes are kept in an almirah having eight shelves. Only one box is kept on one shelf. The lower most shelf is numbered one and the uppermost shelf is numbered eight. There are only two boxes kept above the blue box. The brown box is kept between the black and the blue box. Six boxes are kept below the green box. The orange box is kept on an odd numbered shelf. The yellow box is kept just above the white box and is somewhere below the red box.

Which box is kept on the lowermost shelf?

- Ans** ☒ A. White  
☒ B. Red  
☒ C. Yellow  
☒ D. Blue

**Q.29** Which two signs should be interchanged to make the following equation correct?

$$33 + 4 \times 21 \div 3 - 17 = 122$$

- Ans** ☒ A. + and  $\times$   
☒ B. + and  $-$   
☒ C.  $-$  and  $\times$   
☒ D.  $\div$  and  $-$

**Q.30** If all the numbers given below are arranged in ascending order, the position of how many numbers will remain unchanged?

246, 247, 548, 845, 346, 578, 145

- Ans**
- ✓ A. 1
  - ✗ B. 2
  - ✗ C. 3
  - ✗ D. 4

**Q.31** Select the triad which follows the same pattern as that followed by the two triads given below. Both triads follow the same pattern.

AZ – CX – GT

XC – ZA – DW

- Ans**
- ✗ A. TH – VE – ZA
  - ✗ B. MN – OM – SH
  - ✓ C. DW – FU – JQ
  - ✗ D. PK – RI – WD

**Q.32** Gaganpreet started walking towards the north from his school. After walking for 6 metres he turned left and walked further 8 metres to reach his home. In which direction is his school from his home? (All turns are 90 degree turns only)

- Ans**
- ✗ A. North-west
  - ✓ B. South-east
  - ✗ C. South-west
  - ✗ D. North-east

**Q.33** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

**Statements:**

Some mats are figs.

All figs are clips.

No clip is a stand.

**Conclusions:**

I. All mats being stands is a possibility.

II. Some clips are mats.

- Ans**
- ✗ A. Both conclusions I and II follow
  - ✓ B. Only conclusion II follows
  - ✗ C. Only conclusion I follows
  - ✗ D. Neither conclusion I nor II follows

**Q.34** Six boxes of different food items are kept in a row on the dining table. The box with toffees is kept at one end. There are three boxes kept between the box with toffees and the box with chocolates. The box with ice cream is not kept with the toffee box or the fruit-jam box. Cookies and pancakes boxes are kept with the ice cream box. Which of the following box is kept at an end?

- Ans**
- ✓ A. Fruit-jam
  - ✗ B. Chocolates
  - ✗ C. Pancake
  - ✗ D. Cookies

**Q.35** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding / subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(20, 16, 8)

(13, 20, 23)

**Ans** ✓ A. (32, 27, 18)

✗ B. (13, 16, 13)

✗ C. (14, 18, 16)

✗ D. (19, 18, 21)

**Q.36** Amongst six friends P, Q, R, S, T and U, each has a different height. T is taller than only two other friends. R is shorter than only one friend. P is shorter than T but taller than S. Q is shorter than U. Who is the third tallest among all the friends?

**Ans** ✗ A. T

✗ B. U

✓ C. Q

✗ D. R

**Q.37** Which of the following numbers will replace the question mark (?) in the given series?

15, 18, 27, 54, 135, ?

**Ans** ✗ A. 367

✗ B. 368

✓ C. 378

✗ D. 398

**Q.38** Each vowel in the word 'EXACTLY' is changed to the letter following it in the English alphabetical order and each consonant is changed to the letter preceding it in the English alphabetical order. Which of the following letters will appear twice in the group of letters thus formed?

**Ans** ✗ A. W

✓ B. B

✗ C. S

✗ D. K

**Q.39** Among six friends, A, B, C, D, E and F, each with a different height, B is taller than D but shorter than E. C is shorter than E. A is taller than F. D and E are shorter than C and A, respectively. E is shorter than A and F. Who among the six friends is the tallest?

**Ans** ✗ A. F

✗ B. E

✗ C. C

✓ D. A

**Q.40** Refer to the following number series and answer the question.

7 2 9 6 3 8 3 8 7 2 3 2 7 3 2 2 1 3 3 9 9 7 4 2 9 3 0 9

Find the sum of number of occurrences of 2s and number of occurrences of 3s in the given series.

**Ans** ✗ A. 8

✗ B. 10

✗ C. 12

✓ D. 13

**Q.41** This question is based on the five, three-digit numbers given below.

(Left) 634 145 317 534 621 (Right)

(Example: 697 – first digit = 6, second digit = 9, third digit = 7)

NOTE: All operations to be done from left to right.

What will be the resultant if the third digit of the largest number is added to the second digit of smallest number?

- Ans**
- ☒ A. 4
  - ☒ B. 8
  - ☒ C. 9
  - ☒ D. 7

**Q.42** Which of the following terms will replace the question mark (?) in the given series to make it logically complete?

FUR37, LAX43, RGD49, XMJ55, ?

- Ans**
- ☒ A. PDS63
  - ☒ B. DPS61
  - ☒ C. DSP61
  - ☒ D. PSD63

**Q.43** Three statements are followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they do not conform to real world knowledge, decide which of the given conclusions/possibilities can be true on the basis of the statements.

Statements:

1. Some students are males.
2. Some males are sincere.
3. All sincere are honest.

Conclusions:

- I. Some honest are males.
- II. All males are students is a possibility.
- III. Some sincere are not students.

- Ans**
- ☒ A. Only conclusion I is true
  - ☒ B. Only conclusion II is true
  - ☒ C. Only conclusion III is true
  - ☒ D. Only conclusion I and II are true

**Q.44** What will come in place of the question mark (?) in the following equation, if '+' and '-' are interchanged and also '×' and '÷' are interchanged?

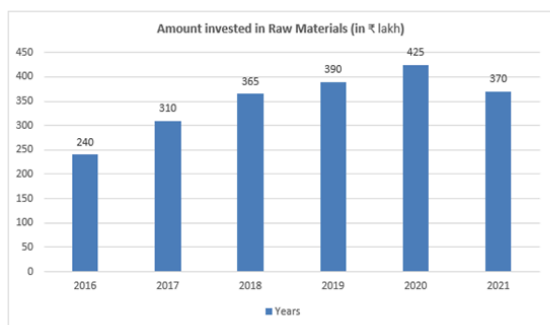
$$10 \div 5 + 144 \times 12 + 13 - 45 \times 9 + 12 = ?$$

- Ans**
- ☒ A. 16
  - ☒ B. 18
  - ☒ C. 20
  - ☒ D. 22

**Q.45** If in a code language, THINE is written as SGHMD and ISLAND is written as HRKZMC, how will DYNAMIC be written in that language?

- Ans**
- ☒ A. CXMZLHB
  - ☒ B. EZNBMC I
  - ☒ C. FGTRDVN
  - ☒ D. JUHGTRD

- Q.46** The following bar chart shows the amount invested by a company in raw material over the duration of six years. Study the bar chart and answer the question based on it.



The sum of amount invested in raw materials in 2016 and 2021 was what percentage of the sum of the amount invested in raw materials in the year 2018 and 2020?

- Ans** ✓ **A. 77.22%**  
✗ **B. 78.36%**  
✗ **C. 79.56%**  
✗ **D. 79.98%**

- Q.47** Sathesh starts from a bus-stand and travels 6 km towards the north. He then takes a right turn, travels 2 km, turns right and travels 11 km. He then takes a right turn and travels 5 km. He takes a final right turn, travels 3 km and stops at a junction. In which direction is the bus-stand with respect to the junction? (All turns are 90° turns only.)

- Ans** ✓ **A. North-east**  
✗ **B. North**  
✗ **C. South**  
✗ **D. South-west**

- Q.48** Given below is a statement followed by two possible underlying assumptions I and II. Read the information carefully and select the correct option.

**Statement:**

Extracts of plant C have been found useful in treating an earlier fatal disease. Although plant C, once imported, can be grown on any moist soil, most pharma companies in country Y are still choosing synthetic substitutes over using natural extracts.

Which of the following can be assumed by the given statement?

I. Unlike the case in all other countries, in Country Y, production of this synthetic substitute is substantially cheaper than growing Plant C.

II. The effect of a synthetic substitute is not drastically different from the plant extract.

- Ans** ✗ **A. Only I can be assumed**  
✓ **B. Only II can be assumed**  
✗ **C. Both I and II can be assumed**  
✗ **D. Neither I nor II can be assumed**

- Q.49** Which of the following numbers will replace the question mark (?) in the given series?

25, 23, 29, 28, 33, 33, ?

- Ans** ✗ **A. 34**  
✗ **B. 38**  
✗ **C. 35**  
✓ **D. 37**



**Q.50** From the numbers 583, 459, 687, 754 and 853., which of the following will be the lowest number, if in each number, all the 8s and 5s are replaced with 2 and 1, respectively?

- Ans**
- ☒ A. 853
  - ☒ B. 583
  - ☒ C. 687
  - ☒ D. 459

**Q.51** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/Symbol | 4 | 5 | 9 | # | \$ | % | 6 |
|---------------|---|---|---|---|----|---|---|
| Codes         | S | D | M | U | T  | L | A |

Conditions:

- (i) If the first element is an even number and the last element is an odd number, the codes for these two (the first and the last elements) are to be interchanged.
- (ii) If the second element is an even number and the fifth element is a symbol, the codes for these two (the second and the fifth elements) are to be interchanged.
- (iii) If the fourth element is a number and the sixth element is a symbol, both these elements (the fourth and the sixth elements) are to be coded as G.

Question: 4 5 \$ 9 4 % # 6

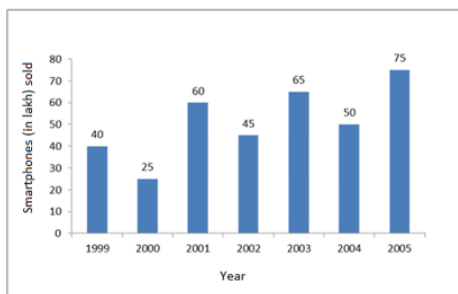
- Ans**
- ☒ A. ADTGSGUS
  - ☒ B. SDTGSGUA
  - ☒ C. SSTGDGUA
  - ☒ D. SDTMLGUA

**Q.52** Rakesh and Raman have their houses in an eight-storeyed building. The lower most floor of the building is numbered as one and the top most floor is numbered as eight. Rakesh's house is just above Raman's floor. Every Day Raman has to go three floors down to drop his son to school which is nearby. On which floor Rakesh Lives?

- Ans**
- ☒ A. 4<sup>th</sup>
  - ☒ B. 5<sup>th</sup>
  - ☒ C. 6<sup>th</sup>
  - ☒ D. 3<sup>rd</sup>

**Q.53** Study the given graph and answer the question that follows.

The graph presents smartphones (in lakh) sold by a company during the years 1999 to 2005.



What was the approximate percentage increase in the smartphone sales of the company from 2002 to 2003?

- Ans**
- ☒ A. 48%
  - ☒ B. 44%
  - ☒ C. 42%
  - ☒ D. 39%

**Q.54** I, J, K, L, M, N and O are sitting along a circle facing at the centre and are playing cards. M is the immediate neighbour of I and L. J is second to the left of O. N is on the immediate right of I. What is the position of N?

- Ans**
- ☒ A. 2<sup>nd</sup> to the right of K
  - ☒ B. To the immediate left of J
  - ☒ C. 2<sup>nd</sup> to the left of L
  - ☒ D. 3<sup>rd</sup> to the right of O

**Q.55** Five friends V, W, X, Y, and Z are eating dinner around a circular dining table, facing the centre. X is an immediate neighbour of both Z and W. V is sitting to the immediate left of W. Y is sitting second to the left of W. Who is sitting to the immediate left of X?

- Ans**
- ☒ A. Z
  - ☒ B. W
  - ☒ C. V
  - ☒ D. Y

#### Section : General Science

**Q.56** A  $4\ \Omega$  resistor, A, is connected in series to a  $6\ \Omega$  resistor, B, and a 2 V battery. The potential drops across A and B are respectively \_\_\_\_\_.

- Ans**
- ☒ A. 1.2 V and 0.8 V
  - ☒ B. 0.8 V and 1.2 V
  - ☒ C. 1.4 V and 0.6 V
  - ☒ D. 0.6 V and 1.4 V

**Q.57** The double displacement reaction among the following is:

- Ans**
- ☒ A.  $\text{Fe (s)} + \text{CuSO}_4 \text{ (aq)} \rightarrow \text{FeSO}_4 \text{ (aq)} + \text{Cu (s)}$
  - ☒ B.  $\text{Zn (s)} + \text{CuSO}_4 \text{ (aq)} \rightarrow \text{ZnSO}_4 \text{ (aq)} + \text{Cu (s)}$
  - ☒ C.  $\text{Pb (s)} + \text{CuCl}_2 \text{ (aq)} \rightarrow \text{PbCl}_2 \text{ (aq)} + \text{Cu (s)}$
  - ☒ D.  $\text{CuSO}_4 \text{ (aq)} + \text{H}_2\text{S (g)} \rightarrow \text{CuS (s)} + \text{H}_2\text{SO}_4 \text{ (aq)}$

**Q.58** A concave mirror is made from a section of the surface of a sphere of radius 8.0 cm. Its principal focus is at a distance of \_\_\_\_\_ from its pole.

- Ans**
- ☒ A. 4.0 cm
  - ☒ B. 8.0 cm
  - ☒ C. 12.0 cm
  - ☒ D. 16.0 cm

**Q.59** Consider the following statements about an electric motor:

- (a) It uses a commutator that reverses the direction of the current in the coil after each half rotation.
- (b) The direction of the force on an arm of the coil can be found using Fleming's left hand rule.

Which of the above statements is/are correct?

- Ans**
- ☒ A. Neither (a) nor (b)
  - ☒ B. Both (a) and (b)
  - ☒ C. Only (a)
  - ☒ D. Only (b)

**Q.60** Which of the following gases is essential for all aerobic forms of life?

- Ans**
- ☐ A.  $\text{CO}_2$
  - ☒ B.  $\text{O}_2$
  - ☐ C.  $\text{O}_3$
  - ☐ D.  $\text{CO}$

**Q.61** What is the normal systolic and diastolic pressure in humans?

- Ans**
- ☐ A. 130 mm of Hg / 80 mm of Hg
  - ☐ B. 130 mm of Hg / 90 mm of Hg
  - ☐ C. 120 mm of Hg / 90 mm of Hg
  - ☒ D. 120 mm of Hg / 80 mm of Hg

**Q.62** An area designated for wildlife in which they have unrestricted access to ecosystems and natural resources is called a \_\_\_\_\_.

- Ans**
- ☐ A. wildlife sanctuary
  - ☒ B. national park
  - ☐ C. biosphere reserve
  - ☐ D. protected area

**Q.63** Which of the following is NOT a component of the male reproductive part of flower?

- Ans**
- ☐ A. Filament
  - ☒ B. Style
  - ☐ C. Anther
  - ☐ D. Pollen

**Q.64** An object is placed on the principal axis of a concave lens, at a point between infinity and its optical centre O. Its image formed is \_\_\_\_\_.

- Ans**
- ☐ A. real and enlarged
  - ☐ B. virtual and enlarged
  - ☐ C. real and diminished
  - ☒ D. virtual and diminished

**Q.65** A 100 W bulb is connected to a 220 V source. The current through the bulb is:

- Ans**
- ☐ A. 2.2 A
  - ☐ B. 1.1 A
  - ☒ C. 0.45 A
  - ☐ D. 0.25 A

**Q.66** Which of the following options correctly describes the features of arteries?

**Ans** ☒ A.

Thick walls, blood flows under low pressure, collect blood from different parts of the body

☒ B.

Thin walls with valves, blood flows under low pressure, collect blood from different parts of the body

☒ C.

Thin walls with valves, blood flows under high pressure, carry blood to different parts of the body

☒ D.

Thick walls, no valves, blood flows under high pressure, carry blood to different parts of the body

**Q.67** A device of 60 W is connected to a 12 V battery. The current in the device is:

**Ans** ☒ A. 0.1 A

☒ B. 0.2 A

☒ C. 2.5 A

☒ D. 5.0 A

**Q.68** Which of the following metals is most metallic in nature?

**Ans** ☒ A. Li

☒ B. Rb

☒ C. Na

☒ D. Cs

**Q.69** Genes control traits through the activity of:

**Ans** ☒ A. enzymes

☒ B. hormones

☒ C. chromosomes

☒ D. gametes

**Q.70** In plants, diffusion is mainly responsible for the process of transportation. However for transport of some substances, energy is needed. Which option shows the substances transported using energy from ATP?

**Ans** ☒ A. Water and minerals

☒ B. Only amino acids

☒ C. Water, minerals and food

☒ D. Food, amino acids and hormones

**Q.71** Consider the statements given below and identify the correct answer.

Statement I: The Modern Periodic Table has 18 vertical columns known as 'periods' and 7 horizontal rows known as 'groups'.

Statement II: Groups in the Periodic Table signify an identical outer shell electronic configuration

**Ans** ☒ A. Statement I is correct, Statement II is incorrect.

☒ B. Statement II is correct, Statement I is incorrect.

☒ C. Both statements are correct.

☒ D. Both statements are incorrect.

Q.72 A decomposition reaction carried out by heating is called:

- Ans
- ☐ A. photochemical decomposition
  - ☒ B. thermal decomposition
  - ☐ C. electrolysis
  - ☐ D. exothermic reaction

Q.73 Which of the following members of the homologous series of alkanes has the highest melting point?

- Ans
- ☒ A.  $C_4H_{10}$
  - ☐ B.  $C_3H_8$
  - ☐ C.  $C_2H_6$
  - ☐ D.  $CH_4$

Q.74 An object is placed in front of a concave mirror at a point beyond its centre of curvature C. The image is formed at a point \_\_\_\_\_ and is \_\_\_\_\_.

- Ans
- ☒ A. between F and C, diminished
  - ☐ B. between F and C, enlarged
  - ☐ C. beyond C, enlarged
  - ☐ D. beyond C, diminished

Q.75 Which of the following will NOT affect the magnetic strength of an electromagnet?

- Ans
- ☐ A. Number of turns in the coil
  - ☒ B. Direction of placement of the coil
  - ☐ C. Current flowing through the coil
  - ☐ D. Length of the metallic core

Q.76 Acids that give rise to more  $H^+$  ions are said to be \_\_\_\_\_, while those which gives less  $H^+$  ions are said to be \_\_\_\_\_.

- Ans
- ☐ A. strong acid, strong base
  - ☐ B. strong acid, weak base
  - ☐ C. weak acid, strong acid
  - ☒ D. strong acid, weak acid

Q.77 The total numbers of covalent bond in propane are \_\_\_\_\_.

- Ans
- ☐ A. 8
  - ☐ B. 7
  - ☒ C. 10
  - ☐ D. 12

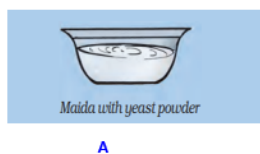
Q.78 Which of the following properties is NOT shown by bleaching powder?

- Ans
- ☒ A. Reducing agent
  - ☐ B. For bleaching cotton fibre
  - ☐ C. Oxidising agent
  - ☐ D. In water purification

**Q.79** Which of the following phenomena is NOT involved during the formation of a rainbow?

- Ans**
- ☒ A. refraction
  - ☒ B. dispersion
  - ☒ C. scattering
  - ☒ D. Total internal reflection

**Q.80** Study the figures A and B carefully. What is the reason for the increase in volume in dough B?



A



B

- Ans**
- ☒ A. CO<sub>2</sub> produced during respiration increases the volume
  - ☒ B. Alcohol is produced that increases the volume
  - ☒ C. Lactic acid is produced that increases the volume
  - ☒ D. Water is produced that increases the volume

Section : General Awareness and Current Affairs

**Q.81** \_\_\_\_\_ as a result of the 44<sup>th</sup> Constitutional Amendment to the Constitution of India.

- Ans**
- ☒ A. Right to Property ceased to be a Fundamental Right
  - ☒ B. Sikkim became the 22nd state of the India Union
  - ☒ C. The Preamble to the Constitution of India was amended to include the words 'socialist' and 'secular'
  - ☒ D. Salaries of Judges of the High Courts and Supreme Court of India were revised

**Q.82** Which ministry released a draft 'National Air Sports Policy (NASP)' for public feedback on January 2, 2022?

- Ans**
- ☒ A. Ministry of Civil Aviation
  - ☒ B. Ministry of Youth Affairs and Sports
  - ☒ C. Ministry of Home Affairs
  - ☒ D. Ministry of External Affairs

**Q.83** Which language institution gives away the Bhasha Bharti Samman award in India?

- Ans**
- ☒ A. Central Hindi Directorate
  - ☒ B. Rashtriya Sanskrit Sansthan
  - ☒ C. Kendriya Hindi Sansthan
  - ☒ D. Central Institute of Indian Languages

**Q.84** Which of the following is the birth place of the founder of Christianity?

- Ans**
- ☐ A. Nazareth
  - ☐ B. Haifa
  - ☒ C. Bethlehem
  - ☐ D. Galilee

**Q.85** During the British rule in India, about how much per cent of the country's population lived mostly in villages and derived their livelihood directly or indirectly from agriculture?

- Ans**
- ☒ A. 85%
  - ☐ B. 75%
  - ☐ C. 65%
  - ☐ D. 55%

**Q.86** Which amendments of the Constitution of India aimed at strengthening local governments and ensuring an element of uniformity in their structure

and functioning across the country?

- Ans**
- ☒ A. 73<sup>rd</sup> and 74<sup>th</sup>
  - ☐ B. 63<sup>rd</sup> and 64<sup>th</sup>
  - ☐ C. 53<sup>rd</sup> and 54<sup>th</sup>
  - ☐ D. 43<sup>rd</sup> and 44<sup>th</sup>

**Q.87** According to the Union Budget 2022, the overall workforce participation rate in India is \_\_\_\_\_.

- Ans**
- ☐ A. 19.1%
  - ☒ B. 20.3%
  - ☐ C. 21.2%
  - ☐ D. 22.6%

**Q.88** Name the state that became the first state to introduce carbon-neutral farming methods, in March 2022?

- Ans**
- ☒ A. Kerala
  - ☐ B. Tamil Nadu
  - ☐ C. Assam
  - ☐ D. Jharkhand

**Q.89** \_\_\_\_\_ is a newsletter published by the Small Industries Development Bank of India (SIDBI) and Equifax.

- Ans**
- ☒ A. Microfinance Pulse
  - ☐ B. Microfinance Times
  - ☐ C. Microfinance Now
  - ☐ D. Microfinance World



**Q.90** The newer, younger deposits of the flood plains called \_\_\_\_\_ are renewed almost every year, and hence are fertile, thus being ideal for intensive agriculture.

- Ans**
- ☒ A. Bangar
  - ☒ B. Khadar
  - ☒ C. Bhabar
  - ☒ D. Tarai

**Q.91** Which of the following Indian states received the maximum of its rainfall from the Northeast Monsoon in 2021?

- Ans**
- ☒ A. Haryana
  - ☒ B. Uttar Pradesh
  - ☒ C. Gujarat
  - ☒ D. Tamil Nadu

**Q.92** The National Commission for Protection of Child Rights (NCPCR) launched the SAMVEDNA helpline in 2021 to \_\_\_\_\_.

- Ans**
- ☒ A. provide mental support to children affected by Covid-19
  - ☒ B. counsel children who witness domestic violence
  - ☒ C. counsel children of sex workers
  - ☒ D. provide guidance to students about career choices

**Q.93** In February 2022, which job portal powered by artificial intelligence was launched by IIT-Hyderabad to help people with disabilities to acquire relevant skills and find jobs?

- Ans**
- ☒ A. Glassdoor
  - ☒ B. Swarajability
  - ☒ C. Yuvika
  - ☒ D. Sarthakindia

**Q.94** Indian Space Research Organization (ISRO) has successfully completed the ground test of the solid fuel-based booster stage (SS1) of its new SSLV at Satish Dhawan Space Centre (SDSC), Sriharikota at Andhra Pradesh in March 2022. What is the full form of the above mentioned SSLV?

- Ans**
- ☒ A. Solar Satellite Launch Vehicle
  - ☒ B. Small Satellite Launch Vehicle
  - ☒ C. Synchronized Satellite Launch Vehicle
  - ☒ D. Systematic Satellite Launch Vehicle

**Q.95** Select the correct statement.

- Ans**
- ☒ A. Slope of the consumption function is indicated by APC, and not MPC.
  - ☒ B. MPC multiplied by MPS equals 1.
  - ☒ C. Investment multiplier is positively related to MPC.
  - ☒ D. Investment multiplier is zero when MPS is zero.



**Q.96** In the year 2021, the sportspersons who won the most Arjuna Awards were associated with which sport?

- Ans**
- ✓ A. Hockey
  - ✗ B. Cricket
  - ✗ C. Shooting
  - ✗ D. Archery

**Q.97** The term 'lithification' is related to which of the following geographic elements?

- Ans**
- ✓ A. Rocks
  - ✗ B. Seas
  - ✗ C. Rivers
  - ✗ D. Valleys

**Q.98** Who among the following freedom fighters has been honoured with the title of 'The Iron Man Of India'?

- Ans**
- ✗ A. Jawaharlal Nehru
  - ✗ B. Vithalbhai Patel
  - ✗ C. Ram Manohar Lohia
  - ✓ D. Vallabhbhai Patel

**Q.99** The guardian of the Constitution of India is:

- Ans**
- ✗ A. the President
  - ✓ B. the Supreme Court
  - ✗ C. the Lok Sabha
  - ✗ D. the Rajya Sabha

**Q.100** Which of the following festivals is also known as 'Vijayadashmi'?

- Ans**
- ✗ A. Pongal
  - ✗ B. Onam
  - ✗ C. Diwali
  - ✓ D. Dussehra



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 09/09/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** Pipe A can fill a cistern in 6 hours and B can fill it in 30 hours. Both pipes were turned on but there was a leakage in the bottom of the cistern. So, the cistern took 30 minutes more to fill. The time that the leakage will take to empty the full cistern is:

- Ans**
- ☒ A. 54 hours
  - ☒ B. 55 hours
  - ☐ C. 65 hours
  - ☐ D. 60 hours

**Q.2** The median of the observations 4, 14, 11, 8, 7, 8, 9, 12, 4 and 6 is:

- Ans**
- ☐ A. 11
  - ☐ B. 10
  - ☐ C. 9
  - ☒ D. 8

**Q.3** A sum of ₹4,800 is divided between A, B and C such that the ratio of the share of A to the combined share of B and C is 3 : 5 and C receives  $\frac{5}{7}$  of what A and B together receive. The difference (in ₹) of A's share and B's share is:

- Ans**
- ☒ A. 800
  - ☐ B. 850
  - ☐ C. 900
  - ☐ D. 1,000

**Q.4** The average marks obtained in mathematics by the students of a class was 70. The average marks obtained by the boys is 20% more than the average marks obtained by the girls. If the ratio of the number of boys to that of girls is 3 : 2, then the average marks obtained by the girls is:

- Ans**
- ☒ A. 62.5
  - ☐ B. 63
  - ☐ C. 63.5
  - ☐ D. 65

**Q.5** If the cost price of an item is ₹4,500 and its selling price is ₹3,500, then the loss percentage is:

**Ans**

☐ A.  $55\frac{2}{9}\%$

☐ B.  $44\frac{2}{9}\%$

☐ C.  $33\frac{2}{9}\%$

☒ D.  $22\frac{2}{9}\%$

**Q.6** The value of  $39 \div \{6 \times (\frac{6}{7} \text{ of } \frac{7}{8})\}$  is:

**Ans**

☐ A.  $\frac{23}{3}$

☐ B.  $\frac{25}{3}$

☒ C.  $\frac{26}{3}$

☐ D.  $\frac{28}{3}$

**Q.7** Which of the following statements is true about the nature of roots for the equation  $2x^2 + 9x + 15 = 0$ ?

**Ans**

☒ A. Both roots are imaginary or non-real

☐ B. One root is positive real and one is negative real

☐ C. Both roots are positive real

☐ D. Both roots are negative real

**Q.8** The present ages of two persons are 46 years and 60 years, respectively. If after 'n' years, the ratio of their ages is 4: 5, then the value of 'n' is:

**Ans**

☐ A. 13

☐ B. 12

☐ C. 11

☒ D. 10

**Q.9** The LCM of the numbers 36, 54, 72 and 96 is:

**Ans**

☐ A. 1064

☐ B. 964

☒ C. 864

☐ D. 764

**Q.10** Three numbers are in the ratio 4: 5: 7, and their LCM is 5600. Their HCF is:

**Ans**

☐ A. 10

☐ B. 20

☐ C. 30

☒ D. 40

Q.11 The value of  $(0.1 \times 0.001 \times 0.0001 \times 10^6)$  is:

Ans ☐ A. 100

☐ B. 1

☒ C.  $\frac{1}{100}$

☐ D.  $\frac{1}{10}$

Q.12 The volumes of two spheres are in the ratio 216 : 125. The ratio of their surface areas is:

Ans ☐ A. 9 : 4

☒ B. 36 : 25

☐ C. 16 : 9

☐ D. 25 : 9

Q.13 The value of  $\sec A (1 - \cos A) (\operatorname{cosec} A + \cot A)$  is:

Ans ☐ A.  $\cot A$

☒ B.  $\tan A$

☐ C.  $\operatorname{cosec} A$

☐ D.  $\sec A$

Q.14 In a competitive exam, 3 marks are to be awarded for every correct answer and for every wrong answer, 1 mark will be deducted. Sindhu scored 80 marks in this exam. Had 4 marks been awarded for each correct answer and 2 marks deducted for each incorrect answer, Sindhu would have scored 90 marks. If Sindhu attempted all the questions, then the number of questions in the test are:

Ans ☐ A. 70

☒ B. 60

☐ C. 55

☐ D. 50

Q.15 The sum of the present ages of A and B is 30 years. The ratio of their ages after 5 years will be 3 : 2. The present age of A is:

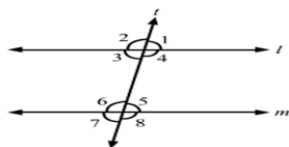
Ans ☐ A. 39 years

☐ B. 29 years

☒ C. 19 years

☐ D. 11 years

Q.16 In the given figure,  $l \parallel m$  and  $t$  is a transversal. If  $\angle 1$  and  $\angle 2$  are in the ratio 4 : 11, the measures of the angles  $\angle 7$  and  $\angle 8$ , respectively, are:



Ans ☐ A.  $65^\circ$  and  $115^\circ$

☒ B.  $132^\circ$  and  $48^\circ$

☐ C.  $110^\circ$  and  $70^\circ$

☐ D.  $87^\circ$  and  $93^\circ$

**Q.17** If a certain sum becomes two times itself in 6 years at compound interest in case of annual compounding, then the number of years in which it will become eight times of itself at the same rate of interest under annual compounding is:

- Ans**
- ☐ A. 12 years
  - ☐ B. 24 years
  - ☒ C. 18 years
  - ☐ D. 36 years

**Q.18** Solutions for the equation  $11a^2 + 18a + 7 = 0$  are:

- Ans**
- ☐ A.  $-1, 2$
  - ☐ B.  $-2, \frac{-7}{11}$
  - ☒ C.  $-1, \frac{-7}{11}$
  - ☐ D.  $-1, -3$

**Q.19** In a quadrilateral ABCD, if the sum of angles  $\angle B$  and  $\angle D$  be  $150^\circ$  while angles  $\angle A$  and  $\angle C$  are in ratio 4 : 3, then the measure of  $\angle C$  will be:

- Ans**
- ☐ A.  $210^\circ$
  - ☐ B.  $150^\circ$
  - ☒ C.  $90^\circ$
  - ☐ D.  $120^\circ$

**Q.20** The value of  $36^2 \div 9^2 + 4^2$  is:

- Ans**
- ☒ A. 32
  - ☐ B. 36
  - ☐ C. 49
  - ☐ D. 25

**Q.21** A shopkeeper allows 4% discount on his marked price. If the cost price of an article is ₹ 120 and he has to make a profit of 10%, then his marked price must be:

- Ans**
- ☐ A. ₹127.50
  - ☒ B. ₹137.50
  - ☐ C. ₹120.50
  - ☐ D. ₹117.50

**Q.22** If  $9x = 55^2 - 35^2$ , then the value of x is:

- Ans**
- ☐ A. 500
  - ☐ B. 400
  - ☐ C. 300
  - ☒ D. 200

**Q.23** A man goes to his office from his house at the speed of 5 km/h and returns to his house using the same route at the speed of 20 km/h. The average speed during the journey is:

- Ans**
- ☐ A. 6 km/h
  - ☐ B. 12 km/h
  - ☐ C. 10 km/h
  - ☒ D. 8 km/h

**Q.24** The area of a square having side 15 cm is:

- Ans**
- ☒ A. 525 cm<sup>2</sup>
  - ☒ B. 425 cm<sup>2</sup>
  - ☒ C. 325 cm<sup>2</sup>
  - ☒ D. 225 cm<sup>2</sup>

**Q.25** The third proportional of 3.6 and 1.2 is:

- Ans**
- ☒ A. 0.40
  - ☒ B. 0.60
  - ☒ C. 0.80
  - ☒ D. 0.90

Section : General Intelligence and Reasoning

**Q.26** Select the number from among the given options that can replace the question mark (?) in the following series.

21, 22, 26, 35, 51, 76, ?

- Ans**
- ☒ A. 140
  - ☒ B. 114
  - ☒ C. 112
  - ☒ D. 110

**Q.27** E, F, G, H, I and J live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it number 2, and so on till the topmost floor is numbered 6.

G lives on the lowermost floor. Only J lives between the floors occupied by H and I. E lives on floor number 2. F lives on an even numbered floor, with I as an immediate neighbour. Who lives on floor number 4?

- Ans**
- ☒ A. F
  - ☒ B. J
  - ☒ C. H
  - ☒ D. I

**Q.28** Amongst six friends C, V, Z, N, X and B, each has a different height. Z is taller than only four other friends. N is taller than only one friend. X is taller than B but shorter than V. V is not the tallest. Who is the tallest among all the friends?

- Ans**
- ☒ A. N
  - ☒ B. X
  - ☒ C. B
  - ☒ D. C

**Q.29** If the first and third digits of each number are interchanged and then the numbers are arranged in descending order, the position of how many numbers will NOT change?

7451, 3254, 7353, 3464, 1958

- Ans**
- ☒ A. Three
  - ☒ B. Two
  - ☒ C. One
  - ☒ D. Zero

**Q.30** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(4, 6, 8)

(6, 9, 12)

**Ans** ✓ **A.** (8, 12, 16)

✗ **B.** (5, 30, 10)

✗ **C.** (2, 12, 8)

✗ **D.** (18, 18, 16)

**Q.31** Raghav starts from Point A and drives 10 km towards the north. He then takes a right turn, drives 4 km, turns right and drives 13 km. He then takes a right turn and drives 7 km. He takes a final right turn, drives 3 km and stops at Point P. How far and towards which direction should he drive in order to reach Point A from Point P? (All turns are 90 degree turns only)

**Ans** ✗ **A.** 3 km towards the west

✓ **B.** 3 km towards the east

✗ **C.** 4 km towards the east

✗ **D.** 5 km towards the north

**Q.32** A, B, C, D, E, F, G and H are sitting around a square table facing the centre of the table. Some of them are sitting at the corners, while some are sitting at the middle of the sides. G sits third to the left of D. G sits at one of the corners. B sits second to the right of A. A does not sit at any of the corners. A is not an immediate neighbour of G. H is an immediate neighbour of C. H does not sit at any of the middle of the sides. Only three people sit between H and F. Who sits third to the left of E?

**Ans** ✗ **A.** F

✗ **B.** B

✗ **C.** D

✓ **D.** C

**Q.33** Each of the digits in the number 8132475 is arranged in descending order from left to right. what will be the sum of the digits which are third from the left and second from the right in the new number thus formed?

**Ans** ✗ **A.** 9

✗ **B.** 2

✗ **C.** 5

✓ **D.** 7

**Q.34** In a certain code language, ELDERLY is written as DLEEYLR, and GENERAL is written as NEGELAR. How is NUCLEAR written in that language?

**Ans** ✗ **A.** UCNRLLE

✗ **B.** CULNREA

✗ **C.** UCNLARE

✓ **D.** CUNLRAE

**Q.35** A certain number of people are sitting in a row, facing north. Lalit sits fourth to the left of Purnima. Lalit is third from the left end. Leela is eleventh from the right end and an immediate neighbour of Lalit. Only four people sit between Sheetal and Lalit. Only four people sit between Sheetal and Neena. How many people are sitting in the row?

- Ans**
- ✓ A. 14
  - ✗ B. 23
  - ✗ C. 33
  - ✗ D. 18

**Q.36** Three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

1. No Boy is a Singer.
2. All Singers are Musicians.
3. All Musicians are Actors.

**Conclusions:**

- I. All Musicians cannot be Boys.
- II. All Boys are Actors.
- III. No Actor is a Boy.

- Ans**
- ✓ A. Only conclusion I follows
  - ✗ B. Only conclusion II follows
  - ✗ C. Conclusions II and III follow
  - ✗ D. Conclusions I and II follow

**Q.37** Five persons, P, Q, R, S and T travelled in different months of the same year viz. January, February, March, April and May. P travelled in February. Only one person travelled between P and R. Only three people travelled between S and Q. Q travelled in a month after R. Who among them travelled in January?

- Ans**
- ✗ A. Q
  - ✓ B. S
  - ✗ C. T
  - ✗ D. R

**Q.38** This question is based on the five, three-digit numbers given below.

(Left) 744 345 417 235 829 (Right)

(Example: 697 – first digit = 6, second digit = 9, third digit = 7)

NOTE: All operations to be done from left to right.

What will be the resultant if the second digit of the largest number is added to the third digit of smallest number?

- Ans**
- ✓ A. 7
  - ✗ B. 14
  - ✗ C. 5
  - ✗ D. 12



**Q.39** In a certain code language, 'ALBUM' is written as 'CPHCW' and 'BOARD' is written as 'DSGZN'. How will 'CLEAR' be written in that language?

- Ans**
- ☒ A. SDOIG
  - ☒ B. EPKIB
  - ☒ C. PLEUV
  - ☒ D. EKNPS

**Q.40** A statement is given below, followed by four conclusions given in the options. Find out which conclusion is true based on the given statement.

Statement:  $Q \geq W = E > R \leq T < Y$

- Ans**
- ☒ A.  $R < Y < T$
  - ☒ B.  $Q = W = E$
  - ☒ C.  $Q > R < Y$
  - ☒ D.  $E > Y > T$

**Q.41** Three statements are followed by three conclusions numbered I, II and III. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts. Decide which of the given conclusions logically follow(s) from the given statement.

Statements:

- All sofas are chairs
- All chairs are benches
- All benches are desks

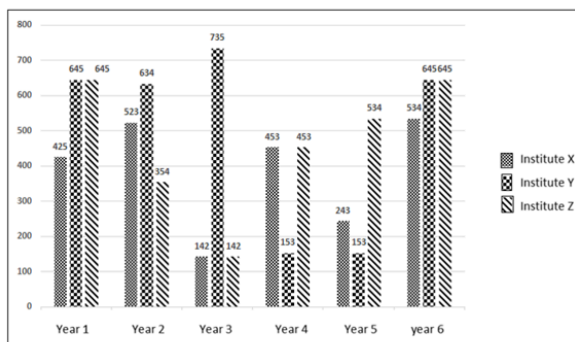
Conclusions:

- (I) Some desks are sofas
- (II) All chairs are sofas
- (III) No chair is a sofa

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Only conclusion I and III follows
  - ☒ D. None of the conclusions follow

**Q.42** Study the given graph and answer the question that follows.

The graph presents the total number of candidates who qualified for medical entrance examination from three reputed institutions over the six years.



In which year have the maximum number of candidates succeeded in all three institutes taken together?

- Ans**
- ☒ A. Year 6
  - ☒ B. Year 5
  - ☒ C. Year 1
  - ☒ D. Year 2

**Q.43** Each vowel in the word 'EXACTLY' is changed to the letter following it in the English alphabetical order and each consonant is changed to the letter preceding it in the English alphabetical order. If each letter, thus formed, is arranged in alphabetical order, which letter will be third from the right end?

- Ans**
- ☒ A. F
  - ☒ B. K
  - ☒ C. S
  - ☒ D. W

**Q.44** Select the option that is related to the fifth letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster and the fourth letter-cluster is related to the third letter-cluster.

TEACHER : BFUDSFI :: STUDENT : VUTEUOF :: CLASSES : ?

- Ans**
- ☒ A. BMDTTET
  - ☒ B. BMDTTFT
  - ☒ C. DMBTTFT
  - ☒ D. BMDSTFU

**Q.45** Five people A, B, C, D and E are sitting around a circular table. One of them is facing outside (opposite to the centre) and the other four are facing the centre. C is facing the centre and is sitting at second place to the left of D. B is sitting at second place to the right of D. A is sitting to the immediate left of both C and D. E is sitting to the immediate right of B. Who among them is facing outside?

- Ans**
- ☒ A. B
  - ☒ B. C
  - ☒ C. E
  - ☒ D. D

**Q.46** What will come in place of the question mark (?) in the following equation, if '+' and '-' are interchanged and also '×' and '÷' are interchanged?

$$13 \div 7 + 132 \times 11 + 23 - 512 \times 2 + 122 = ?$$

- Ans**
- ☒ A. 200
  - ☒ B. 165
  - ☒ C. 195
  - ☒ D. 190

**Q.47** The following table shows the investment (in Rs.) of three friends over the years. Study the table carefully and answer the question that follows.

| Years | A     | B     | C     |
|-------|-------|-------|-------|
| 2017  | 55000 | 48000 | 36000 |
| 2018  | 25000 | 85000 | 46000 |
| 2019  | 64000 | 56000 | 75000 |
| 2020  | 79000 | 42000 | 84000 |
| 2021  | 38000 | 62000 | 54000 |

The sum of average investment of both A and average investment of B for the given years is what percentage of the sum of average investment of B and average investment of C for the given years?

- Ans**
- ☒ A. 85.35%
  - ☒ B. 87.25%
  - ☒ C. 91.36%
  - ☒ D. 94.22 %

**Q.48** Meeta starts walking from her office and goes 60 m towards the east. She then takes a right turn and walks 40 m. She then turns left and walks 36 m. She then takes a final left turn and walks 40 m to reach a park. In which direction is the park with reference to Meeta's office? (All turns are 90 degree turns only)

- Ans**
- ✓ A. East
  - ✗ B. West
  - ✗ C. North
  - ✗ D. South

**Q.49** Refer to the following number series and answer the question that follows.

(Left) 1 4 6 7 4 3 2 5 6 7 3 4 6 5 1 3 4 5 2 4 5 1 5 7 (Right)

If every second number from the left in the above series is dropped, which number would appear at the eighth place from the left?

- Ans**
- ✓ A. 1
  - ✗ B. 5
  - ✗ C. 6
  - ✗ D. 4

**Q.50** Refer to the following letter-symbol series and answer the question that follows.

HYTG BDRSV% ^ C D N S \$ R ^ @ @ F S V # D % & H

How many such letters are there that are immediately preceded by a symbol and also immediately followed by a symbol?

- Ans**
- ✗ A. 3
  - ✓ B. 5
  - ✗ C. 4
  - ✗ D. 2

**Q.51** Select the option that represents the letters that, when placed from left to right in the blanks below, will complete the letter series.

K \_ G \_ D \_ L G P \_ K L \_ P D K \_ G \_ D

- Ans**
- ✗ A. L P K L G D P
  - ✗ B. L K P D L G P
  - ✗ C. L L P P K D G
  - ✓ D. L P K D G L P

**Q.52** Four number triads have been given, out of which three are alike in some manner as they follow the same pattern and one is different. Select the number triad that is different from the rest.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 is not allowed)

- Ans**
- ✗ A. (34, 22, 12)
  - ✗ B. (47, 33, 21)
  - ✗ C. (79, 61, 45)
  - ✓ D. (99, 79, 60)

**Q.53** Given below is a decision followed by two statements I and II. Read the information carefully and select the correct option.

**Decision:**

Many private schools in country F have decided to discontinue assessments for students until grade 7. All students will be promoted to the next grade irrespective of how they have performed.

**Statements:**

I. A survey in country F showed that students who were assessed regularly had much better grasp on concepts than those who did not have assessments on a regular basis.

II. As per the current curriculum of grades 4 to 7 in country F, 70-80% of all subject matter consists of basics which are very important for higher education.

- Ans**
- ☒ A. Both statements I and II strengthen the decision.
  - ☒ B. Statement I weakens the decision but statement II is neutral.
  - ☒ C. Both statements I and II weaken the decision.
  - ☒ D. Statement I is neutral but statement II strengthens the decision.

**Q.54** Which of the following numbers will replace the question mark (?) in the given series?

5, 11, 24, 51, ?

- Ans**
- ☒ A. 102
  - ☒ B. 104
  - ☒ C. 106
  - ☒ D. 108

**Q.55** Three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

1. All keys are mouse.
2. Some mouse are processor.
3. Some processors are drive.

**Conclusions:**

- I. Some processors are mouse.
- II. Some processors are keys.
- III. Some drives are mouse.

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Both conclusions II and III follow
  - ☒ D. All the conclusions follow

#### Section : General Science

**Q.56** A current carrying wire is placed horizontally in a magnetic field with north pole in upward and south pole in downward direction. The wire is deflected towards south direction. The direction of electrons in the wire is:

- Ans**
- ☒ A. east to west
  - ☒ B. west to east
  - ☒ C. north to south
  - ☒ D. south to north

**Q.57** A ray of light is incident on a refracting surface AB of a glass prism and emerges out of the other refracting surface AC. Consider the following statements:

- (a) The angle of refraction at surface AB is more than the angle of incidence.
- (b) The angle of refraction at the surface AC is less than the angle of incidence.

Which of the above statements is/are correct?

- Ans**
- ☒ A. Both (a) and (b)
  - ☒ B. Neither (a) nor (b)
  - ☒ C. Only (a)
  - ☒ D. Only (b)

**Q.58** Which of the following parts of the alimentary canal carries out the complete digestion of carbohydrates, proteins and fats?

- Ans**
- ☒ A. Oesophagus
  - ☒ B. Stomach
  - ☒ C. Small intestine
  - ☒ D. Large intestine

**Q.59** Select the correct product when ethanol is heated at 443 K with excess concentrated sulphuric acid.

- Ans**
- ☒ A.  $CH_2 = CH_2$
  - ☒ B.  $CH_4$
  - ☒ C.  $CH_3COOH$
  - ☒ D.  $CH_3 - CH_3$

**Q.60** Two resistors, each of  $10\ \Omega$ , are connected in parallel. The combination, in turn, is connected in series to a third resistor of  $10\ \Omega$  and a battery of 6 V. The power supplied by the battery is:

- Ans**
- ☒ A. 10.8 W
  - ☒ B. 5.4 W
  - ☒ C. 2.4 W
  - ☒ D. 1.2 W

**Q.61** Tarnishing of ornaments is an example of \_\_\_\_\_.

- Ans**
- ☒ A. oxidation reaction
  - ☒ B. neutralisation reaction
  - ☒ C. exothermic reaction
  - ☒ D. photolytic decomposition reaction

**Q.62** What is the correct order of periods in terms of number of elements?

- Ans**
- ☒ A.  $1 < 2 = 3 < 4 = 5 < 6 = 7$
  - ☒ B.  $1 = 2 < 3 = 4 < 5 = 6 < 7$
  - ☒ C.  $1 = 2 = 3 < 4 = 5 < 6 = 7$
  - ☒ D.  $1 < 2 < 3 = 4 < 5 = 6 < 7$

Q.63 Which of the following constitutes the human excretory system?

- Ans
- ☐ A. One pair of kidneys, single ureter, single urinary bladder and single urethra
  - ☐ B. Single kidney, single ureter, one pair of urinary bladder and single urethra
  - ☒ C. One pair of kidneys, one pair of ureters, single urinary bladder and single urethra
  - ☐ D. One pair of kidneys, single urinary bladder, single ureter and one pair of urethra

Q.64 Which atomic number is related with four valence electrons?

- Ans
- ☐ A. 5
  - ☒ B. 6
  - ☐ C. 7
  - ☐ D. 8

Q.65 An object is placed in front of a concave mirror at a point between its pole P and focus F. The image formed is:

- Ans
- ☐ A. virtual and inverted
  - ☒ B. virtual and erect
  - ☐ C. real and erect
  - ☐ D. real and inverted

Q.66 Which of the following are the end products of respiration in plants?

- Ans
- ☒ A.  $\text{CO}_2$ ,  $\text{H}_2\text{O}$  and Energy
  - ☐ B.  $\text{O}_2$  and Energy
  - ☐ C.  $\text{CO}_2$  and  $\text{O}_2$
  - ☐ D. Glucose and  $\text{O}_2$

Q.67 How can we reduce the use of non-biodegradable products?

- Ans
- ☐ A. By packing milk and water in polybags
  - ☐ B. Fruits and vegetables can be bought packed in beautiful polystyrene and plastic packaging
  - ☒ C. By using eco-friendly packaging
  - ☐ D. Eatables like biscuits etc., can be bought packed in plastic tins and wrappers

Q.68 What happens when calcium hydroxide solution is left open in air?

- Ans
- ☒ A.  $\text{CaCO}_3$  is formed.
  - ☐ B.  $\text{CaO}$  is formed.
  - ☐ C.  $\text{O}_2$  is liberated.
  - ☐ D.  $\text{H}_2\text{O}$  (gas) is evolved.

Q.69 Which of the following plants produce unisexual flowers?

- Ans
- ☐ A. Mustard and Hibiscus
  - ☒ B. Watermelon and Papaya
  - ☐ C. Hibiscus and Papaya
  - ☐ D. Watermelon and Mustard

**Q.70** An object is placed in front of a concave mirror of focal length 12 cm, at a distance of 6 cm. Its image is formed at a distance of \_\_\_\_\_ and is \_\_\_\_\_.

- Ans**
- ☒ A. 4 cm, virtual
  - ☒ B. 4 cm, real
  - ☒ C. 12 cm, virtual
  - ☒ D. 12 cm, real

**Q.71** Whenever moving from left to right in a period, metallic character \_\_\_\_\_.

- Ans**
- ☒ A. increases
  - ☒ B. decreases
  - ☒ C. remains constant
  - ☒ D. first increases, then decreases

**Q.72** A ray of light in air is incident at an angle of  $60^\circ$  on the surface separating air from a medium of refractive index  $\sqrt{3}$ . The ray is refracted in the medium at an angle of \_\_\_\_\_.

- Ans**
- ☒ A.  $60^\circ$
  - ☒ B.  $45^\circ$
  - ☒ C.  $30^\circ$
  - ☒ D.  $15^\circ$

**Q.73** Name the process that causes living cells to expand in size and shape when placed in a hypotonic solution.

- Ans**
- ☒ A. Photosynthesis
  - ☒ B. Transpiration
  - ☒ C. Osmosis
  - ☒ D. Diffusion

**Q.74** A current of 0.4 A is maintained in a resistor of  $2\ \Omega$ . The heat produced in the resistor in 1 second is:

- Ans**
- ☒ A. 0.16 J
  - ☒ B. 0.32 J
  - ☒ C. 0.80 J
  - ☒ D. 1.6 J

**Q.75** The \_\_\_\_\_ is the area of the earth where living organisms can be found or where life can be sustained.

- Ans**
- ☒ A. biosphere
  - ☒ B. stratosphere
  - ☒ C. troposphere
  - ☒ D. atmosphere



**Q.76** Consider the below statements and identify the correct answer.

Statement-I: Bleaching powder is used to make drinking water free from germs.

Statement-II: Bleaching powder is used as an oxidising agent in many chemical industries.

- Ans**
- ☒ A. Both the statements are true.
  - ☐ B. Both the statements are false.
  - ☐ C. Statement-I is true, and Statement-II is false.
  - ☐ D. Statement-II is true, and Statement-I is false.

**Q.77** The magnetic field produced by a solenoid increases by:

- Ans**
- ☐ A. changing direction of solenoid
  - ☐ B. changing direction of current
  - ☒ C. placing soft iron core inside it
  - ☐ D. decreasing number of turns

**Q.78** Consider the below statements and identify the correct answer.

Statement-I: The chemical formula of bleaching powder is  $\text{CaOCl}_2$ .

Statement-II: It is used to make drinking water free from germs.

- Ans**
- ☒ A. Both the statements are true.
  - ☐ B. Both the statements are false.
  - ☐ C. Statement-I is true, and Statement-II is false.
  - ☐ D. Statement-II is true, and Statement-I is false.

**Q.79** In series combination, the current passing through each resistor is:

- Ans**
- ☐ A. Proportional to their resistance
  - ☐ B. Proportional to their thickness
  - ☒ C. Equal in all resistors
  - ☐ D. Increases gradually

**Q.80** In which of the following classes does temperature determine the sex in some species?

- Ans**
- ☐ A. Aves
  - ☐ B. Amphibians
  - ☒ C. Reptiles
  - ☐ D. Mammals

Section : General Awareness and Current Affairs



**Q.81** Indian sub-continent, in general, is known to have which of the following types of climate?

- Ans**
- ☒ A. Tropical Monsoon
  - ☐ B. Temperate Monsoon
  - ☐ C. Mediterranean
  - ☐ D. Equatorial

**Q.82** Gautama (Siddhartha) is believed to have piously meditated at which place for six years before he went to Bodhgaya for the final realisation?

- Ans**
- ☐ A. Itkhorri
  - ☐ B. Rajgir
  - ☒ C. Pragbodhi
  - ☐ D. Kapilavastu

**Q.83** Section 2(12) of The Juvenile Justice (Care and Protection of Children) Act, 2015 defines a child as 'a person who has not completed \_\_\_\_\_ years of age'.

- Ans**
- ☐ A. 15
  - ☐ B. 17
  - ☐ C. 12
  - ☒ D. 18

**Q.84** Which of the following is NOT a part of aggregate demand in an economy?

- Ans**
- ☐ A. Capital goods
  - ☐ B. Exports
  - ☐ C. Imports
  - ☒ D. Increase in population

**Q.85** The Finance Commission of India is set up under \_\_\_\_\_.

- Ans**
- ☐ A. Article 265
  - ☐ B. Article 277
  - ☒ C. Article 280
  - ☐ D. Article 288

**Q.86** The 12th Hockey India Senior Male National Championship - 2022 was organised by:

- Ans**
- ☒ A. Madhya Pradesh
  - ☐ B. Orissa
  - ☐ C. Punjab
  - ☐ D. Haryana

**Q.87** The Industrial (Development and Regulation) Act was first enacted in which year in India?

- Ans**
- ☒ A. 1951
  - ☐ B. 1950
  - ☐ C. 1949
  - ☐ D. 1948

**Q.88** Where is the Manikaran Geothermal Energy Plant located in India?

- Ans**
- ☐ A. West Bengal
  - ☐ B. Jammu and Kashmir
  - ☒ C. Himachal Pradesh
  - ☐ D. Punjab

**Q.89** Who among the following received the prestigious Padma Shri award in 2022 in the field of science and engineering

- Ans**
- ☐ A. Sirpi Balasubramaniam
  - ☐ B. Malji Bhai Desai
  - ☐ C. Jagjit Singh Dardi
  - ☒ D. Subbanna Ayyappan

**Q.90** Which of the following states of India does NOT have a Panchayati Raj system?

- Ans**
- ☐ A. Rajasthan
  - ☐ B. Andhra Pradesh
  - ☐ C. Uttar Pradesh
  - ☒ D. Nagaland

**Q.91** The Cash Reserve Ratio (CRR) in India is fixed by \_\_\_\_\_.

- (A) RBI
- (B) SEBI
- (C) Ministry of Finance

- Ans**
- ☒ A. Only A
  - ☐ B. Only B
  - ☐ C. Only C
  - ☐ D. Both A and C

**Q.92** In May 2021, the Chief Minister of \_\_\_\_\_ announced the Mukhyamantri Sishu Sewa Aahoni scheme, which will provide relief to children who have lost their parents due to Covid-19.

- Ans**
- ☐ A. Bihar
  - ☐ B. Odisha
  - ☐ C. Gujarat
  - ☒ D. Assam

**Q.93** 'Azadi Ka Amrit Mahotsav', launched on \_\_\_\_\_, is an initiative by the Government of India to celebrate 75 years of Indian Independence.

- Ans**
- ☐ A. 12 January 2021
  - ☐ B. 12 February 2021
  - ☒ C. 12 March 2021
  - ☐ D. 12 April 2021

**Q.94** B Adhiban headed a star-studded field in the 58th Senior National \_\_\_\_\_ Championship that started on 25 February 2022.

- Ans**
- ☐ A. Golf
  - ☐ B. Wrestling
  - ☐ C. Badminton
  - ☒ D. Chess

**Q.95** ITCZ is a broad trough of low pressure in equatorial latitudes. The full form of ITCZ is:

- Ans**
- ☒ A. Inter Tropical Convergence Zone
  - ☐ B. Inter Terrain Convergence Zone
  - ☐ C. Inner Tropical Convergence Zone
  - ☐ D. Inter Tropical Climate Zone

**Q.96** A team from the Physical Research Laboratory (PRL) in Ahmedabad identified an exoplanet in 2021 that is \_\_\_\_\_ times the size of Jupiter.

- Ans**
- ☐ A. 0.70
  - ☒ B. 1.4
  - ☐ C. 3
  - ☐ D. 2

**Q.97** What will be the value of MPC (Marginal Propensity to Consume) if the consumer's consumption patterns change due to a change in income?

- Ans**
- ☐ A.  $MPC = 1$
  - ☐ B.  $MPC = \text{More than } 1$
  - ☒ C.  $MPC = (\text{ranging between } 0 \text{ and } 1)$
  - ☐ D.  $MPC = 0$

**Q.98** Which of the following is NOT included under the right to freedom in the Constitution of India?

- Ans**
- ☐ A. The freedom of speech and expression
  - ☐ B. To assemble peaceably and without arms
  - ☒ C. To promote one's religion throughout the territory of India
  - ☐ D. To move freely throughout the territory of India

**Q.99** In July 2022, the Ministry of Health and Family Welfare, Government of India has notified new sets of specified health warnings for all tobacco product packs by making an amendment in the Cigarettes and other Tobacco Products (Packaging and Labelling) Rules, 2008. From which date will these new health warnings be applicable?

- Ans**
- ☐ A. 1 October 2022
  - ☒ B. 1 December 2022
  - ☐ C. 1 January 2023
  - ☐ D. 1 April 2023

**Q.100** Which Indian state has 'KOKBOROK' as one of its official languages?

- Ans**
- ☐ A. Goa
  - ☒ B. Tripura
  - ☐ C. West Bengal
  - ☐ D. Himachal Pradesh



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 09/09/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** In  $\Delta MNO$ ,  $\angle N = \angle O$  and  $NO = 12$  cm,  $MO = 10$  cm and  $MP$  be the altitude, then the length of  $MP$  is:

- Ans**
- ☒ A. 3 cm
  - ☒ B. 8 cm
  - ☐ C. 11 cm
  - ☐ D. 10 cm

**Q.2** The value of  $(\operatorname{cosec} x + \cot x + 1)(\sec x - \tan x - 1)$  is:

- Ans**
- ☐ A. -1
  - ☐ B. 0
  - ☐ C. 1
  - ☒ D. -2

**Q.3** A man saves 30% of his monthly income. If his monthly income increases by 10%, then he saves 20% more than the previous savings. The percentage increase in his expenditure is \_\_\_\_\_ (rounded off to one decimal place).

- Ans**
- ☒ A. 5.7%
  - ☐ B. 6.8%
  - ☐ C. 7.3%
  - ☐ D. 4.8%

**Q.4** Find the surface area of a sphere of radius 3.5 cm.

- Ans**
- ☐ A.  $210 \text{ cm}^2$
  - ☐ B.  $142 \text{ cm}^2$
  - ☒ C.  $154 \text{ cm}^2$
  - ☐ D.  $120 \text{ cm}^2$

**Q.5** 10 years ago, the ratio of the ages of A and B was 5: 9. 15 years from now, the ratio of their ages will be 15: 17. What will be A's age 15 years from now?

- Ans**
- ☒ A. 38 years
  - ☒ B. 30 years
  - ☒ C. 26 years
  - ☒ D. 35 years

**Q.6** The area of a triangle having base 9 cm and height 16 cm is:

- Ans**
- ☒ A.  $92 \text{ cm}^2$
  - ☒ B.  $82 \text{ cm}^2$
  - ☒ C.  $72 \text{ cm}^2$
  - ☒ D.  $62 \text{ cm}^2$

**Q.7** The quadratic equation with real coefficients which has real roots 4 and  $-5$  is:

- Ans**
- ☒ A.  $x^2 + x - 20 = 0$
  - ☒ B.  $x^2 - 5x - 24 = 0$
  - ☒ C.  $x^2 - 4x - 20 = 0$
  - ☒ D.  $x^2 - x - 30 = 0$

**Q.8** The cost price of an article is ₹5,000. What should the selling price of the article be so that a profit of 25% is earned?

- Ans**
- ☒ A. ₹8,250
  - ☒ B. ₹7,250
  - ☒ C. ₹6,250
  - ☒ D. ₹5,250

**Q.9** Three years ago, a man was six times as old as his grandson. Three years later, his age will be 6 more than four times the age of the grandson. The present age of the grandson is:

- Ans**
- ☒ A. 12 years
  - ☒ B. 10 years
  - ☒ C. 15 years
  - ☒ D. 8 years

**Q.10** A person covers certain distance in 8 hours at a speed of 6 km/h and some more distance in 10 hours at a speed of 4 km/h. Find his average speed for the entire distance covered.

- Ans**
- ☒ A.  $6\frac{8}{9} \text{ km/h}$
  - ☒ B.  $5\frac{8}{9} \text{ km/h}$
  - ☒ C.  $4\frac{8}{9} \text{ km/h}$
  - ☒ D.  $3\frac{8}{9} \text{ km/h}$

Q.11 Express  $0.4\overline{35}$  in the form  $\frac{p}{q}$ , where p and q are integers and  $q \neq 0$ .

- Ans
- ☒ A.  $\frac{430}{991}$
  - ☒ B.  $\frac{425}{990}$
  - ☒ C.  $\frac{456}{991}$
  - ☒ D.  $\frac{431}{990}$

Q.12 The listed price of an article is ₹200. A customer purchases it at ₹150 after two successive discounts. If one discount is 10%, then the other discount percentage (rounded off to two decimal places) is:

- Ans
- ☒ A. 12.5%
  - ☒ B. 11.11%
  - ☒ C. 16.66%
  - ☒ D. 20%

Q.13 If  $\sqrt{\left(1 - \frac{99}{2500}\right)} = \frac{49}{\sqrt{x}}$ , then the value of x is:

- Ans
- ☒ A. 2500
  - ☒ B. 50
  - ☒ C. 2401
  - ☒ D. 49

Q.14 The HCF of the numbers 310, 208 and 180 is:

- Ans
- ☒ A. 2
  - ☒ B. 4
  - ☒ C. 6
  - ☒ D. 8

Q.15 The value of  $(279 \div 31) + (363 \div 33) - (512 \div 16)$  is:

- Ans
- ☒ A. -12
  - ☒ B. 9
  - ☒ C. -11
  - ☒ D. 10

Q.16 Simplify  $(4x - 5y)^2 + (5x + 4y)^2 + (4x + 5y)(4x - 5y)$ .

- Ans
- ☒ A.  $57x^2 + 16y^2$
  - ☒ B.  $-58x^2 + 16y^2$
  - ☒ C.  $-57x^2 - 16y^2$
  - ☒ D.  $58x^2 + 16y^2$

**Q.17** The cost of a washing machine is 40% less than the cost of a TV. If the cost of the washing machine increases by 18% and that of the TV decreases by 10%, then what is the change in the total cost of 5 washing machines and 2 TVs?

- Ans**
- ☒ A. Decreases by 6.5%
  - ☒ B. Increases by 6.5%
  - ☒ C. Decreases by 6.4%
  - ☒ D. Increases by 6.8%

**Q.18** What is the mean of the following distribution?

| Marks              | 10 | 30 | 50 | 70 | 90 |
|--------------------|----|----|----|----|----|
| Number of students | 17 | 28 | 32 | 24 | 19 |

- Ans**
- ☒ A. 49.2
  - ☒ B. 50
  - ☒ C. 51
  - ☒ D. 52.4

**Q.19** Suman invested a sum of ₹20,000 at 10% per annum compound interest. If she received an amount of ₹ 26,620 after n years, the value of n is:

- Ans**
- ☒ A. 3 years
  - ☒ B. 2.8 years
  - ☒ C. 2.5 years
  - ☒ D. 2 years

**Q.20** Three pipes A, B and C together can fill a tank in 8 hours. Three pipes were opened for 2 hours, after that C was closed. Later A and B fill the remaining part in 9 hours. The number of hours taken by C alone to fill the tank is:

- Ans**
- ☒ A. 12
  - ☒ B. 13
  - ☒ C. 20
  - ☒ D. 24

**Q.21** The largest four-digit number which when divided by 7, 11 and 13 leaves remainder 4 in each case is:

- Ans**
- ☒ A. 1005
  - ☒ B. 9999
  - ☒ C. 9009
  - ☒ D. 9013

**Q.22** If  $p + q + r = 13$  and  $pq + qr + rp = 30$ , then the value of  $p^3 + q^3 + r^3 - 3pqr$  is:

- Ans**
- ☒ A. 1125
  - ☒ B. 1216
  - ☒ C. 1027
  - ☒ D. 1145

**Q.23** What is the measure of each interior angle of a regular polygon with 10 sides?

- Ans**
- ☒ A.  $144^\circ$
  - ☒ B.  $156^\circ$
  - ☒ C.  $180^\circ$
  - ☒ D.  $174^\circ$

**Q.24** Which of the following statements is true about the nature of roots for the equation

$$x(x + 3) - 8 = 2(x + 3)(x - 3)?$$

- Ans**
- ☒ A. Roots are real and equal
  - ☒ B. Roots are irrational
  - ☒ C. Two real and distinct roots
  - ☒ D. Two imaginary or non-real roots

**Q.25** The average weight of all children in a group is 45 kg. If 10 children of average weight 42 kg leave the group and 2 children of average weight 55 kg join the group, then the average weight of the children in the group increases by  $1\frac{1}{4}$  kg. The number of children in the group initially was:

- Ans**
- ☒ A. 38
  - ☒ B. 42
  - ☒ C. 48
  - ☒ D. 52

#### Section : General Intelligence and Reasoning

**Q.26** Read the given statements and conclusions carefully and decide which of the given conclusions logically follow the statements.

**Statements:**

- 1)  $G \geq M$
- 2)  $O < K$
- 3)  $K < H$
- 4)  $F = Q$
- 5)  $M < O$
- 6)  $F > H$

**Conclusions:**

- I.  $G < F$
- II.  $Q > M$
- III.  $O > Q$
- IV.  $M < Q$

- Ans**
- ☒ A. Conclusions II and III follow
  - ☒ B. Conclusions II and IV follow
  - ☒ C. Conclusions I and IV follow
  - ☒ D. Conclusions I and II follow

**Q.27** VM 19 is related to SJ 25 in a certain way. In the same way, HN 17 is related to EK 23. To which of the following is SL 15 related following the same logic?

- Ans**
- ☒ A. QI 21
  - ☒ B. RJ 19
  - ☒ C. PI 21
  - ☒ D. MQ 24



**Q.28** Which of the following interchanges of numbers would make the given equation correct?

$$10 \div 6 \times 4 + 14 - 24 = 30$$

- Ans**
- ☒ A. 10, 6
  - ☒ B. 4, 6
  - ☒ C. 14, 24
  - ☒ D. 10, 30

**Q.29** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

1. Some parks are libraries.
2. Some banks are libraries.
3. All schools are banks.

Conclusions:

I-Some banks are schools.

II-Some parks are banks.

- Ans**
- ☒ A. Only conclusion I follows.
  - ☒ B. Only conclusion II follows.
  - ☒ C. Both conclusions I and II follow.
  - ☒ D. Neither conclusion I nor II follows.

**Q.30** If

A means 'addition',

B means 'multiplication',

C means 'subtraction' and

D means 'division',

then  $40 \text{ D } 2 \text{ A } 3 \text{ B } 8 \text{ C } 5 = ?$

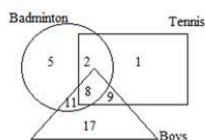
- Ans**
- ☒ A. 33
  - ☒ B. 45
  - ☒ C. 39
  - ☒ D. 40

**Q.31** Select the number from among the given options that can replace the question mark (?) in the following series.

4, 9, 16, 29, 50, ?

- Ans**
- ☒ A. 71
  - ☒ B. 73
  - ☒ C. 78
  - ☒ D. 85

- Q.32** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



How many such boys are there who play badminton but NOT tennis?

- Ans** ☒ A. 11  
☒ B. 17  
☒ C. 8  
☒ D. 9

- Q.33** Rohan lives in a seven-storeyed building. The top floor of the building is numbered as seven and the lowermost floor is numbered as one. Diya who is Rohan's friend lives somewhere above the floor where Rohan lives. Every Sunday Rohan goes two floors below to his colleague Atul's flat to eat and drink together. If there are three floors between Rohan's and Diya's floor, on which floor does Rohan live?

- Ans** ☒ A. First floor  
☒ B. Second floor  
☒ C. Third floor  
☒ D. Fourth floor

- Q.34** Amit told Shweta, "To reach our apartment, your mother must walk 560 m towards the east from her restaurant. She must then take a right turn and walk 543 m. She must take another right turn and walk 560 m. Then she must take one final right turn and walk 120 m". How far and in which direction is the apartment from the restaurant? (All turns are 90 degree turns only)

- Ans** ☒ A. 423 m, South  
☒ B. 423 m, North  
☒ C. 397 m, South  
☒ D. 397 m, North

- Q.35** Select the option that represents the letters that, when placed from left to right in the same sequence in the blanks below, will complete the letter series.

N L A \_ X N \_ B F \_ N L \_ F \_ N L \_ \_ X

- Ans** ☒ A. F L X C X D F  
☒ B. F N X C X C F  
☒ C. F L X N X D C  
☒ D. F L C C X A F

- Q.36** Starting from point A, Ravi walks 30 m towards the north. He then takes a right turn and walks 100 m. Then, he takes another right turn and walks 30 m. From there, he turns to his right and walks 70 m. Then, he takes a left turn and walks 50 m. Finally, he takes a right turn and walks 30 m. How far and in which direction is Ravi now from point A? (All turns are 90 degree turns only)

- Ans** ☒ A. 30 m, West  
☒ B. 50 m, North  
☒ C. 30 m, North  
☒ D. 50 m, South

**Q.37** In a certain code language, 'BLISS' is written as 'KSNVT' and 'LIGHT' is written as 'UPLKU'. How will 'WHITE' be written in that language?

- Ans**
- ☒ A. FONVF
  - ☒ B. FONWG
  - ☒ C. FONWF
  - ☒ D. FOMWF

**Q.38** In a certain code language, 'JUPITER' is written as 'KSSEYYY' and 'URANUS' is written as 'VPDJZM'. How will 'EARTH' be written in the same code language?

- Ans**
- ☒ A. FCUPM
  - ☒ B. FYUXM
  - ☒ C. FYUPM
  - ☒ D. FYOPM

**Q.39** Eight girls, A, B, C, D, E, F, G and H, are seated around a square table, facing the centre. A sits 2<sup>nd</sup> to the right of B. F sits 2<sup>nd</sup> to the right of E, who sits fourth to the left of H. G sits between A and B. D sits to the immediate left of H, who is to the immediate left of B. Only one person sits between C and D. Who is fourth to the right of G?

- Ans**
- ☒ A. B
  - ☒ B. D
  - ☒ C. F
  - ☒ D. C

**Q.40** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(3, 6, 18)

(15, 30, 450)

- Ans**
- ☒ A. (6, 12, 64)
  - ☒ B. (9, 18, 166)
  - ☒ C. (1, 2, 2)
  - ☒ D. (11, 22, 44)

**Q.41** A, B, C, D, E, F, G and H are sitting around a square table facing the centre of the table. Some of them are sitting at the corners, while some are sitting at the exact centre of the sides. H is sitting at any one of the sides and is exactly opposite to C. G is sitting second to the right of H and second to the left of C. E is sitting exactly opposite to G. B is sitting third to the right of H and is exactly opposite to A. Both G and H are the immediate neighbours of D. Which of the following statements is NOT true with reference to F?

- Ans**
- ☒ A. H is sitting to F's third left
  - ☒ B. F is exactly opposite to D
  - ☒ C. E and C are F's immediate neighbours
  - ☒ D. B is sitting to F's second left.

**Q.42** Based on the given statement, four conclusions are drawn. Find out which conclusion is NOT true based on the statement.

Statement:  $H < N \leq C \leq K = X > T > F$

- Ans**
- ☒ A.  $N > X$
  - ☒ B.  $X \geq N$
  - ☒ C.  $H < X$
  - ☒ D.  $K > F$

**Q.43** Three statements are given followed by three conclusions. Consider the statements and conclusions to be true even if they vary from commonly known facts and then decide which of the conclusions follow(s) from the given statements.

Statements:

1. All bags are books.
2. All books are copies.
3. No pen is a copy.

Conclusions:

- (I) Some books are pens.  
(II) No bag is a pen.  
(III) Some copies are bags.

**Ans** ☒ A. Only conclusion III follows.  
☒ B. Only conclusion II follows.  
☒ C. Only conclusions II and III follow.  
☒ D. None of the conclusions follow.

**Q.44** During a school tour one among the group of 15 students was elected as the group leader. If there are total 11 such groups, how many students are going for the tour?

**Ans** ☒ A. 176  
☒ B. 165  
☒ C. 154  
☒ D. 174

**Q.45** Given below is a statement followed by two possible underlying assumptions I and II. Read the information carefully and select the correct option.

**Statement:**

Research has suggested that regular physical activity not only reduces the chances of physical illness but also of mental illnesses.

Which of the following can be assumed by the given statement?

- I. The medicines for mental illness would work faster if the patient also exercises daily.  
II. Patients who are bedridden have a greater chance of developing some mental illness as compared to those who are not bedridden.

**Ans** ☒ A. Only I can be assumed  
☒ B. Only II can be assumed  
☒ C. Both I and II can be assumed  
☒ D. Neither I nor II can be assumed

**Q.46** Select the set in which the numbers are related in the same way as are the numbers of the following sets.  
(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 12 – Operations on 12 such as adding/ subtracting/multiplying etc. to 12 can be performed. Breaking down 12 into 1 and 2 and then performing mathematical operations on 1 and 2 is not allowed)

- (11, 154, 7)  
(6, 180, 15)

**Ans** ☒ A. (23, 46, 2)  
☒ B. (25, 375, 5)  
☒ C. (5, 20, 60)  
☒ D. (3, 90, 15)

**Q.47** Refer to the following letter, number, symbol series and answer the question.

(Left) N & 2 G 9 S P T B 4 @ H # 1 8 S B A 3 P (Right)

If all numbers are dropped from the series, which of the following will be seventh from the right?

- Ans**
- ☒ A. H
  - ☒ B. B
  - ☒ C. @
  - ☒ D. #

**Q.48** Select the number from among the given options that can replace the question mark (?) in the following series.

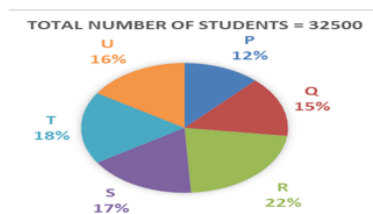
154, 134, 116, ?, 86, 74, 64, 56

- Ans**
- ☒ A. 100
  - ☒ B. 101
  - ☒ C. 98
  - ☒ D. 96

**Q.49** If in the word 'DISCOUNT' all the letters are arranged in alphabetical order from left to right, then the position of how many letters will be remain unchanged?

- Ans**
- ☒ A. One
  - ☒ B. Two
  - ☒ C. Three
  - ☒ D. Four

**Q.50** The following pie-chart shows the distribution of students of graduate levels in seven different colleges. Distribution of students at graduate levels in seven different colleges:



What is the sum of students in College of P and T studying at graduate level?

- Ans**
- ☒ A. 3900
  - ☒ B. 8925
  - ☒ C. 9750
  - ☒ D. 9875

**Q.51** This question is based on the five, three-digit numbers given below.

(left) 434 353 423 224 322 (right)

(Example: 246 – first digit = 2, second digit = 4, third digit = 6)

NOTE – All operations to be done from left to right.

If 4 is added to the second digit of every number, in how many numbers thus formed will the second digit be exactly divisible by the third digit?

- Ans**
- ☒ A. Three
  - ☒ B. One
  - ☒ C. Two
  - ☒ D. Five

**Q.52** Study the given table and answer the question that follows.

The table presents the cost price and profit percentage of various products being sold by an electronic superstore.

| Products         | 2021                         |                   |
|------------------|------------------------------|-------------------|
|                  | Cost Price<br>(in thousands) | Profit Percentage |
| Refrigerators    | 48                           | 22                |
| Air Conditioners | 39                           | 17                |
| Washing Machines | 13                           | 12                |
| Televisions      | 59                           | 23                |
| Music Systems    | 65                           | 18                |

If the cost price of all the products increased by 10% in the next year and profit percentage remained the same, which of the following products will record maximum increase in the sales price?

- Ans**
- ☐ A. Air conditioners
  - ☐ B. Refrigerators
  - ☐ C. Televisions
  - ☒ D. Music systems

**Q.53** Six persons, P, Q, R, S, T and U travelled in different months of the same year viz. January, February, March, July, September and December.  
U travelled in September. Only one person travelled between U and Q. No one travelled between P and S. S travelled in a month after P. More than two people travelled between S and T. Who among them travelled in March?

- Ans**
- ☐ A. P
  - ☐ B. R
  - ☒ C. Q
  - ☐ D. T

**Q.54** If '+' means ' $\div$ ', '-' means '+', ' $\times$ ' means '-' and ' $\div$ ' means ' $\times$ ', then, what will be the value of the following expression?

$$[(35 \times 26) - (4 \div 3)] + (3 - 4) \div 5$$

- Ans**
- ☐ A. 18
  - ☐ B. 10
  - ☒ C. 15
  - ☐ D. 20

**Q.55** Refer to the following letter series and answer the question that follows.

S S G Y U N G T R F C E D A W X C V U N J O K L E C D

How many such vowels are there each of which is immediately preceded by a consonant and also immediately followed by a consonant?

- Ans**
- ☐ A. 3
  - ☐ B. 5
  - ☒ C. 6
  - ☐ D. 8

Section : General Science

**Q.56** Which of the following characteristics of the pea plant was NOT used by Mendel in his experiments?

- Ans**
- ☐ A. Shape of seeds
  - ☐ B. Colour of flowers
  - ☐ C. Length of pea plant
  - ☒ D. Shape of leaves

**Q.57** Which of the following statements is correct?

- Ans**
- ☐ A. For every hormone, there is a specific protein.
  - ☐ B. For every hormone, there is a specific chromosome.
  - ☐ C. For every protein, there is a specific RNA.
  - ☒ D. For every protein, there is a specific gene.

**Q.58** The focal length of a convex mirror is:

- Ans**
- ☒ A. positive
  - ☐ B. negative
  - ☐ C. infinite
  - ☐ D. zero

**Q.59** The formula for resultant resistance of three resistors connected in parallel combination is:

- Ans**
- ☐ A.  $R = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$
  - ☒ B.  $\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$
  - ☐ C.  $R = R_1 + R_2 + R_3$
  - ☐ D.  $\frac{1}{R} = R_1 + R_2 + R_3$

**Q.60** If a reactant gains oxygen in a reaction, it is said to be undergoing:

- Ans**
- ☐ A. reduction
  - ☒ B. Oxidation
  - ☐ C. redox process
  - ☐ D. dissociation

**Q.61** When a substance combines with  $O_2$ , it gets:

- Ans**
- ☐ A. dissolved in air
  - ☐ B. Reduced
  - ☒ C. oxidised
  - ☐ D. back its shine



- Q.62** Which of the following statements about plant nutrition is INCORRECT?
- Ans** ☒ A. Carbon is taken up by green plants from atmospheric carbon dioxide.  
☒ B. Iron and manganese are both considered micronutrients.  
☒ C. Minerals and nutrients are poorly absorbed by water.  
☒ D. Plants, in general, make use of the water in the soil at the root zone.
- Q.63** Which element has non-metallic properties?
- Ans** ☒ A. Li  
☒ B. Na  
☒ C. Cl  
☒ D. K
- Q.64** Which of the following chemical reactions is balanced?
- Ans** ☒ A.  $\text{Fe} + \text{H}_2\text{O} \rightarrow \text{Fe}_3\text{O}_4 + \text{H}_2$   
☒ B.  $\text{Zn} + \text{H}_2\text{SO}_4 \rightarrow \text{ZnSO}_4 + \text{H}_2$   
☒ C.  $\text{Mg} + \text{O}_2 \rightarrow \text{MgO}$   
☒ D.  $\text{Fe} + 4\text{H}_2\text{O} \rightarrow \text{Fe}_3\text{O}_4 + 4\text{H}_2$
- Q.65** Induced current is maximum when \_\_\_\_\_.
- Ans** ☒ A. coil is kept in the direction parallel to the magnetic field  
☒ B. coil is kept in the direction perpendicular to the magnetic field  
☒ C. direction of motion of the coil is parallel to the magnetic field  
☒ D. direction of motion of the coil is perpendicular to the magnetic field
- Q.66** Wires of copper, silver, nichrome and glass are made having similar length and diameter. Which will have the highest resistance?
- Ans** ☒ A. Copper  
☒ B. Silver  
☒ C. Glass  
☒ D. Nichrome
- Q.67** Which of the following is NOT a natural indicator for acids or bases?
- Ans** ☒ A. Methyl orange  
☒ B. Turmeric  
☒ C. Coloured petals of Hydrangea  
☒ D. Coloured petals of Petunia
- Q.68** The part of the magnet from where magnetic field lines emerge is known as:
- Ans** ☒ A. middle of the magnet  
☒ B. north pole  
☒ C. south pole  
☒ D. north and south pole



**Q.69** It is found that during dispersion of white light by a glass prism, the more a colour component is bent, the more is the refractive index of the glass for that colour component. If  $\mu_R$ ,  $\mu_V$  and  $\mu_Y$  are refractive indices for red, violet and yellow lights, respectively, then which of the following relations between them is correct?

- Ans**
- ☒ A.  $\mu_R > \mu_V > \mu_Y$
  - ☒ B.  $\mu_V > \mu_Y > \mu_R$
  - ☒ C.  $\mu_Y > \mu_R > \mu_V$
  - ☒ D.  $\mu_R = \mu_V = \mu_Y$

**Q.70** If the power of a convex lens is 3 dioptre, then its focal length will be:

- Ans**
- ☒ A. +3 m
  - ☒ B. -3 m
  - ☒ C. +0.33 m
  - ☒ D. -0.33 m

**Q.71** An object is placed in front of a convex mirror of focal length 9 cm, at a distance of 18 cm. The magnification produced by the mirror is \_\_\_\_\_.

- Ans**
- ☒ A.  $-\frac{1}{3}$
  - ☒ B.  $\frac{1}{3}$
  - ☒ C. 1
  - ☒ D. -1

**Q.72** If the resistance of a conductor is  $4.2 \Omega$  and 220 V is applied across it then the current passing through the conductor is:

- Ans**
- ☒ A. 924 ampere
  - ☒ B. 52.38 ampere
  - ☒ C. 5238 ampere
  - ☒ D. 0.02 ampere

**Q.73** Which of the following objectives is NOT a part of watershed management?

- Ans**
- ☒ A. Recharging of groundwater
  - ☒ B. Mitigating droughts and floods
  - ☒ C. Restoring water levels in downstream rivers
  - ☒ D. Generating electricity

**Q.74** When did the ozone levels in the atmosphere start to reduce?

- Ans**
- ☒ A. 1980
  - ☒ B. 1965
  - ☒ C. 1990
  - ☒ D. 1995

**Q.75** Newlands' Law of Octaves worked well with:

- Ans**
- ☒ A. metallic elements only
  - ☒ B. radioactive elements only
  - ☒ C. lighter elements only
  - ☒ D. noble gases only

**Q.76** When Kavita took an aqueous solution of copper sulphate and added some granules of aluminium, the colour of the solution changed. This is because of the formation of:

- Ans**
- ☒ A.  $\text{Al}_2(\text{SO}_4)_3$
  - ☐ B.  $\text{Al}_2\text{O}_3$
  - ☐ C.  $\text{Al}(\text{OH})_3$
  - ☐ D.  $\text{CuO}$

**Q.77** The functions of bile juice are mentioned below. Select the option that is NOT the function of bile juice.

- Ans**
- ☐ A. Provides alkaline medium to the food for the action of pancreatic enzymes
  - ☐ B. Breaks down large fat globules into smaller ones
  - ☒ C. Has a protein digesting enzyme that helps in the digestion of proteins
  - ☐ D. Increases the efficiency of the action of pancreatic enzymes

**Q.78** What product(s) is/are transported by the plant transport system from the leaves and roots?

- Ans**
- ☐ A. Water only
  - ☐ B. Carbohydrates and minerals
  - ☒ C. Energy stores and raw materials
  - ☐ D. Carbohydrates only

**Q.79** From the options given below, select the organism having a three-chambered heart.

- Ans**
- ☒ A. Salamander
  - ☐ B. Pigeon
  - ☐ C. Fish
  - ☐ D. Tiger

**Q.80** The hydrocarbons which have a double bond between two carbon atoms are called:

- Ans**
- ☐ A. saturated compounds
  - ☒ B. unsaturated compounds
  - ☐ C. natural compounds
  - ☐ D. inorganic compounds

#### Section : General Awareness and Current Affairs

**Q.81** The new Centre for Water Management and Policy, AquaMAP was inaugurated in March 2022 by the Principal Scientific Adviser to the Government of India, K Vijay Raghavan at which of the following IITs?

- Ans**
- ☐ A. IIT-Bombay
  - ☒ B. IIT-Madras
  - ☐ C. IIT-Kharagpur
  - ☐ D. IIT-Delhi

**Q.82** As per the rule change in IPL 2022 duration of strategic time out changed from 2:30 minutes to \_\_\_\_\_ minutes

- Ans**
- ☒ A. 3
  - ☐ B. 3:30
  - ☐ C. 4
  - ☐ D. 4:30

**Q.83** In which of the following locations is the Brahmaputra river known as Tsang Po?

- Ans**
- ✓ **A. Tibet**
  - ✗ **B. Bangladesh**
  - ✗ **C. Nepal**
  - ✗ **D. Pakistan**

**Q.84** Generally, the value of MPC (Marginal Propensity to Consume) \_\_\_\_\_.

- Ans**
- ✓ **A. does not exceed 1 or fall below 0**
  - ✗ **B. remains constant at (-)1**
  - ✗ **C. varies between (-)1 and (-)2**
  - ✗ **D. varies between 1 and 2**

**Q.85** In which of the following years was the Shri Jagannath Temple Act passed?

- Ans**
- ✗ **A. 1965**
  - ✗ **B. 1945**
  - ✓ **C. 1955**
  - ✗ **D. 1935**

**Q.86** Who took oath as the Cabinet Minister of the Ministry of Parliamentary Affairs in 2019?

- Ans**
- ✓ **A. Pralhad Venkatesh Joshi**
  - ✗ **B. Narayan Rane**
  - ✗ **C. Subrahmanyam Jaishankar**
  - ✗ **D. Sarbananda Sonowal**

**Q.87** To combat eve teasing, sexual harassment and other crimes against women, 91 Nirbhaya Squads comprising of specially trained police officers were launched in \_\_\_\_\_ on 26 January 2022.

- Ans**
- ✗ **A. Delhi**
  - ✓ **B. Mumbai**
  - ✗ **C. Bengaluru**
  - ✗ **D. Chennai**

**Q.88** In India, the western cyclonic disturbances are weather phenomena of the winter months brought in by the westerly flow from the \_\_\_\_\_.

- Ans**
- ✗ **A. Arabian Sea region**
  - ✗ **B. Bay of Bengal region**
  - ✓ **C. Mediterranean region**
  - ✗ **D. Pacific Ocean region**

**Q.89** Which of the following is the largest coal field in India?

- Ans**
- ☒ A. Jharia Coal Fields
  - ☐ B. Raniganj Coal Fields
  - ☐ C. Bokaro Coal Fields
  - ☐ D. Karanpura Coal Fields

**Q.90** Article 51A of the Constitution of India deals with \_\_\_\_\_.

- Ans**
- ☐ A. fundamental rights
  - ☒ B. fundamental duties
  - ☐ C. union territories
  - ☐ D. panchayats

**Q.91** Which of the following sports events is NOT included in the scheme of cash awards in India to medal winners and their coaches in international sports events?

- Ans**
- ☒ A. Cricket
  - ☐ B. Chess
  - ☐ C. Billiards
  - ☐ D. Wrestling

**Q.92** The Karve Committee, which was constituted in the year 1955, dealt with:

- Ans**
- ☒ A. small scale industries
  - ☐ B. insurance regulation
  - ☐ C. foreign trade
  - ☐ D. railways

**Q.93** As of July 2022, who among the following is the CEO of HelpAge India that works for 'the cause and care of disadvantaged older persons to improve their quality of life'?

- Ans**
- ☐ A. Deepak Kumar
  - ☒ B. Rohit Prasad
  - ☐ C. Ravi Venkatesan
  - ☐ D. Madhav Chavan

**Q.94** The first Digital Food Museum in India was launched in \_\_\_\_\_ in the year 2021.

- Ans**
- ☒ A. Tamil Nadu
  - ☐ B. Karnataka
  - ☐ C. Kerala
  - ☐ D. Maharashtra

**Q.95** The Kharchi Pooja festival is widely celebrated in the state of \_\_\_\_\_.

- Ans**
- ☐ A. Telangana
  - ☒ B. Tripura
  - ☐ C. Uttarakhand
  - ☐ D. Gujarat

**Q.96** \_\_\_\_\_ is spoken by around 2.5 million people, mainly on the central west coast of India, and it is the official language of Goa.

- Ans**
- ☒ A. Dhivehi
  - ☒ B. Konkani
  - ☒ C. Marathi
  - ☒ D. Dogri

**Q.97** Some educational institutions in India were established in response to Mahatma Gandhi's call for non-cooperation with the British. Which of the following is NOT one of them?

- Ans**
- ☒ A. Serampore College
  - ☒ B. Kashi Vidyapith
  - ☒ C. Jamia Millia Islamia
  - ☒ D. Gujarat Vidyapith

**Q.98** In which of the following years was the Ministry of Panchayati Raj created?

- Ans**
- ☒ A. 2002
  - ☒ B. 2003
  - ☒ C. 2001
  - ☒ D. 2004

**Q.99** Who among the following is known as the architect of Indian planning?

- Ans**
- ☒ A. Kakkadan Nandanath Rajan
  - ☒ B. Dattatreya Gopal Karve
  - ☒ C. Prasanta Chandra Mahalanobis
  - ☒ D. Dhananjay Ramchandra Gadgil

**Q.100** Under perfect competition, a firm earns \_\_\_\_\_ profits in the long run.

- Ans**
- ☒ A. zero
  - ☒ B. normal
  - ☒ C. super normal
  - ☒ D. negative



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 09/09/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** The quadratic equation which has real and equal roots  $\frac{3}{5}$  is:

- Ans**
- ☐ A.  $5x^2 - 6x + 9 = 0$
  - ☐ B.  $x^2 - 6x + 9 = 0$
  - ☐ C.  $x^2 - 30x + 3 = 0$
  - ☒ D.  $25x^2 - 30x + 9 = 0$

**Q.2** The curved surface area of a cylinder is  $1848 \text{ cm}^2$  and its base radius is 19.6 cm. The height of the cylinder is:

- Ans**
- ☐ A. 17 cm
  - ☐ B. 13 cm
  - ☐ C. 14 cm
  - ☒ D. 15 cm

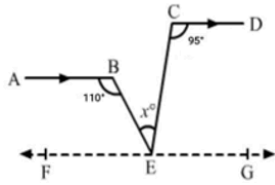
**Q.3** If  $7\sin^2x + 3\cos^2x = 4$ , and x is acute angle, then the value of  $\cot x + \tan x$  will be:

- Ans**
- ☐ A.  $\frac{2}{\sqrt{3}}$
  - ☒ B.  $\frac{4}{\sqrt{3}}$
  - ☐ C.  $\frac{5}{\sqrt{3}}$
  - ☐ D.  $\frac{7}{\sqrt{3}}$

**Q.4** The value of  $[(5^2)^4 \times 5^3] \div 5^9$  is:

- Ans**
- ☐ A. 5
  - ☐ B. 125
  - ☒ C. 25
  - ☐ D.  $\frac{1}{5}$

- Q.5** In the given figure, lines AB and CD are parallel to line FG. E is a point on the line FG. It is given that  $\angle ABE = 110^\circ$ ,  $\angle ECD = 95^\circ$  and  $\angle BEC = x^\circ$ . The value of x is:



**Ans** ☒ A.  $25^\circ$

☐ B.  $60^\circ$

☐ C.  $80^\circ$

☐ D.  $30^\circ$

- Q.6** The population of a village increases at the rate of 10% per annum. If its population 2 years ago was 10,000, the present population is:

**Ans** ☐ A. 11,000

☐ B. 12,000

☒ C. 12,100

☐ D. 12,400

- Q.7** A dishonest shopkeeper uses false weights. He gains 30% on purchasing and 30% on selling. His profit percentage is:

**Ans** ☐ A. 99%

☐ B. 89%

☐ C. 79%

☒ D. 69%

- Q.8** In  $\triangle PQR$ , if  $\angle P : \angle Q : \angle R = 6 : 7 : 5$  then, the measure of  $\angle Q$  is:

**Ans** ☐ A.  $55^\circ$

☒ B.  $70^\circ$

☐ C.  $60^\circ$

☐ D.  $75^\circ$

- Q.9** The cost of 2 kg of apples and 2 kg of grapes on a day was found to be ₹160. After a month, the cost of 4 kg of apples and 3 kg of grapes was ₹300. Assuming the costs were not changed during the month, the cost of apples (per kg) will be:

**Ans** ☐ A. ₹120

☐ B. ₹40

☐ C. ₹20

☒ D. ₹60

- Q.10** The sum of two times Manavi's present age and Tanvi's present age is 35 years. Tanvi's father is presently three times as old as Tanvi. Manavi's brother's present age is 6 years more than Manavi's present age. The sum of the present ages of Tanvi's father and Manavi's brother is 56 years. What is the sum of the present ages (in years) of Manavi and Tanvi?

**Ans** ☐ A. 31

☐ B. 27

☒ C. 24

☐ D. 23



**Q.11** A man travels from point A to B at a speed of  $56\frac{1}{4}$  km/h and returns to A through same route by increasing his speed by  $33\frac{1}{3}\%$  of his earlier speed. His average speed (in km/h) for the whole journey is

**Ans**

- ☐ A.  $60\frac{5}{7}$
- ☐ B.  $62\frac{1}{4}$
- ☐ C.  $63\frac{1}{2}$
- ☒ D.  $64\frac{2}{7}$

**Q.12** The expenditure of Sudha is 125% more than her savings. If her expenditure decreases by 6% and savings increase by 26.5%, then by what percent does her income increase?

**Ans**

- ☐ A. 20.5%
- ☐ B. 18.5%
- ☐ C. 8%
- ☒ D. 4%

**Q.13** The highest common factor of any two distinct prime numbers is:

**Ans**

- ☐ A. 3
- ☐ B. 2
- ☒ C. 1
- ☐ D. 0

**Q.14** A, B and C can complete a piece of work in 20, 24 and 30 days, respectively. The number of days they take to finish it if they work together will be:

**Ans**

- ☐ A. 6 days
- ☐ B. 7 days
- ☒ C. 8 days
- ☐ D. 5 days

**Q.15** A team of 30 men is supposed to complete a work in 41 days. After 25 days, 6 more men are employed, and the work is finished one day earlier. By how many days would it have been delayed, if 6 more men were not employed?

**Ans**

- ☐ A. 1 day
- ☒ B. 2 days
- ☐ C. 3 days
- ☐ D. 4 days

**Q.16** A number when increased by  $47\frac{1}{2}\%$ , gives 590. The number is:

**Ans**

- ☐ A. 700
- ☐ B. 600
- ☐ C. 500
- ☒ D. 400



Q.17 Express  $0.1\bar{7}$  in the form  $\frac{p}{q}$ , where p and q are integers and  $q \neq 0$ .

Ans

☐ A.  $\frac{7}{45}$

☒ B.  $\frac{8}{45}$

☐ C.  $\frac{6}{49}$

☐ D.  $\frac{5}{49}$

Q.18 Using empirical relation between the mean, median and mode, find the value of the median if the mean is 35 and mode is 140.

Ans

☐ A. 100

☐ B. 90

☐ C. 80

☒ D. 70

Q.19 A shopkeeper sells one battery for ₹650 at a profit of 30% and another battery for ₹950 at a loss of 5%. His overall gain or loss percentage is:

Ans

☐ A.  $9\frac{2}{3}\%$  loss

☐ B.  $8\frac{2}{3}\%$  gain

☐ C.  $7\frac{2}{3}\%$  loss

☒ D.  $6\frac{2}{3}\%$  gain

Q.20 If the 8-digit number  $3x5479y4$  is divisible by 88 and the 8-digit number  $425139z2$  is divisible by 9, then what is the greatest possible value of  $(3x + 2y - z)$ ?

Ans

☐ A. 25

☒ B. 33

☐ C. 35

☐ D. 37

Q.21 The quadratic equation whose roots are 2 and  $-\frac{1}{2}$  is:

Ans

☐ A.  $3x^2 - 3x - 2 = 0$

☐ B.  $2x^2 - 5x - 2 = 0$

☐ C.  $5x^2 - 3x - 2 = 0$

☒ D.  $2x^2 - 3x - 2 = 0$

Q.22 If  $(a + b) = 11$  and  $(a - b) = 3$  then, the value of  $(a^2 + b^2)$  is:

Ans

☐ A. 63

☐ B. 70

☒ C. 65

☐ D. 75

**Q.23** The sum of three consecutive natural numbers is 141. The middle number is:

- Ans**
- ☐ A. 57
  - ☐ B. 56
  - ☒ C. 47
  - ☐ D. 46

**Q.24** The value of  $5 + (12 - 3 \times 4) - 6 \div 2$  is:

- Ans**
- ☐ A. -6
  - ☐ B. 6
  - ☐ C. -2
  - ☒ D. 2

**Q.25** If the radius of a sphere is 5 cm, then its surface area is:

- Ans**
- ☐ A.  $81 \pi \text{ cm}^2$
  - ☐ B.  $144 \pi \text{ cm}^2$
  - ☐ C.  $121 \pi \text{ cm}^2$
  - ☒ D.  $100 \pi \text{ cm}^2$

Section : General Intelligence and Reasoning

**Q.26** Refer to the following number series and answer the question.

13 10 17 25 58 63 94 8 92 29

How many even numbers are immediately followed by a multiple of 3?

- Ans**
- ☐ A. 4
  - ☐ B. 3
  - ☐ C. 2
  - ☒ D. 1

**Q.27** Which of the following numbers will replace the question mark (?) in the given series?

96, 98, 102, 110, 126, ?

- Ans**
- ☒ A. 158
  - ☐ B. 160
  - ☐ C. 166
  - ☐ D. 162

**Q.28** Given below is a statement followed by two possible conclusions I and II. Read the information carefully and select the correct option.

**Statement:**

The state government of state X has decided to move 40% of the city buses from the south of city A to the west of city A for the monsoon season.

Which of the following can be concluded from the given information?

I. The inflow of passengers in the western part of the city is usually substantially more during the monsoon season than the rest of the year.

II. The buses that remain in the south of city A will be sufficient to manage the general inflow of passengers.

**Ans**

- ☒ A. Only I can be concluded from the given information.  
☒ B. Only II can be concluded from the given information.  
☒ C. Both I and II can be concluded from the given information.  
☒ D. Neither I nor II can be concluded from the given information.

**Q.29** Select the number from among the given options that can replace the question mark (?) in the following series.

67, 67, 56, ?, 45, 45, 34, 34, 23, 23, 12

**Ans**

- ☒ A. 45  
☒ B. 56  
☒ C. 67  
☒ D. 53

**Q.30** Refer to the following letter, number, symbol series and answer the question.

(Left) H ^ 5 T & M 4 @ 5 # 1 4 J 3 P H 9 L ! 5 2 (Right)

If all numbers are dropped from the series, which of the following will be fifth from the right?

**Ans**

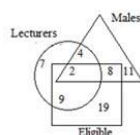
- ☒ A. L  
☒ B. @  
☒ C. J  
☒ D. P

**Q.31** A, K, G, D, H and Y are sitting in a straight row facing north. K is at one extreme end. Y is sitting third from the right of K and second to the left of A. D and H are immediate neighbours. G is sitting to the immediate left of A. D sits third to the left of G. Who is to the immediate right of K?

**Ans**

- ☒ A. H  
☒ B. D  
☒ C. Y  
☒ D. G

**Q.32** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



How many such male lecturers are there who are NOT eligible?

**Ans**

- ☒ A. 4  
☒ B. 6  
☒ C. 2  
☒ D. 10

**Q.33** Five boxes A, B, C, D, and E are kept one over the other but not necessarily in the same order. The box A is not kept above or below box C or E which are kept together. Box B is kept at the third place above box C. There is only one box between box D and E and one of them is kept at the bottom. Which box is kept in the middle?

- Ans**
- ☒ A. A
  - ☒ B. B
  - ☒ C. C
  - ☒ D. D

**Q.34** Seven people, A, B, C, D, E, F and G, are sitting in a straight row, facing north. Only three people sit between A and G. Only two people sit to the left of A. F is not an immediate neighbour of G. F sits second to the right of E. C sits to the immediate right of B. Who sits at the extreme left end of the row?

- Ans**
- ☒ A. D
  - ☒ B. A
  - ☒ C. C
  - ☒ D. G

**Q.35** If 3 is added to each odd digit and 1 is subtracted from each even digit in the number 4815421, what will be the sum of the digits that are third from the left and third from the right in the new number thus formed?

- Ans**
- ☒ A. 9
  - ☒ B. 7
  - ☒ C. 11
  - ☒ D. 10

**Q.36** Six persons, P, Q, R, S, T and U travelled in different months of the same year viz. January, February, March, July, September and December. R travelled in September. Only one person travelled between R and T. No one travelled between U and P. P travelled in a month after U. More than two people travelled between P and S. Who among them travelled in July?

- Ans**
- ☒ A. S
  - ☒ B. Q
  - ☒ C. T
  - ☒ D. P

**Q.37** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(1, 2)

(5, 10)

- Ans**
- ☒ A. 2, 10
  - ☒ B. 4, 8
  - ☒ C. 7, 405
  - ☒ D. 3, 33

**Q.38** Which of the following alphanumeric-clusters will replace the question mark (?) in the given series to make it logically complete?

P5U, N7U, L3O, J8R, ?

**Ans** ☒ A. H3E

☒ B. H2F

☒ C. H2J

☒ D. H4D

**Q.39** Pole P is to the west of pole T and north of pole R. Pole Q is to the west of pole R and north of pole W. What is the position of pole R with respect to pole T?

**Ans** ☒ A. South

☒ B. South-west

☒ C. North

☒ D. North-east

**Q.40** Six students, J, K, L, M, N and O, decided to race during a PE lesson. Each had a different speed in the race. N ran faster than M but slower than L. M ran slower than J but faster than O. K ran faster than L. J ran slower than L. Who among the six ran the fastest?

**Ans** ☒ A. K

☒ B. L

☒ C. J

☒ D. N

**Q.41** Study the given table and answer the question that follows.

The table presents the total number of new life policies (in thousands) sold by different bank branches over the years.

|          | 2001 | 2002 | 2003 | 2004 | 2005 |
|----------|------|------|------|------|------|
| Branch A | 53   | 34   | 54   | 54   | 76   |
| Branch B | 23   | 57   | 65   | 25   | 45   |
| Branch C | 54   | 54   | 56   | 76   | 34   |
| Branch D | 26   | 25   | 45   | 65   | 48   |
| Branch E | 64   | 76   | 76   | 92   | 90   |
| Branch F | 35   | 45   | 56   | 45   | 76   |
| Branch G | 62   | 52   | 45   | 65   | 45   |
| Branch H | 55   | 13   | 76   | 92   | 34   |

Which pair of branches have recorded lowest number of policy sales in these years taken together?

**Ans** ☒ A. Branch A and branch E

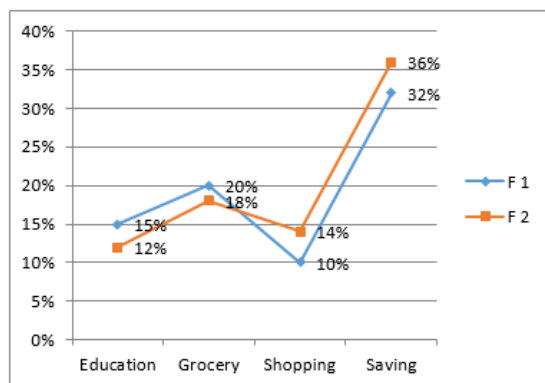
☒ B. Branch C and branch D

☒ C. Branch E and branch F

☒ D. Branch B and branch D

Q.42

The given graph provides the details of expenses (in percentage) by two families (F1 and F2). Study the graph and answer the question.



Find the average percentage expense for grocery and shopping by family F 1.

- Ans ☒ A. 15%  
☒ B. 16%  
☒ C. 33%  
☒ D. 31%

Q.43 If '+' means '×', '×' means '+', '÷' means '−', and '−' means '÷', then what will be the value of the given expression?

$$999 - 3 + 10 \times 5 + 4$$

- Ans ☒ A. 550  
☒ B. 1000  
☒ C. 3000  
☒ D. 1001

Q.44 In a code language, 'you are my world' is written as 'kai po che lu', 'my home world' is written as 'je po kai', and 'she was my girl' is written as 'da mu kai va'. What is the code for the word 'world' in that language?

- Ans ☒ A. mu  
☒ B. lu  
☒ C. po  
☒ D. kai

Q.45 Three statements are followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they do not conform to real world knowledge, decide which of the given conclusions/possibilities can be true on the basis of the statements.

Statements:

1. Some biscuits are cookies.
2. Some cookies are pastries.
3. All pastries are creams.

Conclusions:

- I. Some pastries are biscuits.
- II. Some creams are biscuits.
- III. Some creams are cookies.

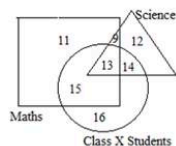
- Ans ☒ A. Only conclusion I is true  
☒ B. Only conclusion II is true  
☒ C. Only conclusion III is true  
☒ D. Only conclusion I and II are true

**Q.46** What will be the value of the given expression if 4 and 7 are interchanged and also '×' and '÷' are interchanged?

$$63 \times 3 - 4 + 18 \div 7$$

- Ans**
- ☒ A. 56
  - ☒ B. 86
  - ☒ C. 48
  - ☒ D. 68

**Q.47** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



How many class X students like to study either Maths or Science but NOT both?

- Ans**
- ☒ A. 28
  - ☒ B. 27
  - ☒ C. 13
  - ☒ D. 29

**Q.48** Each vowel in the word HAPPILY is changed to the letter following it in the English alphabetical order and each consonant is changed to the letter preceding it in the English alphabetical order. Which of the following letters will appear twice in the group of letters thus formed?

- Ans**
- ☒ A. P
  - ☒ B. B
  - ☒ C. O
  - ☒ D. K

**Q.49** Raghav starts from Point A and drives 30 km towards the north. He then takes a right turn, drives 34 km, turns right and drives 41 km. He then takes a right turn and drives 47 km. He takes a final right turn, drives 11 km and stops at Point P. How far and towards which direction should he drive in order to reach Point A from Point P in a straight line? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 13 km towards the east
  - ☒ B. 15 km towards the west
  - ☒ C. 23 km towards the east
  - ☒ D. 13 km towards the south

**Q.50** Select the option in which the numbers are related in the same way as are the numbers of the given sets.

(NOTE: Operations should be performed on the whole numbers without breaking down the numbers into its constituent digits.

E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(4, 13, 3)

(4, 19, 5)

- Ans**
- ☒ A. (1, 25, 8)
  - ☒ B. (18, 28, 2)
  - ☒ C. (5, 30, 7)
  - ☒ D. (6, 14, 2)

**Q.51** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully and from the given options, select the pair that follows the same logic.

HTY : ZVK

KUY : ZWN

- Ans**
- ☒ A. KYT : WAL
  - ☒ B. ABG : HCD
  - ☒ C. APK : BRN
  - ☒ D. AED : EGD

**Q.52** In a class of 23 students Parul ranked 6<sup>th</sup> from the top and Shomya ranked 19<sup>th</sup> from the bottom. How many students ranked between Parul and Shomya?

- Ans**
- ☒ A. 0
  - ☒ B. 1
  - ☒ C. 2
  - ☒ D. 12

**Q.53** How many such pairs of letters are there in the word REGULATION (in the forward direction) which have as many letters between them in the word as there are in the English alphabetical order?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.54** In a certain code language, 'SYMBOLIC' is written as 'CPTZNMJD' and 'SYMPATHY' is written as 'QBTZNUIZ'. How will 'SURVIVAL' be written in that language?

- Ans**
- ☒ A. WJTVSBWM
  - ☒ B. TJWVSMBW
  - ☒ C. WJTUSVBM
  - ☒ D. WJTVSWBM

**Q.55** Six friends P, Q, R, M, N and O prepared together for a class test and each one scored different marks. Only 3 friends scored less marks than R. N scored less marks than only 1 friend. Only O scored marks between the marks of P and M. Who scored the highest marks?

- Ans**
- ☒ A. M
  - ☒ B. P
  - ☒ C. Q
  - ☒ D. R

#### Section : General Science

**Q.56** In a cell, where does the process of breakdown of glucose, a 6-carbon molecule, to pyruvate, a 3-carbon molecule, take place?

- Ans**
- ☒ A. Mitochondria
  - ☒ B. Cytoplasm
  - ☒ C. Chloroplast
  - ☒ D. Golgi apparatus



**Q.57** If the length of a conductor is increased five times, keeping material and thickness same, its resistance will

- Ans**
- ☐ A. become double
  - ☐ B. remain same
  - ☐ C. become one-fifth of the original
  - ☒ D. become five times of the original

**Q.58** Name the instrument used by the physicians to measure blood pressure.

- Ans**
- ☐ A. Echocardiogram
  - ☒ B. Sphygmomanometer
  - ☐ C. Stethoscope
  - ☐ D. Spirometer

**Q.59** Value of refractive index can be calculated by using:

- Ans**
- ☐ A. Ohm's law
  - ☐ B. Maxwell's law
  - ☒ C. Snell's law
  - ☐ D. Newton's law

**Q.60** Consider the below statements and identify the correct answer.

Statement- I: The stinging hair of nettle leaves injects methanoic acid causing burning pain.

Statement-II: Use of a mild base like baking soda on the stung area gives relief.

- Ans**
- ☒ A. Both statements are correct. Statement II is not related to Statement I.
  - ☐ B. Both Statements are correct. Statement II is related to Statement I.
  - ☐ C. Only Statement I is correct.
  - ☐ D. Only Statement II is correct.

**Q.61** To obtain a virtual and erect image by reflection from a concave mirror of focal length 20 cm, the object should be placed:

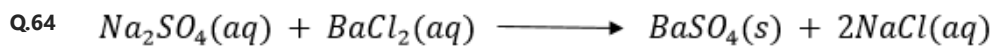
- Ans**
- ☐ A. at 20 cm
  - ☐ B. between 20-40 cm
  - ☒ C. between 0-20 cm
  - ☐ D. at zero

**Q.62** When blue and orange lights, which are parallel to each other, are passed through prism then:

- Ans**
- ☐ A. both emergent rays will be parallel
  - ☐ B. blue ray will bend towards the top
  - ☐ C. orange ray will bend more
  - ☒ D. blue ray will bend more

**Q.63** What is the form of contraception that can help stop the spread of sexually transmitted diseases to some extent?

- Ans**
- ☐ A. Vasectomy
  - ☐ B. Oral contraceptive pills
  - ☐ C. IUD
  - ☒ D. Condoms



In the given reaction, which product remains in the solution?

- Ans
- ☒ A.  $\text{BaSO}_4$
  - ☒ B.  $\text{NaCl}$
  - ☒ C.  $\text{BaCl}_2$
  - ☒ D.  $\text{Na}_2\text{SO}_4$

Q.65 Apart from nucleus of the cell, which two cell organelles have their own DNA and Ribosomes?

- Ans
- ☒ A. Plastids and Golgi bodies
  - ☒ B. Mitochondria and Lysosomes
  - ☒ C. Plastids and Mitochondria
  - ☒ D. Mitochondria and Golgi bodies

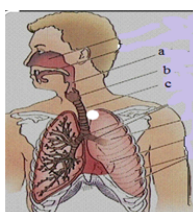
Q.66 Which of the following molecules has only single bonds?

- Ans
- ☒ A.  $\text{CH}_4$
  - ☒ B.  $\text{CO}_2$
  - ☒ C.  $\text{N}_2$
  - ☒ D.  $\text{O}_2$

Q.67 A point on the principal axis which is at double the distance between P and F for a spherical mirror is:

- Ans
- ☒ A. infinity
  - ☒ B. centre of curvature
  - ☒ C. pole
  - ☒ D. principal focus

Q.68 The labelling for the parts a, b and c of the human respiratory system shown below are given as options. Identify the correct option.



- Ans
- ☒ A. a - Larynx, b - Pharynx, c - Trachea
  - ☒ B. a - Pharynx, b - Trachea, c - Larynx
  - ☒ C. a - Pharynx, b - Larynx, c - Trachea
  - ☒ D. a - Trachea, b - Larynx, c - Pharynx

Q.69 How many formula units of  $\text{CaSO}_4$  are attached to one molecule of water of crystallisation in Plaster of Paris?

- Ans
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.70** Humans has been practicing water harvesting since ancient times. Some different forms of water harvesting structures are given in Column I and the place they are practiced in Column II. Select the option that shows the correct matching.

| Column I (Water harvesting structures) | Column II (Places where they are practiced) |
|----------------------------------------|---------------------------------------------|
| A. Surangams                           | i) Bihar                                    |
| B. Pynes                               | ii) Rajasthan                               |
| C. Kulhs                               | iii) Kerala                                 |
| D. Khadins                             | iv) Himachal Pradesh                        |

- Ans**
- ☒ A. A-i, B-ii, C-iii, D-iv
  - ☒ B. A-ii, B-iii, C-i, D-iv
  - ☒ C. A-iii, B-ii, C-iv, D-i
  - ☒ D. A-iii, B-i, C-iv, D-ii

**Q.71** The safety device that works on the heating effect of electric current is:

- Ans**
- ☒ A. Switch
  - ☒ B. Fuse
  - ☒ C. Electric motor
  - ☒ D. Heater

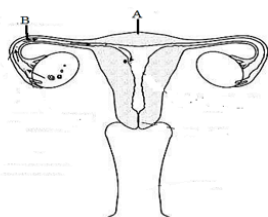
**Q.72** Which reaction is an example of a double displacement reaction?

- Ans**
- ☒ A.  $\text{Fe(s)} + \text{CuSO}_4(\text{aq}) \longrightarrow \text{FeSO}_4(\text{aq}) + \text{Cu(s)}$
  - ☒ B.  $\text{Na}_2\text{SO}_4(\text{aq}) + \text{BaCl}_2(\text{aq}) \longrightarrow \text{BaSO}_4(\text{s}) + 2\text{NaCl}(\text{aq})$
  - ☒ C.  $\text{Zn(s)} + \text{CuSO}_4(\text{aq}) \longrightarrow \text{ZnSO}_4(\text{aq}) + \text{Cu(s)}$
  - ☒ D.  $\text{Pb(s)} + \text{CuCl}_2(\text{aq}) \longrightarrow \text{PbCl}_2(\text{aq}) + \text{Cu(s)}$

**Q.73** Resistance of a conducting wire is 15 ohm. If another wire of the same material and length but having one-third radius is taken, then the resistance of the second wire will be \_\_\_\_\_.

- Ans**
- ☒ A. 5 ohm
  - ☒ B. 45 ohm
  - ☒ C. 135 ohm
  - ☒ D. 60 ohm

**Q.74** The figure given below shows the sectional view of the human female reproductive system. Identify the option stating correct functions of the labelled parts A and B.



- Ans**
- ☒ A. A - Implantation and development of embryo, B - Fertilisation of egg
  - ☒ B. A - Fertilisation of egg, B - Formation of egg
  - ☒ C. A - Formation of egg, B - Fertilisation of egg
  - ☒ D. A - Fertilisation of egg, B - Implantation and development of embryo

Q.75 The elements having atomic numbers 15, 16, 17, and 18, respectively, are:

- Ans
- ☒ A. P, S, Cl and Ar
  - ☐ B. Ar, Cl, S and P
  - ☐ C. S, P, Cl and Ar
  - ☐ D. P, S, Ar and Cl

Q.76 Magnetic field lines around the current carrying circular loop are:

- Ans
- ☐ A. perpendicular to conductor
  - ☐ B. parallel lines
  - ☐ C. semi-circular
  - ☒ D. concentric circles

Q.77 A strong magnet is moved towards a stationary coil. The induced current in the coil is the maximum when the angle between the direction of motion of the magnet and the plane of the coil is \_\_\_\_\_.

- Ans
- ☐ A.  $15^\circ$
  - ☐ B.  $45^\circ$
  - ☐ C.  $75^\circ$
  - ☒ D.  $90^\circ$

Q.78 Which of the following leads to global warming?

- Ans
- ☐ A. Afforestation
  - ☒ B. Increase in  $\text{CO}_2$  percentage in the air
  - ☐ C. Increase in the levels of atmospheric ozone
  - ☐ D. Accumulation of plastic waste

Q.79 What was the fundamental property used by Mendeleev to arrange elements in his Periodic Table?

- Ans
- ☐ A. Gaseous nature
  - ☒ B. Atomic mass
  - ☐ C. Solid nature
  - ☐ D. Liquid nature

Q.80 Which formula is related to an unsaturated carbon compound?

- Ans
- ☒ A.  $\text{C}_2\text{H}_4$
  - ☐ B.  $\text{C}_2\text{H}_6$
  - ☐ C.  $\text{C}_3\text{H}_8$
  - ☐ D.  $\text{C}_4\text{H}_{10}$

Section : General Awareness and Current Affairs

**Q.81** The Revised PMJVK Scheme 2022-23, will now be implemented in all districts of the country including all the aspirational districts. States/ UTs can propose infrastructure projects in the identified areas where the concentration of minority population is more than \_\_\_\_\_ in the catchment area (5 km radius).

- Ans**
- ☒ A. 10%
  - ☒ B. 15%
  - ☒ C. 20%
  - ☒ D. 25%

**Q.82** In 1989, which committee recommended constitutional recognition for the local government bodies?

- Ans**
- ☒ A. PK Thungan Committee
  - ☒ B. AK Mathur Committee
  - ☒ C. Vasudev Committee
  - ☒ D. Vaghul Committee

**Q.83** As stated by the law of variable proportions, as additional units of a variable factor are combined with a given level of fixed factors and technology, the marginal product of the variable factor \_\_\_\_\_.

- Ans**
- ☒ A. first increases and then declines
  - ☒ B. first declines and then increases
  - ☒ C. increases sharply
  - ☒ D. declines sharply

**Q.84** In the year 2021, who among the following received the Shanti Swarup Bhatnagar Award in biological science?

- Ans**
- ☒ A. Amit Singh
  - ☒ B. Kayarat Sai Krishnan
  - ☒ C. Jyotirmayee Dash
  - ☒ D. Aditi Sen De

**Q.85** According to the 2011 census of languages, which is the second highest spoken language in India?

- Ans**
- ☒ A. Telugu
  - ☒ B. Bengali
  - ☒ C. Tamil
  - ☒ D. Gujarati

**Q.86** The Third Five-Year Plan of India was launched under the leadership of \_\_\_\_\_.

- Ans**
- ☒ A. Lal Bahadur Shastri
  - ☒ B. Gulzarilal Nanda
  - ☒ C. Jawaharlal Nehru
  - ☒ D. Morarji Desai

**Q.87** Who among the following became the Vice -President of India from 11th August 2022?

- Ans**
- ☒ A. Biswabhusan Harichandan
  - ☒ B. B. D. Mishra
  - ☒ C. Jagdeep Dhankhar
  - ☒ D. Phagu Chauhan

**Q.88** The Union Territory of Lakshadweep has \_\_\_\_\_ inhabited islands as of March 2022.

**Ans** ☒ A. 12

☒ B. 10

☒ C. 14

☒ D. 16

**Q.89** Which Muslim festival is celebrated to mark the culmination of the hajj (pilgrimage) rites at Minā, Saudi Arabia, near Mecca?

**Ans** ☒ A. Eid Al-Adha

☒ B. Milad un-Nabi

☒ C. Eid-Ul-Fitr

☒ D. Muharram

**Q.90** \_\_\_\_\_ is a government scheme meant for old age protection and social security of Unorganised workers.

**Ans** ☒ A. Atal Pension Yojna

☒ B. Life Cover under Pradhan Mantri Jan Dhan Yojana

☒ C. Varishtha Pension Bima Yojana.

☒ D. Pradhan Mantri Shram Yogi Maandhan Yojana

**Q.91** Which of the following is NOT a location for the Kumbh mela religious festival?

**Ans** ☒ A. Ujjain

☒ B. Haridwar

☒ C. Allahabad

☒ D. Bodh Gaya

**Q.92** International chess Olympiad 2022 is hosted by which of the following cities?

**Ans** ☒ A. Bengaluru

☒ B. Chennai

☒ C. Kolkata

☒ D. Trivandrum

**Q.93** In March 2022, who was selected for the 31<sup>st</sup> GD Birla Award for Outstanding Contribution and Scientific Research in the field of Physics?

**Ans** ☒ A. Professor Narayan Pradhan

☒ B. Professor Pinaki Talukdar

☒ C. Professor Deepak Dhar

☒ D. Professor Amrita Hazra

**Q.94** Poona Pact was between Mahatma Gandhi and \_\_\_\_\_.

- Ans**
- ☒ A. Dr B.R. Ambedkar
  - ☐ B. Lord Irwin
  - ☐ C. Sardar Vallabhbhai Patel
  - ☐ D. Lord Mountbatten

**Q.95** The Government of India set up a committee to review the Fiscal Responsibility and Budget Management Act 2003, under the Chairmanship of NK Singh, in the year \_\_\_\_\_.

- Ans**
- ☐ A. 2013
  - ☐ B. 2014
  - ☐ C. 2015
  - ☒ D. 2016

**Q.96** Who stated that the principle of maximum social advantage is the most fundamental principle lying at the root of public finance?

- Ans**
- ☐ A. Arthur Cecil Pigou
  - ☒ B. Hugh Dalton
  - ☐ C. Martin EP Seligman
  - ☐ D. John R Hicks

**Q.97** What is the altitude of the outermost range of Himalayas, the Shiwaliks?

- Ans**
- ☒ A. 900 to 1100 meter
  - ☐ B. 800 to 1000 meter
  - ☐ C. 700 to 900 meter
  - ☐ D. 600 to 800 meter

**Q.98** Which air mass is warm?

- Ans**
- ☐ A. Continental Polar
  - ☐ B. Continental Arctic
  - ☐ C. Maritime Polar
  - ☒ D. Continental Tropical

**Q.99** As on April 2022, the Indian Constitution contains \_\_\_\_\_ Articles, with 12 Schedules.

- Ans**
- ☐ A. 336
  - ☒ B. 448
  - ☐ C. 484
  - ☐ D. 378

**Q.100** Which country has been declared as the winner of the 3<sup>rd</sup> edition of the SAFF U-18 Women's Football Championship 2022?

- Ans**
- ☒ A. India
  - ☐ B. Bangladesh
  - ☐ C. Pakistan
  - ☐ D. Nepal





# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 12/09/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** The sum of two positive numbers is 34 and their product is 64. The positive difference between them is:

- Ans**
- ☒ A. 60
  - ☒ B. 50
  - ☒ C. 40
  - ☒ D. 30

**Q.2**  $(x^4 - 625)$  can be factorised as:

- Ans**
- ☒ A.  $(x^2 + 25)(x^2 + 25)$
  - ☒ B.  $(x^2 - 25)(x^2 - 5)$
  - ☒ C.  $(x - 5)(x + 5)(x^2 + 25)$
  - ☒ D.  $(x + 5)^2(x^2 - 25)$

**Q.3** The value of  $(2^{25} \div 2^{15}) \times 2^4$  is:

- Ans**
- ☒ A.  $2^{13}$
  - ☒ B.  $2^{14}$
  - ☒ C.  $2^{11}$
  - ☒ D.  $2^{10}$

**Q.4** A merchant purchased an item for ₹1,500. How much should he mark on the item to earn 20% profit after allowing 20% discount?

- Ans**
- ☒ A. ₹2,250
  - ☒ B. ₹2,000
  - ☒ C. ₹1,800
  - ☒ D. ₹1,650



**Q.5** The ratio of the radius of the base to the height of a cylinder is 2 : 1. If its volume is  $4312 \text{ cm}^3$ , then the curved surface area of the cylinder is:

- Ans**
- ☐ A.  $946 \text{ cm}^2$
  - ☐ B.  $734 \text{ cm}^2$
  - ☒ C.  $616 \text{ cm}^2$
  - ☐ D.  $668 \text{ cm}^2$

**Q.6** Which of the following statements is true about the nature of roots for the equation  $11x^2 + 19x + 8 = 0$ ?

- Ans**
- ☐ A. Both roots are imaginary or non-real
  - ☐ B. One root is positive real, and one is negative real
  - ☐ C. Both roots are positive real
  - ☒ D. Both roots are negative real

**Q.7** The fourth proportional to 0.15, 0.35 and 12 is:

- Ans**
- ☐ A. 58
  - ☐ B. 48
  - ☐ C. 38
  - ☒ D. 28

**Q.8** If the 5-digit number 688xy is divisible by 11 and 21, then what is the value of  $(8x - 3y + xy)$ ?

- Ans**
- ☒ A. 24
  - ☐ B. 15
  - ☐ C. 13
  - ☐ D. 6

**Q.9** If  $\tan x = \frac{3}{4}$ , for  $0 < x < 90^\circ$ , then the value of  $\frac{1 - \sin x}{1 + \sin x}$  will be:

- Ans**
- ☐ A.  $\frac{1}{3}$
  - ☐ B.  $\frac{1}{5}$
  - ☐ C.  $\frac{1}{2}$
  - ☒ D.  $\frac{1}{4}$

**Q.10** If  $(a - b) = 8$  and  $(a^2 + b^2) = 160$ , then the value of  $ab$  is:

- Ans**
- ☐ A. 40
  - ☒ B. 48
  - ☐ C. 36
  - ☐ D. 32

**Q.11** The sum lent at the rate of 25% per annum simple interest, that produces interest of ₹ 2.00 a day, for a year of 365 days, is:

- Ans**
- ☒ A. ₹2,820
  - ☒ B. ₹2,920
  - ☒ C. ₹2,800
  - ☒ D. ₹2,902

**Q.12** 40% of 60% of  $\frac{5}{8}$  of a number is 339. The number is:

- Ans**
- ☒ A. 5260
  - ☒ B. 4260
  - ☒ C. 3260
  - ☒ D. 2260

**Q.13** Two trains of lengths 160 m and 90 m are running in the same direction with velocities of 40 km/h and 50 km/h, respectively. The time taken by them to cross each other is:

- Ans**
- ☒ A. 75 sec
  - ☒ B. 80 sec
  - ☒ C. 95 sec
  - ☒ D. 90 sec

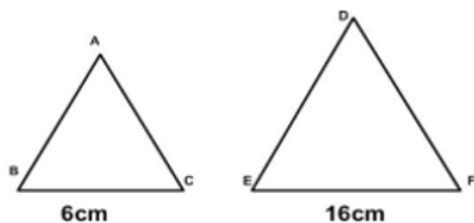
**Q.14** The value of  $\left\{14 + \left(2\frac{1}{2} + \frac{4}{5} + 1\right)\right\} \times \frac{1}{100}$  is:

- Ans**
- ☒ A. 1.83
  - ☒ B. 0.183
  - ☒ C. 0.0183
  - ☒ D. 18.3

**Q.15** A class of 20 students took a science test. 8 students had an average (arithmetic mean) score of 60. The remaining students had an average score of 40. The average score of the whole class is:

- Ans**
- ☒ A. 68
  - ☒ B. 48
  - ☒ C. 58
  - ☒ D. 40

**Q.16** In the given figure, if  $\triangle ABC$  and  $\triangle DEF$  are similar, then the ratio of CA to FD will be:



- Ans**
- ☒ A. 3 : 8
  - ☒ B. 3 : 4
  - ☒ C. 5 : 7
  - ☒ D. 3 : 7

**Q.17** Using empirical relation between the mean, median and mode, find the value of the mode if the median is 30 and mean is 25.

- Ans**
- ☐ A. 60
  - ☐ B. 50
  - ☒ C. 40
  - ☐ D. 30

**Q.18** The volume of a sphere having radius 6 cm is:

- Ans**
- ☐ A.  $588 \pi \text{ cm}^3$
  - ☐ B.  $488 \pi \text{ cm}^3$
  - ☐ C.  $388 \pi \text{ cm}^3$
  - ☒ D.  $288 \pi \text{ cm}^3$

**Q.19** Twice the present age of X is 9 years less than thrice the present age of Y. At present, X's father P is twice as old as X, and Y is 9 years younger than her sister Q. If P is 20 years older than Q, then the present age (in years) of Y is:

- Ans**
- ☐ A. 18
  - ☒ B. 19
  - ☐ C. 21
  - ☐ D. 23

**Q.20** Which of the following numbers is divisible by 4?

- Ans**
- ☐ A. 7864534
  - ☐ B. 9876342
  - ☒ C. 8978624
  - ☐ D. 9876754

**Q.21** Roots of the equation  $x^2 = 24 - 10x$  are:

- Ans**
- ☐ A. 3, -12
  - ☒ B. 2, -12
  - ☐ C. 3, -11
  - ☐ D. 2, -11

**Q.22** A can complete  $\frac{2}{3}$  of a certain work in 12 days and B can complete  $\frac{1}{4}$  of the same work in 3 days. Working together, the number of days they will take to finish the work is:

- Ans**
- ☒ A.  $7\frac{1}{5}$
  - ☐ B.  $8\frac{1}{5}$
  - ☐ C.  $5\frac{1}{5}$
  - ☐ D.  $6\frac{1}{5}$

**Q.23** The mode of the observations 20, 23, 25, 30, 20, 31, 32, 35, 20, 41, 42, 43, 20 and 20 is:

- Ans**
- ☒ A. 40
  - ☒ B. 35
  - ☒ C. 30
  - ☒ D. 20

**Q.24** A man bought mangoes at the rate of 12 for ₹900 and sold them at the rate of 9 for ₹1,200. His profit percentage in the transaction is:

- Ans**
- ☒ A.  $99\frac{8}{9}\%$
  - ☒ B.  $88\frac{8}{9}\%$
  - ☒ C.  $77\frac{7}{9}\%$
  - ☒ D.  $66\frac{7}{9}\%$

**Q.25** The least 3-digit number that is completely divisible by 8 and 12 is:

- Ans**
- ☒ A. 108
  - ☒ B. 124
  - ☒ C. 120
  - ☒ D. 144

#### Section : General Intelligence and Reasoning

**Q.26** Six persons, Prem, Amit, Ram, Shyam, Tarun and Uma travelled in different months of the same year viz. January, February, March, July, September and December. Prem travelled in September. Only one person travelled between Prem and Uma. No one travelled between Tarun and Amit. Amit travelled in a month after Tarun. More than two persons travelled between Amit and Ram. Who among them travelled in July?

- Ans**
- ☒ A. Shyam
  - ☒ B. Uma
  - ☒ C. Ram
  - ☒ D. Tarun

**Q.27** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the condition is your answer.

| Number/Symbol | 2 | 6 | = | @ | ? | 8 | < | 5 | 7 | # | ! | / | 7 | 4 |
|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code          | K | S | R | T | U | M | W | Y | A | V | C | X | E | B |

Conditions:

- (i) If the first element is a number and the last, a symbol, the codes for these two are to be interchanged.
- (ii) If the first element is an even number and the last, an odd number, the first and last elements are to be coded as O.
- (iii) If both second and third elements are perfect squares, the third element is to be coded as the code for the second element.

How will '5 # / 4 =' be coded?

- Ans**
- ☒ A. RCXBY
  - ☒ B. YVXBR
  - ☒ C. YVEBY
  - ☒ D. RVXBY

**Q.28** If the digits of each number are written in reverse order and then the numbers are arranged in descending order, the position of how many numbers will NOT change?

7846, 6354, 8745, 4653

- Ans**
- ☒ A. Three
  - ☒ B. Two
  - ☒ C. One
  - ☒ D. Zero

**Q.29** Each of A, B, C, D and E has an exam on a different day of a week, starting from Monday and ending on Friday of the same week.

A has the exam on Thursday. Only one person has the exam between D and E. D has the exam on the day immediately before B. Who has the exam on Friday.?

- Ans**
- ☒ A. E
  - ☒ B. B
  - ☒ C. C
  - ☒ D. D

**Q.30** Select the triad that follows the same pattern as that followed by the two triads given below. Both triads follow the same pattern.

BG - FK - JO

NS - RW - VA

- Ans**
- ☒ A. MR - QV - UY
  - ☒ B. TY - XB - AF
  - ☒ C. DI - HM - LQ
  - ☒ D. SW - VA - ZE

**Q.31** Which of the following terms will replace the question mark (?) in the given series to make it logically complete?

RM13C, WR17H, BW21M, GB25R, ?

- Ans**
- ☒ A. LG33W
  - ☒ B. GW29L
  - ☒ C. WG33L
  - ☒ D. LG29W

**Q.32** If each of the following numbers is multiplied by 2 and the digits of each number are written in reverse order and then the numbers are arranged in descending order, the position of how many numbers will NOT change?

57, 87, 35, 97, 56, 74

- Ans**
- ☒ A. Four
  - ☒ B. Three
  - ☒ C. Two
  - ☒ D. One

**Q.33** Two statement are given below, followed by four conclusions given in the options. Find out which conclusion is true based on the given statements.

Statement:  $P < Q = R < T = M$ ,  $J < N < P$

- Ans**
- ☒ A.  $R < J$
  - ☒ B.  $M > J$
  - ☒ C.  $J > T$
  - ☒ D.  $N > R$

- Q.34** Select the set in which the numbers are related in the same way as are the numbers of the following sets.  
(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 12 – Operations on 12 such as adding/ subtracting/multiplying etc. to 12 can be performed. Breaking down 12 into 1 and 2 and then performing mathematical operations on 1 and 2 is not allowed)

(5, 144, 7)

(9, 225, 6)

- Ans**
- ☒ A. (4, 100, 5)
  - ☒ B. (9, 99, 10)
  - ☒ C. (9, 256, 7)
  - ☒ D. (10, 145, 13)

- Q.35** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



How many such students are there who are also lawyers but NOT from America?

- Ans**
- ☒ A. 20
  - ☒ B. 45
  - ☒ C. 15
  - ☒ D. 8

- Q.36** Given below is a decision followed by two statements I and II. Read the information carefully and select the correct option

**Decision:**

The Board of Directors of a Digital Marketing Company AMX have decided to shift their headquarters from the city centre to the business towers located on the outskirts of the city.

**Statements:**

- I. Low property rent in outskirts would help reduce the overall expenditure of the company substantially.
- II. The business towers is the hub of multiple MNCs with frequent visitors from international companies as well. This will give more visibility to AMX.

- Ans**
- ☒ A. Statement I strengthens the decision but statement II is neutral.
  - ☒ B. Statement I weakens the decision but statement II is neutral.
  - ☒ C. Both statements I and II weaken the decision.
  - ☒ D. Both statements I and II strengthen the decision.

- Q.37** The following table shows the monthly expenditure (in ₹ thousand) by three persons on rent, food, clothing and traveling. Study the table and answer the question.

|       | Rent | Food | Clothing | Traveling |
|-------|------|------|----------|-----------|
| Rahul | 12.3 | 10.0 | 12.7     | 15.0      |
| Geeta | 14.3 | 15.0 | 11.7     | 11.5      |
| Madhu | 14.5 | 25.0 | 20.0     | 22.0      |

What is the average expenditure of Madhu on all the four expenses together?

- Ans** ☒ A. ₹20,375  
☐ B. ₹20,357  
☐ C. ₹20,537  
☐ D. ₹20,377

- Q.38** Which of the following numbers will replace the question mark (?) in the given series?

5, 5, 7, 21, 25, ?

- Ans** ☒ A. 125  
☐ B. 45  
☐ C. 65  
☐ D. 120

- Q.39** Three statements are given followed by three conclusions. Consider the statements and conclusions to be true even if they vary from commonly known facts and then decide which of the conclusions follow(s) from the given statements.

Statements:

1. All birds are lions.
2. No goat is a lion.
3. Some tigers are goats.

Conclusions:

- (I) Some tigers are lions.
- (II) No lion is a tiger.
- (III) Some lions are birds.

- Ans** ☒ A. Only conclusion III follows.  
☐ B. Only conclusion II follows.  
☐ C. Only conclusions I and III follow.  
☐ D. None of the conclusions follow.

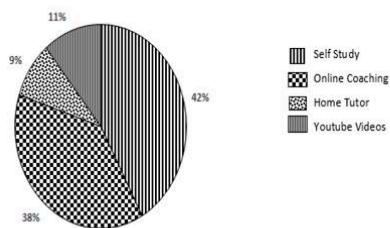
- Q.40** Sarvan starts from Point Y and drives 5 km towards the north. He then takes a right turn, drives 5 km, turns right and drives 7 km. He then takes a right turn and drives 15 km. Then he takes a right turn and drives 2 km. He takes a final right turn, drives 5 km and stops at Point M. How far and towards which direction should he drive in order to reach Point Y from Point M? (All turns are 90 degree turns only)

- Ans** ☐ A. 10 km towards the north  
☒ B. 5 km towards the east  
☐ C. 15 km towards the east  
☐ D. 5 km towards the west

- Q.41** If south is changed to north-west, north-west is changed to east, east is changed to south-west and so on, which direction is north-east changed to?

- Ans** ☐ A. North  
☒ B. South  
☐ C. East  
☐ D. West

**Q.42** The given pie chart provides details of the study modes used by students of class XII. Study the pie chart and answer the question.



If 18 students study using home tutors, how many total students are there in class XII?

- Ans**
- ☒ A. 300
  - ☒ B. 350
  - ☒ C. 180
  - ☒ D. 200

**Q.43** Select the option that is related to the fifth number in the same way as the fourth number is related to the third number and the second number is related to the first number.

9 : 83 :: 5 : 47 :: 4 : ?

- Ans**
- ☒ A. 37
  - ☒ B. 33
  - ☒ C. 32
  - ☒ D. 38

**Q.44** Amit, Bineet, Chandan, Dipti, Gyan and Farhaan live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it number 2, and so on till the topmost floor is numbered 6. Dipti lives on an even numbered floor but not on floor number 4. Only two people live between Dipti and Amit. Chandan lives immediately below Farhaan. Farhaan lives on an even numbered floor. Neither Chandan nor Bineet live on the lowermost floor. Who lives on floor number 4?

- Ans**
- ☒ A. Farhaan
  - ☒ B. Amit
  - ☒ C. Chandan
  - ☒ D. Bineet

**Q.45** In a certain code language, 'ADMIT' is written as 'BFPMY' and 'ACTOR' is written as 'BEWSW'. How will 'ABUSE' be written in that language?

- Ans**
- ☒ A. BDXWJ
  - ☒ B. BDYWJ
  - ☒ C. BDZWJ
  - ☒ D. BDGWJ

**Q.46** Refer to the following letter, number, symbol series and answer the question.

(Left) G \$ 5 & 2 P H 8 # T \* S 2 F 8 C 2 7 \$ Y 6 F (Right)

How many such symbols are there which are immediately preceded by a letter and also immediately followed by a number?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4



**Q.47** Six friends E, F, G, H, I and J are seated around a round table facing the centre. E is seated 2<sup>nd</sup> to the right of I. Only G is seated between H and J. Where is F seated?

- Ans**
- ☒ A. 2<sup>nd</sup> to the left of I
  - ☒ B. 2<sup>nd</sup> to the right of I
  - ☒ C. 3<sup>rd</sup> to the left of G
  - ☒ D. 2<sup>nd</sup> to the right of G

**Q.48** If all the letters in each of the following words are rearranged as per English alphabetical order, and the newly formed words/clusters are arranged as per the dictionary arrangement, which initial word/cluster will appear exactly in the middle?

LIKE, LIVE, LOVE, LIME, LUCK

- Ans**
- ☒ A. LOVE
  - ☒ B. LUCK
  - ☒ C. LIME
  - ☒ D. LIVE

**Q.49** Three statements are given followed by three conclusions. Consider the statements and conclusions to be true even if they vary from commonly known facts and then decide which of the conclusions follow(s) from the given statements.

Statements:

1. Some flowers are petals.
2. Some birds are petals.
3. No bird is a flower.

Conclusions:

- (I) Some petals are birds.
- (II) Some flowers are birds.
- (III) Some petals are flowers.

- Ans**
- ☒ A. Only conclusion III follows.
  - ☒ B. Only conclusion II follows.
  - ☒ C. Only conclusions I and III follow.
  - ☒ D. None of the conclusions follow.

**Q.50** This question is based on the following 3-letter words.

(Left) CAT OWN EYE AND SAD (Right)

If in each of the given words, each alphabet is changed to the following letter in the English alphabetical series, how many words thus formed will have at least one vowel?

- Ans**
- ☒ A. One
  - ☒ B. Two
  - ☒ C. Three
  - ☒ D. Four

**Q.51** Six friends M, N, O, P, Q and R are sitting in a row facing north. Only O is seated between P and M. Only R is seated between N and Q. M is not seated at either of the ends and not an immediate neighbour of Q. P is sitting at immediate left of O. Where is N seated?

**Ans**

- ☐ A. 2<sup>nd</sup> from the extreme left end
- ☒ B. Immediate right of M
- ☐ C. At one of the extreme ends
- ☐ D. 2<sup>nd</sup> from the extreme right end

**Q.52** Which of the following numbers will replace the question mark (?) in the given series?

176, 174, 171, 166, 159, ?

**Ans**

- ☒ A. 148
- ☐ B. 145
- ☐ C. 135
- ☐ D. 138

**Q.53** Which of the following options is the closest approximate value which will come in place of question mark(?) in the following equation?

$13.99 - 4.02 + 19.89 \times 5.99 = ?$

**Ans**

- ☒ A. 130
- ☐ B. 180
- ☐ C. 30
- ☐ D. 210

**Q.54** Two statement are given below, followed by four conclusions given in the options. Find out which conclusion is NOT true based on the given statements.

Statement:  $P > M > N = O$ ,  $X > Y > P$

**Ans**

- ☐ A.  $X > M$
- ☐ B.  $N < Y$
- ☐ C.  $O < X$
- ☒ D.  $Y < N$

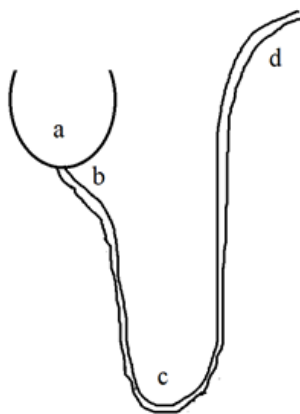
**Q.55** Each vowel in the word SURPRISING is changed to the letter following it in the English alphabetical order and each consonant is changed to the letter preceding it in the English alphabetical order. How many letters will appear twice in the group thus formed?

**Ans**

- ☐ A. Two
- ☒ B. Three
- ☐ C. Four
- ☐ D. Five

Section : General Science

Q.56 Which letter represents the region Bowman's capsule in the diagram below?



- Ans ☒ A. Region a  
☐ B. Region b  
☐ C. Region c  
☐ D. Region d

Q.57 The resistance of a wire of length  $L$  and area of cross-section  $A$  is  $0.4 \Omega$ . The resistance of a wire of the same material, of the same length ( $L$ ) and area of cross-section  $4A$  will be:

- Ans ☐ A.  $1.6 \Omega$   
☐ B.  $0.8 \Omega$   
☐ C.  $0.2 \Omega$   
☒ D.  $0.1 \Omega$

Q.58 Which of the following elements has the highest atomic radius?

- Ans ☐ A. Be  
☐ B. O  
☐ C. N  
☒ D. Li

Q.59 The focal length of a spherical mirror is the distance between \_\_\_\_\_.

- Ans ☐ A. focal plane and centre of curvature  
☒ B. pole and principal focus  
☐ C. centre of curvature and infinity  
☐ D. infinity and principal focus

Q.60 Which of the following statements is correct with reference to aerobic respiration?

- Ans ☒ A.  
In mitochondria, one molecule of pyruvate breaks down to give three molecules of carbon dioxide.  
☐ B. The release of energy in aerobic respiration is lower than that in anaerobic respiration.  
☐ C. Aerobic respiration takes places in the absence of oxygen.  
☐ D. Only carbon dioxide is released in the process of aerobic respiration.

Q.61 What will be the product when CO(g) reacts with H<sub>2</sub> (g) at 340 atm pressure?

- Ans
- ☐ A. HCHO
  - ☒ B. CH<sub>3</sub>OH
  - ☐ C. C<sub>2</sub>H<sub>5</sub>OH
  - ☐ D. HCOOH

Q.62 Select the INCORRECT statement related to magnetic field lines outside a bar magnet.

- Ans
- ☒ A. Field lines intersect each other.
  - ☐ B. Field lines do not intersect each other.
  - ☐ C. Field lines emerge from north pole.
  - ☐ D. Field lines merge at south pole.

Q.63 Which of the following will NOT show covalent bonding?

- Ans
- ☐ A. Oxygen (O<sub>2</sub>)
  - ☐ B. Ammonia (NH<sub>3</sub>)
  - ☐ C. Methane (CH<sub>4</sub>)
  - ☒ D. Magnesium chloride (MgCl<sub>2</sub>)

Q.64 After fertilisation in plants, the ovule gets converted into:

- Ans
- ☐ A. fruit
  - ☐ B. embryo
  - ☒ C. seed
  - ☐ D. zygote

Q.65 The process by which electrical energy can be produced in a coil involves:

- Ans
- ☐ A. inclusion of commutator in the system
  - ☐ B. magnet and coil under stationary positions
  - ☒ C. relative motion of the coil and magnet
  - ☐ D. presence of galvanometer in the system

Q.66 The correct relation between H (heat), I (current), R (resistance) and T (time) is:

- Ans
- ☒ A.  $H = I^2 RT$
  - ☐ B.  $H = IR^2 T$
  - ☐ C.  $H = IR T^2$
  - ☐ D.  $H = I^2 RT^2$

Q.67 MendeléeV's Periodic Table was published in \_\_\_\_\_.

- Ans
- ☐ A. 1842
  - ☐ B. 1852
  - ☐ C. 1862
  - ☒ D. 1872

**Q.68** The transport of food and other substances takes place in the sieve tubes with the help of adjacent companion cells both in upward and downward directions. Name the process.

- Ans**
- ☒ A. Osmosis
  - ☒ B. Diffusion
  - ☒ C. Translocation
  - ☒ D. Transpiration

**Q.69** A ray of light is incident on a refracting surface AB of glass prism, kept in air, and emerges out of the other refracting surface AC. Consider the following statements:

- (a) The angle of refraction at surface AB is less than the angle of incidence.
- (b) The angle of refraction at the surface AC is less than the angle of incidence.

Which of the above statements is/are correct?

- Ans**
- ☒ A. Only (a)
  - ☒ B. Only (b)
  - ☒ C. Both (a) and (b)
  - ☒ D. Neither (a) nor (b)

**Q.70** How many times does an adult human breathe per minute at rest?

- Ans**
- ☒ A. 12-15
  - ☒ B. 15-18
  - ☒ C. 70-72
  - ☒ D. 72-75

**Q.71** Which of the following statements for the reaction of copper oxide with HCl is correct?

- Ans**
- ☒ A.  $\text{CuCl}_2$  is formed.
  - ☒ B.  $\text{CuSO}_4$  is formed.
  - ☒ C. Cu is formed.
  - ☒ D.  $\text{Cl}_2$  is liberated.

**Q.72** What is the process of accumulation of chemicals in higher trophic levels called?

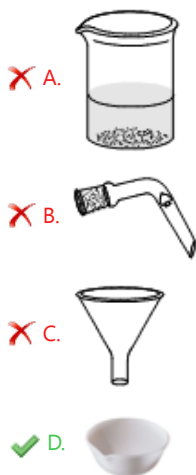
- Ans**
- ☒ A. Biological magnification
  - ☒ B. Biological remediation
  - ☒ C. Biological oxidation
  - ☒ D. Biological reduction

**Q.73** The focal length of a concave mirror is:

- Ans**
- ☒ A. positive or negative
  - ☒ B. always negative
  - ☒ C. always positive
  - ☒ D. zero

Q.74 Which of the following is a china dish?

Ans



Q.75 If equal potential difference is applied across tungsten, manganin and hard rubber wires of the same length and thickness, then:

Ans

- ☐ A. equal current will flow through all wires
- ☐ B. maximum current will pass through manganin
- ☒ C. maximum current will pass through tungsten
- ☐ D. maximum current will pass through hard rubber

Q.76 Which group of the following metals are obtained by reduction using carbon?

Na, Zn, Ca, Pb, Mg, Fe, Al, Cu, Ag

Ans

- ☐ A. Na, Zn, Ca, Pb
- ☒ B. Zn, Fe, Cu
- ☐ C. Ca, Pb, Mg
- ☐ D. Fe, Al, Cu, Ag

Q.77 Which of the following is NOT a common route of transmission of HIV from one person to another?

Ans

- ☐ A. Unprotected sexual contact with the infected person
- ☐ B. Infected mother to foetus during pregnancy
- ☐ C. Blood to blood contact with the infected people
- ☒ D. Casual contacts like handshakes or hugs with the infected people

Q.78 The random wavering of objects seen through a turbulent stream of hot air rising above a fire can be explained using:

Ans

- ☐ A. scattering of light
- ☒ B. atmospheric refraction
- ☐ C. dispersion of light
- ☐ D. Total internal reflection

Q.79 Which of the following compounds is used in the manufacture of borax?

Ans

- ☐ A. Chlorine water
- ☒ B. Washing soda
- ☐ C. Brine water
- ☐ D. Bleaching powder

**Q.80** Which of the following methods can be used to conserve our natural resources?

- Ans**
- ☐ A. Using more water
  - ☒ B. Walking to nearby places without using vehicles
  - ☐ C. Not recycling goods
  - ☐ D. Turning on lights even when not required

Section : General Awareness and Current Affairs

**Q.81** Hirakud Dam was in news due to the conflict between Odisha and Chhattisgarh over the distribution of water from the \_\_\_\_\_ river on which the dam has been erected.

- Ans**
- ☒ A. Mahanadi
  - ☐ B. Indravati
  - ☐ C. Sankh
  - ☐ D. Damodar

**Q.82** The first oil-field in Independent India was discovered in \_\_\_\_\_.

- Ans**
- ☐ A. Gujarat
  - ☒ B. Assam
  - ☐ C. Rajasthan
  - ☐ D. Maharashtra

**Q.83** \_\_\_\_\_ of the Constitution of India deals with the prohibition of traffic in human beings and forced labour.

- Ans**
- ☐ A. Article 21
  - ☐ B. Article 26
  - ☒ C. Article 23
  - ☐ D. Article 28

**Q.84** Following the Indian Constitution and respecting the national anthem and flag is the \_\_\_\_\_ fundamental duty included in our Constitution.

- Ans**
- ☒ A. First
  - ☐ B. Second
  - ☐ C. Third
  - ☐ D. Fourth

**Q.85** \_\_\_\_\_ is considered as the holy person who gave Jainism its present form.

- Ans**
- ☐ A. Rishabhanatha
  - ☐ B. Digambar
  - ☐ C. Vasudev
  - ☒ D. Mahavira

**Q.86** Hornbill and Moatsu Festivals are predominantly celebrated in which of the following states?

- Ans**
- ☐ A. Uttar Pradesh
  - ☐ B. Himachal Pradesh
  - ☒ C. Nagaland
  - ☐ D. West Bengal



**Q.87** In the year 2022, at what altitude was the Earth Observation Satellite (EOS-04) placed into a sun-synchronous polar orbit?

- Ans**
- ✓ A. 529 km
  - ✗ B. 714 km
  - ✗ C. 317 km
  - ✗ D. 612 km

**Q.88** Who won the men's singles Yonex Sunrise India Open 2022?

- Ans**
- ✗ A. Satwiksairaj Rankireddy
  - ✗ B. Chirag Shetty
  - ✓ C. Lakshya Sen
  - ✗ D. Mohammad Ahsan

**Q.89** Identify the committee constituted for the promotion of small scale industries.

- Ans**
- ✓ A. Karve Committee
  - ✗ B. Hanumanth Committee
  - ✗ C. Kelkar Committee
  - ✗ D. Raja Chelliah Committee

**Q.90** Urdu was declared the second official language of which one of the following state in 2017?

- Ans**
- ✓ A. Telangana
  - ✗ B. West Bengal
  - ✗ C. Odisha
  - ✗ D. Chhattisgarh

**Q.91** National air sports policy 2022 lays out the vision of making India one of the top nations by the year:

- Ans**
- ✗ A. 2025
  - ✓ B. 2030
  - ✗ C. 2035
  - ✗ D. 2040

**Q.92** In 1896, Maharshi Dhondo Keshav Karve set up an Ashram at \_\_\_\_\_ to educate widows and other women as he believed in empowerment through education.

- Ans**
- ✓ A. Poona
  - ✗ B. Surat
  - ✗ C. Madras
  - ✗ D. Nagpur

**Q.93** Which of the following not-for-profit organisations runs a flagship programme called Udaan that supports accelerated learning of out of school adolescent girls (aged 11-14 years), as of July 2022?

- Ans**
- ✓ A. CARE
  - ✗ B. Save the Children
  - ✗ C. YUVA
  - ✗ D. SEEDS



**Q.94** After the changes brought about by the 73rd amendment in Panchayati Raj institutions, all states in India have a uniform \_\_\_\_\_ tier Panchayati Raj structure.

- Ans**
- ☒ A. 2
  - ☒ B. 3
  - ☒ C. 4
  - ☒ D. 5

**Q.95** As per the Reserve Bank of India notification of March 2022 the minimum requirement of microfinance loans for NBFC-MFIs should be \_\_\_\_\_ per cent of the total assets.

- Ans**
- ☒ A. 25
  - ☒ B. 50
  - ☒ C. 75
  - ☒ D. 80

**Q.96** In the wake of the Andhra Pradesh microfinance crisis of 2010, RBI had constituted which committee to study issues and concerns in the Microfinance Institutions sector in India?

- Ans**
- ☒ A. Kelkar Committee
  - ☒ B. Parthasarathi Shome Committee
  - ☒ C. RV Gupta Committee
  - ☒ D. Malegam Committee

**Q.97** A Data-Driven Research, has been launched by the Department of Biotechnology, Ministry of Science and Technology on 24 March 2022 with the objective to eradicate which disease?

- Ans**
- ☒ A. Covid
  - ☒ B. Tuberculosis
  - ☒ C. AIDS
  - ☒ D. Cancer

**Q.98** The concept of indifference curve is based on the law of \_\_\_\_\_.

- Ans**
- ☒ A. diminishing marginal utility
  - ☒ B. diminishing marginal rate of substitution
  - ☒ C. marginal rate of substitution
  - ☒ D. demand and supply

**Q.99** In January 2022, who became India's first UNDP youth climate champion?

- Ans**
- ☒ A. Prajakta Koli
  - ☒ B. Riya Singh
  - ☒ C. Priyanka Chaudhary
  - ☒ D. Medha Patkar

**Q.100** \_\_\_\_\_ covers most of the Deccan Plateau, which includes parts of Maharashtra, Madhya Pradesh, Gujarat and Andhra Pradesh and some parts of Tamil Nadu.

- Ans**
- ✓ **A. Black soil**
  - ✗ **B. Alluvial soil**
  - ✗ **C. Laterite soil**
  - ✗ **D. Peaty soil**



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 12/09/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** Two trains M and N cross a pole in 30 seconds and 1 minute 45 seconds, respectively. The length of train M is half the length of train N. The respective ratio of the speed of train M to that of train N is:

- Ans**
- ☒ A. 2 : 3
  - ☒ B. 5 : 4
  - ☒ C. 7 : 4
  - ☒ D. 9 : 4

**Q.2** The average of the prime numbers between 11 and 30 is:

- Ans**
- ☒ A. 19.5
  - ☒ B. 19.6
  - ☒ C. 20.2
  - ☒ D. 20.3

**Q.3** Which of the following is a pair of co-prime numbers?

- Ans**
- ☒ A. 81, 16
  - ☒ B. 52, 24
  - ☒ C. 455, 49
  - ☒ D. 363, 77

**Q.4** Rajani borrowed an amount of ₹ 11,550 at an interest rate of 10% per annum, compounded annually. She repaid the entire amount with interest in two equal instalments, the instalments being paid at the end of the first and the second years from the date of borrowing. What is the value of each instalment, if interest is computed on reducing balance?

- Ans**
- ☒ A. ₹4,455
  - ☒ B. ₹6,655
  - ☒ C. ₹5,775
  - ☒ D. ₹7,755

**Q.5** In quadrilateral PQRS, the bisectors of  $\angle R$  and  $\angle S$  meet at the point T (inside the quadrilateral) and  $\angle STR = 87.5^\circ$ . If the ratio of  $\angle P$  to  $\angle Q$  is 2 : 3, then what is the difference between the measures of  $\angle Q$  and  $\angle P$ ?

- Ans** ☒ A.  $35^\circ$   
☐ B.  $40^\circ$   
☐ C.  $45^\circ$   
☐ D.  $25^\circ$

**Q.6** The value of  $5 + 12 \div 4 - 2 \times (1 + 3)$  is:

- Ans** ☐ A. -1  
☐ B. 1  
☒ C. 0  
☐ D. 2

**Q.7** A man buys a car for ₹2,50,000 and spends ₹30,000 on its repairs. If he sells the car for ₹3,50,000, then his profit percentage is:

- Ans** ☐ A. 33.33%  
☐ B. 32%  
☐ C. 28%  
☒ D. 25%

**Q.8** The fourth proportional of 17, 32, and 51 is:

- Ans** ☐ A. 32  
☐ B. 64  
☐ C. 72  
☒ D. 96

**Q.9** The ratio of the ages of A and B is 5 : 9. After 7 years, B's age will be 52 years. Six years ago, A's age was:

- Ans** ☐ A. 44 years  
☐ B. 35 years  
☐ C. 24 years  
☒ D. 19 years

**Q.10** One pipe can fill a tank three times as fast as another pipe. Together the two pipes can fill the tank in 32 minutes. The slower pipe alone will be able to fill the tank in \_\_\_\_\_ minutes.

- Ans** ☒ A. 128  
☐ B. 64  
☐ C. 144  
☐ D. 96

**Q.11** If  $x+y = 18$ , Product of  $x$  and  $y$  is 77, then which of the following pairs of numbers can be the values of  $x$  and  $y$ , respectively?

- Ans** ☐ A. 12 and 6  
☒ B. 11 and 7  
☐ C. 9 and 9  
☐ D. 8 and 10

**Q.12** The number of boys and girls in a class are in the ratio 6 : 5. The number of boys is 9 more than the number of girls. The total class strength(only boys and girls are in the class) is:

- Ans**
- ☒ A. 99
  - ☐ B. 89
  - ☐ C. 100
  - ☐ D. 129

**Q.13** The diameter of the base of a cylinder is 3 cm and its height is 14 cm. The volume of the cylinder is:

- Ans**
- ☒ A.  $99 \text{ cm}^3$
  - ☐ B.  $79 \text{ cm}^3$
  - ☐ C.  $89 \text{ cm}^3$
  - ☐ D.  $69 \text{ cm}^3$

**Q.14** Which of the following has NO pair of parallel sides?

- Ans**
- ☐ A. Rectangle
  - ☐ B. Trapezium
  - ☒ C. Kite
  - ☐ D. Rhombus

**Q.15** The number 678954321 is divisible by which of the following?

- Ans**
- ☐ A. 2
  - ☐ B. 11
  - ☐ C. 6
  - ☒ D. 3

**Q.16** The arithmetic mean of the observations 39, 49, 59, 60, 70, 80, 90, 93 and 90 is:

- Ans**
- ☐ A. 79
  - ☐ B. 78
  - ☐ C. 76
  - ☒ D. 70

**Q.17** The value of  $\frac{9}{10} \div \left(\frac{4}{5} + \frac{1}{10}\right)$  is:

- Ans**
- ☒ A. 1
  - ☐ B. 0
  - ☐ C.  $\frac{81}{100}$
  - ☐ D.  $\frac{1}{10}$

**Q.18** The sum of five consecutive numbers is 240. The sum of the first and last numbers is:

- Ans**
- ☐ A. 126
  - ☐ B. 116
  - ☐ C. 106
  - ☒ D. 96

**Q.19** The hypotenuse of a right-angled triangle is 2 more than twice of one of the sides, while the third side is 13 more than half of the hypotenuse. The length of the median to the hypotenuse is:

- Ans**
- ☐ A. 15
  - ☐ B. 18
  - ☒ C. 17
  - ☐ D. 20

**Q.20** The two numbers whose mean proportional is 14 and third proportional is 4802 are:

- Ans**
- ☐ A. 8 and 24
  - ☐ B. 7 and 28
  - ☐ C. 4 and 49
  - ☒ D. 2 and 98

**Q.21** The greatest number which divides 72 and 122 leaving remainders 3 and 7, respectively, is:

- Ans**
- ☐ A. 17
  - ☒ B. 23
  - ☐ C. 26
  - ☐ D. 29

**Q.22** Which of the following two successive discounts are equivalent to a single discount of 84%?

- Ans**
- ☐ A. 10% and 90%
  - ☒ B. 20% and 80%
  - ☐ C. 30% and 70%
  - ☐ D. 40% and 60%

**Q.23** The perimeter of a circle whose diameter is 50 cm is:

- Ans**
- ☒ A.  $50\pi$  cm
  - ☐ B.  $40\pi$  cm
  - ☐ C.  $30\pi$  cm
  - ☐ D.  $20\pi$  cm

**Q.24** Roots of the equation  $x^2 + 2x - 6 = 0$  are:

- Ans**
- ☐ A.  $-1 \pm \sqrt{5}$
  - ☐ B.  $-3 \pm \sqrt{7}$
  - ☐ C.  $-2 \pm \sqrt{7}$
  - ☒ D.  $-1 \pm \sqrt{7}$

**Q.25** The average of 41 numbers is 62. The average of the first 18 numbers is 65.5 and the average of the last 24 numbers is 61.5. If the 18<sup>th</sup> number from the beginning is excluded, then what is the average of the remaining numbers?

- Ans**
- ☐ A. 60.5
  - ☒ B. 60.725
  - ☐ C. 61.325
  - ☐ D. 61.625

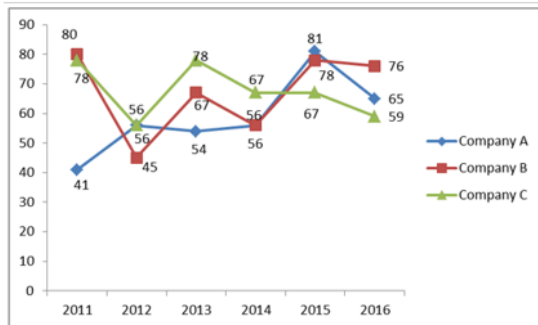
Section : General Intelligence and Reasoning

**Q.26** Six friends A, B, C, I, J and K prepared together for an interview and each one scored differently. C didn't score less than K. J didn't score more than A. I scored less than 3 friends only. C scored more than A. B scored less than J but not the least. Who scored the least?

- Ans**
- ☒ A. A
  - ☒ B. C
  - ☒ C. J
  - ☒ D. K

**Q.27** Study the given graph and answer the question that follows.

The graph presents total sales (in ₹ crore) of three companies over six years.



For which of the given pairs of years are the total sales of all three companies together equal?

- Ans**
- ☒ A. 2011 and 2015
  - ☒ B. 2015 and 2012
  - ☒ C. 2011 and 2013
  - ☒ D. 2013 and 2016

**Q.28** Five friends C, D, E, F and G are seated around a round table facing the centre. Only D is seated between G and E. D is seated 2<sup>nd</sup> to the right of F, who is not seated at either side of G. Where is C seated?

- Ans**
- ☒ A. To the immediate left of G
  - ☒ B. To the immediate left of F
  - ☒ C. To the immediate right of E
  - ☒ D. To the immediate right of F

**Q.29** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

1. All cloths are green.
2. All green are leaves.
3. Some leaves are originals.

Conclusions:

- I. Some originals are green.
- II. Some leaves are cloths.
- III. No cloth is an original.

- Ans**
- ☒ A. Only conclusions I and II follow.
  - ☒ B. Only conclusions I and III follow.
  - ☒ C. Only conclusion II follows.
  - ☒ D. Only conclusion III follows.

**Q.30** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

1. No rose is a hibiscus.
2. Some hibiscuses are lotuses.

Conclusions:

- I. No rose is a lotus.
- II. Some lotuses are not roses.

**Ans** ☒ A. Only conclusion I follows.  
☒ B. Both conclusions I and II follow.  
☒ C. Neither conclusion I nor II follows.  
☒ D. Only conclusion II follows.

**Q.31** Avadhesh starts from Point A and drives 10 km towards the east. He then takes a left turn, drives 10 km, turns left and drives 10 km. Then he takes a final left turn, drives 3 km and stops at Point M. How far and towards which direction should he drive in order to reach Point A from Point M? (All turns are 90 degree turns only)

**Ans** ☒ A. 7 km towards the north  
☒ B. 13 km towards the east  
☒ C. 7 km towards the east  
☒ D. 7 km towards the south

**Q.32** In a certain code language, 'DIARY' is written as 'FLFXF' and 'READY' is written as 'THFJF'. How will 'ERROR' be written in that language?

**Ans** ☒ A. GUWUY  
☒ B. GNJUY  
☒ C. JULDJ  
☒ D. JBDYU

**Q.33** In a certain code language, 'SHOUT' is written as 'VLTA' and 'TOTAL' is written as 'WSYGS'. How will 'WHITE' be written in that language?

**Ans** ☒ A. ZLNZL  
☒ B. ZJRKL  
☒ C. DFJPD  
☒ D. DPRHB

**Q.34** Which of the below two signs should be interchanged to make the following equation correct?

$$75 \div 8 \times 6 + 24 - 6 = 31$$

**Ans** ☒ A.  $\times$  and  $-$   
☒ B.  $\div$  and  $-$   
☒ C.  $+$  and  $\div$   
☒ D.  $-$  and  $+$



**Q.35** If '+' means '-', '-' means '×', '×' means '+', and '÷' means '+', what will come in place of the question mark (?) in the following equation?

$$18 \times 3 - 5 \div 6 + 4 = ?$$

- Ans**
- ✓ A. 32
  - ✗ B. 36
  - ✗ C. 34
  - ✗ D. 30

**Q.36** P, Q, R, S, T and U are six participants of an international Olympiad. Each of them scored different marks on the test. T scored more than Q. S scored more than Q. Q scored more than P and P scored more than R. T scored more than S. R scored more than only one participant. Which participant, among the six, scored the second highest?

- Ans**
- ✗ A. P
  - ✓ B. S
  - ✗ C. R
  - ✗ D. T

**Q.37** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

1. Some sandwiches are pizzas.
2. All burgers are pizzas.
3. Some burgers are pastas.

Conclusions:

- I-Some sandwiches are burgers.  
II-Some pastas are pizzas.

- Ans**
- ✗ A. Only conclusion I follows.
  - ✓ B. Only conclusion II follows.
  - ✗ C. Both conclusions I and II follow.
  - ✗ D. Neither conclusion I nor II follows.

**Q.38** This question is based on the following three-letter words:  
(Left) ALL NTE PET ARE (Right)

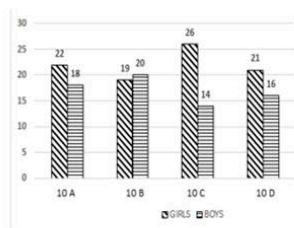
If in each of the words, each letter is changed to the next letter in the English alphabetical order, how many words thus formed will have no vowel?

- Ans**
- ✗ A. One
  - ✓ B. Two
  - ✗ C. Three
  - ✗ D. Four

**Q.39** TB 12 is related to QY 20 in a certain way. In the same way, ML 16 is related to JI 24. To which of the following is RD 20 related following the same logic?

- Ans**
- ✗ A. BO 26
  - ✓ B. OA 28
  - ✗ C. OA 26
  - ✗ D. AO 28

- Q.40** The given graph provides details of the number of girl students and boy students in four sections of class X of a school. Study the graph and answer the question.



Which section has the maximum percentage of girls of the total students in that section?

- Ans** ☒ A. 10D  
☒ B. 10C  
☒ C. 10B  
☒ D. 10A

- Q.41** All 20 students of a class are standing in a straight row facing north. Rohan is 8<sup>th</sup> from the right end, while Nikhil is 10<sup>th</sup> from the left end. How many students are standing between Rohan and Nikhil?

- Ans** ☒ A. 5  
☒ B. 2  
☒ C. 6  
☒ D. 3

- Q.42** This question is based on the following 3-letter words (left) BOW SAD LOW RAY (right)  
 How many letters are there in the English alphabetical order between the second letter of the first word from the right and the second letter of the first word from the left?

- Ans** ☒ A. Eight  
☒ B. Twelve  
☒ C. Thirteen  
☒ D. Fifteen

- Q.43** Given below is a statement followed by two possible conclusions I and II. Read the information carefully and select the correct option.

**Statement:**

If the sheep from country K are cross bred with sheep of their neighbouring country Q, the quality of wool produced will be much better than that reared from purebred sheep of either country.

Which of the following can be concluded from the given information?

I. Any two breeds of sheep can be successfully bred with each other.

II. The demand of wool reared by purebred sheep of either of these countries might go down once the wool from the crossbred sheep is easily available in the market at comparable prices.

- Ans** ☒ A. Only I can be concluded from the given information.  
☒ B. Only II can be concluded from the given information.  
☒ C. Both I and II can be concluded from the given information.  
☒ D. Neither I nor II can be concluded from the given information.

- Q.44** Select the number from among the given options that can replace the question mark (?) in the following series.

44, 42, 38, 36, 32, 30, 26, 24, ?

- Ans** ☒ A. 18  
☒ B. 22  
☒ C. 20  
☒ D. 23

**Q.45** A certain number of people are sitting in a row facing north. C sits second to the right of B. Only four people sit between C and A. X sits second to the left of A. Only one person sits between A and Y. Z sits to the immediate right of Y. If no other person is sitting in the row, what is the total number of persons seated?

- Ans**
- ☒ A. 11
  - ☐ B. 12
  - ☐ C. 8
  - ☐ D. 10

**Q.46** Preeti walks 30 m towards the east from point P. She takes a left turn and walks 18 m. She takes a left turn again and walks 65 m. Again, she takes a left turn and walks 86 m. She takes a left turn again and walks 65 m. Again, she takes a left turn and walks 18 m. She takes one final left turn and walks 30 m to reach point Q. How far and in which direction is point Q from point P? (All turns are 90 degree turns only)

- Ans**
- ☐ A. 50 m, North
  - ☐ B. 68 m, North
  - ☒ C. 50 m, South
  - ☐ D. 68 m, South

**Q.47** Refer to the following letter, number, symbol series and answer the question.

(Left) N 3 % Y 7 & 3 5 G M Q 1 @ 2 C ^ 9 L 2 B (Right)

How many such symbols are there which are immediately preceded by a letter and also immediately followed by a number?

- Ans**
- ☒ A. 1
  - ☐ B. 2
  - ☐ C. 3
  - ☐ D. 4

**Q.48** Which of the following letter-clusters will replace the question mark (?) in the given series to make it logically complete?

GED 14, LJI 17, QON 20, VTS 23, ?

- Ans**
- ☐ A. FXY 28
  - ☒ B. AYX 26
  - ☐ C. BYX 26
  - ☐ D. DVS 30

**Q.49** Select the option that is related to the fifth number in the same way as the fourth number is related to the third number and the second number is related to the first number.

27 : 36 :: 39 : 52 :: 30 : ?

- Ans**
- ☐ A. 39
  - ☐ B. 43
  - ☒ C. 40
  - ☐ D. 42

**Q.50** If '+' means '-', '-' means '×', '×' means '+' and '+' means '+', what will come in place of the question mark (?) in the following equation?

$18 \times 3 - 15 \div 10 + 20 = ?$

- Ans**
- ☒ A. 80
  - ☐ B. 60
  - ☐ C. 20
  - ☐ D. 40

**Q.51** A certain number of people are sitting around a round table facing the centre. S is sitting 3<sup>rd</sup> to the right of P, who is 4<sup>th</sup> to the left of Z. Only M is sitting between A and B. No other people are sitting around the table. How many people are there in total?

- Ans** ☒ A. 8  
☐ B. 9  
☐ C. 7  
☐ D. 6

**Q.52** Which of the following numbers will replace the question mark (?) in the given series?

25, 30, 55, 180, 805, ?

- Ans** ☐ A. 3400  
☐ B. 3960  
☒ C. 3930  
☐ D. 3935

**Q.53** Amir, Bineet, Chandra, Dinesh, Indresh, Farukh, Gurmeet and Hariom are sitting around a square table facing the centre of the table. Four of them are sitting at the corners, while four are sitting at the middle of the sides. Indresh sits third to the left of Gurmeet. Indresh sits at one of the corners. Bineet sits second to the right of Farukh. Farukh does not sit at any of the corners. Farukh is not an immediate neighbour of Indresh. Hariom is an immediate neighbour of Amir. Hariom does not sit at any of the middle of the sides. Only three people sit between Hariom and Chandra. Who sits third to the left of Dinesh?

- Ans** ☒ A. Amir  
☐ B. Bineet  
☐ C. Indresh  
☐ D. Hariom

**Q.54** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

9 : 90 :: 5 : 30 :: 10 : ?

- Ans** ☒ A. 110  
☐ B. 100  
☐ C. 105  
☐ D. 125

**Q.55** The position of how many letters will remain unchanged if each of the letters in the word POSITIVE is arranged in alphabetical order?

- Ans** ☒ A. None  
☐ B. One  
☐ C. Two  
☐ D. Three

#### Section : General Science

**Q.56** Who disproved the statement, "organic compounds could only be formed within a living system"?

- Ans** ☐ A. Rutherford  
☐ B. Charles  
☒ C. Wohler  
☐ D. Dalton

**Q.57** How can the general public living near the Ganga River participate in the Namami Gange Programme?

- Ans**
- ☐ A. By boiling water to kill coliform bacteria before drinking it
  - ☐ B. By not cutting trees growing on the river banks
  - ☒ C. By stopping open defecation on river banks
  - ☐ D. By adding mosquito-larvae-eating fish in the river

**Q.58** The correct formula for electric power is:

- Ans**
- ☐ A.  $P = V \cdot T$
  - ☒ B.  $P = V \cdot I$
  - ☐ C.  $P = V \cdot I \cdot T$
  - ☐ D.  $P = \frac{V}{I}$

**Q.59** Which of the following oxides corresponds to the oxide of Eka-aluminium?

- Ans**
- ☐ A.  $\text{Ge}_2\text{O}_3$
  - ☐ B.  $\text{B}_2\text{O}_3$
  - ☐ C.  $\text{In}_2\text{O}_3$
  - ☒ D.  $\text{Ga}_2\text{O}_3$

**Q.60** What is the nature of  $\text{BaSO}_4$  formed by a reaction of  $\text{SO}_4^{2-}$  and  $\text{Ba}^{2+}$ ?

- Ans**
- ☐ A. Water soluble
  - ☒ B. Water insoluble
  - ☐ C. Black crystals
  - ☐ D. Red powder

**Q.61** Consider the below statements and identify the correct answer.

Statement-I: The compounds formed by the transfer of electrons from a metal to a non-metal are known as electrovalent compounds.

Statement-II: Electrovalent compounds are generally soluble in water and insoluble in solvent such as kerosene, petrol etc.

- Ans**
- ☒ A. Both the statements are true.
  - ☐ B. Both the statements are false.
  - ☐ C. Statement-I is true, and Statement-II is false.
  - ☐ D. Statement-II is true, and Statement-I is false.

**Q.62** What is the difference between striated and smooth muscle cells?

- Ans**
- ☐ A. Smooth muscles are not connected to the nerves while striated muscles are connected.
  - ☐ B. Striated muscles lack nuclei while smooth muscles are binucleated
  - ☒ C. Smooth muscles cannot contract at will, while voluntary muscles contract at will
  - ☐ D. All striated muscles work by reflex action as compared to smooth muscles.

**Q.63** Consider the following statements about the force acting on a current-carrying straight conductor placed in a magnetic field:

- (a) The direction of the force remains the same even when the direction of magnetic field is reversed.
- (b) The direction of the force can be determined using Fleming's left-hand rule.

Which of the above statements is/are correct?

- Ans**
- ☒ A. Both (a) and (b)
  - ☒ B. Neither (a) nor (b)
  - ☒ C. Only (b)
  - ☒ D. Only (a)

**Q.64** A copper wire AB is made of three parts, AC, CD and DB of resistances in the ratio of 2 : 3 : 4. The wire is connected to a battery. If  $V_1$ ,  $V_2$  and  $V_3$  are the potential drops across AC, CD and DB, respectively, then which of the following is correct?

- Ans**
- ☒ A.  $V_1 : V_2 : V_3 = 1 : 1 : 1$
  - ☒ B.  $V_1 : V_2 : V_3 = 1 : 2 : 3$
  - ☒ C.  $V_1 : V_2 : V_3 = 2 : 3 : 4$
  - ☒ D.  $V_1 : V_2 : V_3 = 3 : 4 : 2$

**Q.65** Which of the following has less opposition to the flow of current?

- Ans**
- ☒ A. A good conductor
  - ☒ B. A good insulator
  - ☒ C. A high resistance
  - ☒ D. A bad conductor

**Q.66** Which of the following statements is INCORRECT?

- Ans**
- ☒ A. Kidneys are located in the abdomen, one on either side of the backbone
  - ☒ B. The human excretory system includes a pair of kidneys, a pair of ureters, a urinary bladder and a urethra.
  - ☒ C. Each kidney has large numbers of the filtration units called neurons packed close together.
  - ☒ D. Normally, in a healthy adult, the initial filtrate in the kidneys is about 180 L daily

**Q.67** Which shell of the nitrogen atom participates in forming  $N_2$  molecule?

- Ans**
- ☒ A. K
  - ☒ B. L
  - ☒ C. M
  - ☒ D. N

**Q.68** The phenomenon of electromagnetic induction occurs due to:

- Ans**
- ☒ A. stationary positions of the magnet and coil
  - ☒ B. change in magnet flux passing through coil
  - ☒ C. placement of galvanometer in the system
  - ☒ D. connecting the system with an electromagnet



Q.69

Which statement is correct for the elements of second period?

Ans

☒ A.

They have the same number of valence electrons and they also contain the same number of shells.

☒ B.

They do not have the same number of valence electrons and they do not contain the same number of shells.

☒ C.

They have the same number of valence electrons, but they do not contain the same number of shells.

☒ D.

They do not have the same number of valence electrons, but they contain the same number of shells.

Q.70

Which of the following statements is correct about oxidation reaction?

Ans

☒ A. Oxidation is loss of oxygen or gain of hydrogen.

☒ B. Oxidation is gain of oxygen and hydrogen.

☒ C. Oxidation is gain of oxygen or loss of hydrogen.

☒ D. Oxidation is loss of oxygen and hydrogen.

Q.71

A tree is 10 m in front of a convex mirror of focal length 2.5 m. Its image is formed:

Ans

☒ A. 1.25 m behind mirror

☒ B. 2.0 m behind mirror

☒ C. 2.0 m in front of mirror

☒ D. 1.25 m in front of mirror

Q.72

Which of the following is a wildlife sanctuary?

Ans

☒ A. Manas

☒ B. Nilgiri

☒ C. Sundarban

☒ D. Pachmarhi

Q.73

Which of the following points always lie(s) on the principal axis of a spherical mirror?

(i) Centre of curvature

(ii) Point of incidence

(iii) Pole

Ans

☒ A. Only (i)

☒ B. Only (ii)

☒ C. Both (i) and (ii)

☒ D. Both (i) and (iii)

- Q.74** Arrange the following in a food chain.  
A. Frog; B. Eagle; C. Rice Plant; D. Snake; E. Locust
- Ans** ☒ A. C – A – E – D – B  
☒ B. C – A – E – B – D  
☒ C. C – E – D – B – A  
☒ D. C – E – A – D – B
- Q.75** Which of the following is involved in emulsification of fats?
- Ans** ☒ A. Liver  
☒ B. Pancreas  
☒ C. Spleen  
☒ D. Stomach
- Q.76** Which of the following sexually transmitted diseases is caused by a virus?
- Ans** ☒ A. Gonorrhoea  
☒ B. Warts  
☒ C. Syphilis  
☒ D. Tuberculosis (Chlamydia)
- Q.77** Which of the following statements is NOT correct for antacids?
- Ans** ☒ A. Antacids are useful to neutralise excess stomach acid.  
☒ B.  $\text{Mg}(\text{OH})_2$  is an antacid.  
☒ C. Antacids are strong acids.  
☒ D.  $\text{NaHCO}_3$  is an antacid.
- Q.78** Dental Caries result in \_\_\_\_\_.
- Ans** ☒ A. Foul-smelling breath  
☒ B. Bleeding gums  
☒ C. Softened enamel  
☒ D. Broken tooth
- Q.79** During dispersion of light through a triangular prism white light will split into \_\_\_\_\_ bands of colour.
- Ans** ☒ A. three  
☒ B. five  
☒ C. eight  
☒ D. seven
- Q.80** If the speed of light in water and glass are  $2.25 \times 10^8 \text{ m/s}$  and  $1.86 \times 10^8 \text{ m/s}$  respectively then the refractive index of glass with respect to water is:
- Ans** ☒ A. 1.21  
☒ B. 0.83  
☒ C. 1.31  
☒ D. 0.52



- Q.81** Who among the following won a Gold Medal at UWW Ranking Series in the 62 kg category held in the month of June 2022?
- Ans** ☒ A. Babita Kumari  
☒ B. Kavita Devi  
☒ C. Vinesh Phogat  
☒ D. Sakshi Malik
- Q.82** As of March 2022, who is the Union Minister of Parliamentary Affairs?
- Ans** ☒ A. Pralhad Venkatesh Joshi  
☒ B. Piyush Goyal  
☒ C. Raj Kumar Singh  
☒ D. Arjun Munda
- Q.83** Which of the following is the largest tiger reserve park of India?
- Ans** ☒ A. Gir Forest, Gujarat  
☒ B. Nagarjunsagar-Srisailem Tiger Reserve, Telangana & Andhra Pradesh  
☒ C. Mayurbhanj Reserve, Odisha  
☒ D. Katarniaghat Wildlife Sanctuary, Uttar Pradesh
- Q.84** What is the number of new jobs that is proposed to be created under the productivity linked incentive scheme in 14 sectors for achieving the vision of Atmanirbhar Bharat?
- Ans** ☒ A. 50 lakh  
☒ B. 55 lakh  
☒ C. 60 lakh  
☒ D. 65 lakh
- Q.85** Venuvan Vihara Buddhist Monastery is in which among the following states of India?
- Ans** ☒ A. Tripura  
☒ B. Meghalaya  
☒ C. Nagaland  
☒ D. Manipur
- Q.86** The First Five-Year Plan in India achieved a growth rate of \_\_\_\_\_ against a target of 2.1%.
- Ans** ☒ A. 4.8%  
☒ B. 2.4%  
☒ C. 1.2%  
☒ D. 3.6%
- Q.87** ICAR-Indian Institute of Horticultural Research's main research station is located in which city of India?
- Ans** ☒ A. Ranchi  
☒ B. Bengaluru  
☒ C. Shimla  
☒ D. Bhopal

**Q.88** In which of the following states is India's first medical city 'Indrayani Medicity' scheduled to be set up, in March 2022?

- Ans**
- ☒ A. Karnataka
  - ☒ B. Maharashtra
  - ☒ C. Telangana
  - ☒ D. Gujarat

**Q.89** In the wake of AP microfinance crisis in 2010, RBI had constituted a committee under the chairmanship of \_\_\_\_\_ to study issues and concerns in the MFI sector.

- Ans**
- ☒ A. Shri YH Malegam
  - ☒ B. Dr YV Reddy
  - ☒ C. Shri Jagdish Capoor
  - ☒ D. Shri Mukund M Chitale

**Q.90** Which of the following schemes is aimed to ensure comprehensive financial inclusion of all the households in the country by providing universal access to banking facilities with at least one basic banking account to every household, financial literacy, access to credit, insurance and pension facility?

- Ans**
- ☒ A. Varishtha Pension Bima Yojana
  - ☒ B. Pradhan Mantri Vaya Vandana Yojana
  - ☒ C. Pradhan Mantri Suraksha Bima Yojana
  - ☒ D. Pradhan Mantri Jan Dhan Yojana

**Q.91** In March 2022, \_\_\_\_\_ became the first woman cricketer in the world to appear in six Worlds Cups.

- Ans**
- ☒ A. Mithali Raj
  - ☒ B. Smriti Mandhana
  - ☒ C. Harmanpreet Kaur
  - ☒ D. Jhulan Goswami

**Q.92** According to Constitution of India, which article is not related to Fundamental Rights from following?

- Ans**
- ☒ A. Article 18
  - ☒ B. Article 30
  - ☒ C. Article 40
  - ☒ D. Article 25

**Q.93** On the eve of International Women's Day 2022, the Ministry of Women and Child Development, in collaboration with the Ministry of Education and UNICEF, launched a landmark campaign to reintegrate out-of-school adolescent girls in India. What is the name of this campaign?

- Ans**
- ☒ A. Kanya Shiksha Utsav
  - ☒ B. Kanya Shiksha Pravesh Utsav
  - ☒ C. Kanya Shiksha
  - ☒ D. Kanya Shiksha Utthan

**Q.94** Who among the following was conferred the Ramanujan Prize for Young Mathematicians 2021?

- Ans**
- ☒ A. Ritabrata Munshi
  - ☒ B. Huang Hilep Pham
  - ☒ C. Carolina Araujo
  - ☒ D. Neena Gupta

**Q.95** How much reservation is given to women in the panchayat and municipality of Bihar?

- Ans**
- ☐ A. 25%
  - ☐ B. 10%
  - ☒ C. 50%
  - ☐ D. 33%

**Q.96** In March 2022, the EPFO has proposed to change the interest rate on provident fund deposits from 8.5% in 2020-21 to \_\_\_\_\_ for 2021-22.

- Ans**
- ☒ A. 8.1%
  - ☐ B. 9.2%
  - ☐ C. 9.4%
  - ☐ D. 8.3%

**Q.97** Who among the following was the one of the founders of the revolutionary organisation 'Naujawan Bharat Sabha' which was founded in the year 1926?

- Ans**
- ☐ A. Lala Hardayal
  - ☒ B. Bhagat Singh
  - ☐ C. Subhash Chandra Bose
  - ☐ D. Chandrashekar Azad

**Q.98** Maulana Azad National Urdu University (MANUU) is a Central University established by an Act of Parliament in \_\_\_\_\_.

- Ans**
- ☐ A. 1991
  - ☒ B. 1998
  - ☐ C. 2000
  - ☐ D. 2002

**Q.99** Utkala Dibasa, is celebrated on 1 April in the Indian State of:

- Ans**
- ☒ A. Odisha
  - ☐ B. Chhattisgarh
  - ☐ C. Bihar
  - ☐ D. Jharkhand

**Q.100** What is the longitudinal valley lying between the lesser Himalayas and the Shivalik's known as?

- Ans**
- ☐ A. Bugyal
  - ☐ B. Payar
  - ☐ C. Marg
  - ☒ D. Duns



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 12/09/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** The value of  $(11^0 + 21^0 - 7^0 + 3^0) \times 5^0$  is:

- Ans**
- ☒ A. 1
  - ☒ B. 0
  - ☒ C. 3
  - ☒ D. 2

**Q.2** A dishonest dealer professes to sell his goods at cost price but he uses a weight of 800 g for a weight of 1 kg. His profit percentage is:

- Ans**
- ☒ A. 55%
  - ☒ B. 45%
  - ☒ C. 35%
  - ☒ D. 25%

**Q.3** Which of the following statements is true about the nature of roots for the equation  $x^2 + x + 12 = 0$ ?

- Ans**
- ☒ A. Both roots are imaginary or non-real
  - ☒ B. One root is imaginary, and one is real
  - ☒ C. Both roots are positive real
  - ☒ D. Both roots are negative real

**Q.4** Two times the present age of Anu is 6 years more than the present age of Bina. The present age of Anu's mother (M) is three times the present age of Anu, and Bina is 5 years younger than her sister (S). If the sum of the present ages of M and S is 64 years, then Anu's present age (in years) is:

- Ans**
- ☒ A. 13
  - ☒ B. 14
  - ☒ C. 15
  - ☒ D. 17

**Q.5** A can complete a certain work in the same time in which B and C together can complete it. If A and B together could complete it in 20 days and C alone in 60 days, then B alone could complete the work in:

- Ans** ☒ A. 60 days  
☐ B. 72 days  
☐ C. 65 days  
☐ D. 70 days

**Q.6** 'A' and 'B' invest ₹ 30,000 and ₹ 24,000, respectively, for one year. If they get a profit of ₹ 13,500, then the share of 'B' in the profit is:

- Ans** ☒ A. ₹6,000  
☐ B. ₹7,500  
☐ C. ₹9,000  
☐ D. ₹9,450

**Q.7** The number of prime numbers lying between 400 and 430 is:

- Ans** ☐ A. 5  
☒ B. 4  
☐ C. 6  
☐ D. 3

**Q.8** The area of a triangle having base 4 cm and height 7 cm is:

- Ans** ☐ A.  $32 \text{ cm}^2$   
☐ B.  $28 \text{ cm}^2$   
☐ C.  $24 \text{ cm}^2$   
☒ D.  $14 \text{ cm}^2$

**Q.9** The quadratic equation for which, sum of the roots is  $(-\frac{3}{5})$  and product of the roots is  $\frac{2}{5}$ , is:

- Ans** ☐ A.  $5x^2 - 2x + 7 = 0$   
☒ B.  $5x^2 - 3x + 2 = 0$   
☐ C.  $5x^2 - 7x + 2 = 0$   
☐ D.  $5x^2 - x + 1 = 0$

**Q.10** The LCM of the numbers 2.5 and 0.175 is:

- Ans** ☐ A. 1.75  
☐ B. 0.0175  
☐ C. 175  
☒ D. 17.5

**Q.11** It is given that,  $\triangle ABC \cong \triangle FDE$  and  $AB = 6 \text{ cm}$ ,  $\angle B = 60^\circ$  and  $\angle A = 70^\circ$ , then which of the following is true?

- Ans** ☐ A.  $DF = 6 \text{ cm}$ ,  $\angle F = 50^\circ$   
☒ B.  $DF = 6 \text{ cm}$ ,  $\angle E = 50^\circ$   
☐ C.  $DE = 5 \text{ cm}$ ,  $\angle E = 50^\circ$   
☐ D.  $DE = 6 \text{ cm}$ ,  $\angle D = 40^\circ$

**Q.12** The price of fuel decreases by 15%, 12% and 10% in three successive months, but increases by 25% in the fourth month. What is the percentage increase/decrease in the price of fuel in the fourth month as compared to its original price?

- Ans**
- ☒ A. Decreases by 12%
  - ☒ B. Increases by 10%
  - ☒ C. Decreases by 15.85%
  - ☒ D. Increases by 15.75%

**Q.13** The area of a rectangle whose length is 13 cm and breadth is 12 cm is:

- Ans**
- ☒ A.  $186 \text{ cm}^2$
  - ☒ B.  $176 \text{ cm}^2$
  - ☒ C.  $166 \text{ cm}^2$
  - ☒ D.  $156 \text{ cm}^2$

**Q.14** Factorise ( $x^2 - 16a^2 + 24ab - 9b^2$ ).

- Ans**
- ☒ A.  $(x + 4a + 3b)(x + 4a - 3b)$
  - ☒ B.  $(x - 4a - 3b)(x + 4a - 3b)$
  - ☒ C.  $(x + 4a + 3b)(x - 4a + 3b)$
  - ☒ D.  $(x - 4a + 3b)(x + 4a - 3b)$

**Q.15** If 39 less than 6 times a certain number is 339, then the number is:

- Ans**
- ☒ A. 83
  - ☒ B. 73
  - ☒ C. 63
  - ☒ D. 53

**Q.16** If a shopkeeper sells 25 articles at ₹ 45 per article after giving 10% discount and earns 50% profit. If the discount is not given the percentage profit gained (rounded off to two decimal places) is:

- Ans**
- ☒ A. 66.67%
  - ☒ B. 65.56%
  - ☒ C. 56.65%
  - ☒ D. 55.55%

**Q.17** Express  $0.\overline{3}$  in the form  $\frac{p}{q}$ , where p and q are integers and  $q \neq 0$ .

- Ans**
- ☒ A.  $\frac{2}{3}$
  - ☒ B.  $\frac{3}{4}$
  - ☒ C.  $\frac{2}{5}$
  - ☒ D.  $\frac{1}{3}$

**Q.18** The product of two positive numbers is 500. If the first number is five times of the second number, then the sum of the two numbers is:

- Ans**
- ☒ A. 90
  - ☒ B. 80
  - ☒ C. 70
  - ☒ D. 60

**Q.19** Five years ago, the average age of A, B and C was 35 years. Five years from now, the average age of A and C will be 48 years. What will be the age (in years) of B, three years from now?

- Ans**
- ☒ A. 34
  - ☒ B. 35
  - ☒ C. 37
  - ☒ D. 38

**Q.20** The average of five numbers is 15. If four of the numbers are 10, 12, 14 and 18, then the fifth number is:

- Ans**
- ☒ A. 23
  - ☒ B. 36
  - ☒ C. 31
  - ☒ D. 21

**Q.21** A and B together can complete a piece of work in 5 days, while X and Y together can complete the same work in 20 days. The number of days A, B, X and Y together will take to complete it is:

- Ans**
- ☒ A. 4 days
  - ☒ B. 3 days
  - ☒ C. 5 days
  - ☒ D. 6 days

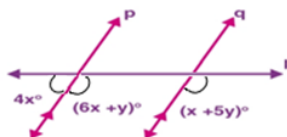
**Q.22** The median of the observations 20, 23, 25, 30, 20, 31, 32, 35, 20, 41, 42, 43, 20, 20 and 20 is:

- Ans**
- ☒ A. 28
  - ☒ B. 26
  - ☒ C. 25
  - ☒ D. 23

**Q.23** The simple interest on a sum for 3 years is two-fifth of the sum. The rate of interest per annum is:

- Ans**
- ☒ A.  $\frac{40}{3}\%$
  - ☒ B.  $\frac{20}{3}\%$
  - ☒ C.  $\frac{3}{40}\%$
  - ☒ D.  $\frac{10}{3}\%$

- Q.24** In the given figure,  $p \parallel q$  and  $l$  is a transversal cutting  $p$  and  $q$  with angles as specified. The value of  $(5x - y)$  is:



- Ans** ☒ A. 60  
☒ B. 40  
☒ C. 96  
☒ D. 116

- Q.25**  $\frac{\sin A - 2\sin^3 A}{2\cos^3 A - \cos A}$  is equal to:

- Ans** ☒ A.  $\tan A$   
☒ B.  $\sin A$   
☒ C.  $\operatorname{cosec} A$   
☒ D.  $\cot A$

#### Section : General Intelligence and Reasoning

- Q.26** In a certain code language, 'THRICE' is written as 'TRIHEC' and 'SECTOR' is written as 'TSROEC'. How will 'JOYFUL' be written in that language?

- Ans** ☒ A. YUOLFJ  
☒ B. YUOLJF  
☒ C. UYOLJF  
☒ D. YULOJF

- Q.27** Study the following arrangement carefully and answer the question.

(Left) 8 & 2 @ 4 4 ♡ @ 1 ^ £ % 3 8 ¥ 6 # 7 3 (Right)

How many such numbers are there each of which is immediately followed by a symbol and also immediately preceded by a symbol?

- Ans** ☒ A. 1  
☒ B. 2  
☒ C. 3  
☒ D. 4

- Q.28** Sohan starts from his home and cycles 2 kilometres on a straight road. Then he turns left and cycles 5 kilometres to reach a square. From the square, again he takes a left and covers 2 kilometres. Now he is facing the south direction. In which direction does he start to cycle from his home? (All turns are 90 degree turns only)

- Ans** ☒ A. North  
☒ B. South  
☒ C. East  
☒ D. West



**Q.29** If '+' means '-', '-' means '×', '×' means '+' and '÷' means '+', what will come in place of the question mark (?) in the following equation?

$$18 \div (18 - 2) \times 9 + 16 = ?$$

- Ans**
- ☒ A. 4
  - ☒ B. 6
  - ☒ C. 8
  - ☒ D. 10

**Q.30** Six students are sitting around a circular table facing the centre. Q is an immediate neighbour of both B and C. A is sitting second to the left of C. P is sitting second to the right of Q. R is immediate neighbour of both A and C. Who is an immediate neighbour of both A and B?

- Ans**
- ☒ A. C
  - ☒ B. Q
  - ☒ C. R
  - ☒ D. P

**Q.31** Asmita started walking from the medicine shop towards the south. After walking for 400 metres she turned right and walked for 100 metres to reach the ice-cream parlour. From there she turned right, walked for 500 metres then again turned right and walked for 200 metres to reach the vegetable shop. Finally she turned right and walked for 100 metres to reach her home. How far and in which direction is her home from the medicine shop? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 200 metres west
  - ☒ B. 100 metres south
  - ☒ C. 200 metres north
  - ☒ D. 100 metres east

**Q.32** Three statements are given followed by three conclusions. Consider the statements and conclusions to be true even if they vary from commonly known facts and then decide which of the conclusions follow(s) from the given statements.

Statements:

1. All pens are bags.
2. Some bottles are pens.
3. All shoes are bottles.

Conclusions:

- (I) No bag is a shoe.
- (II) Some pens are shoes.
- (III) Some bags are shoes.

- Ans**
- ☒ A. Only conclusion III follows.
  - ☒ B. Only conclusion II follows.
  - ☒ C. Only conclusions I and III follow.
  - ☒ D. None of the conclusions follow.

**Q.33** Which of the following numbers will replace the question mark (?) in the given series?

132, 109, 90, 73, 60, ?

- Ans**
- ☒ A. 46
  - ☒ B. 48
  - ☒ C. 49
  - ☒ D. 52

**Q.34** K22P is related to M26N in a certain way. In the same way, O30L is related to Q34J. To which of the following is S38H related, following the same logic?

- Ans**
- ☒ A. T42F
  - ☒ B. T40G
  - ☒ C. U42F
  - ☒ D. V44E

**Q.35** If each of the digits in the number 7349842 is arranged in ascending order from left to right. The position of how many digits will remain unchanged as compared to that in the original number?

- Ans**
- ☒ A. None
  - ☒ B. One
  - ☒ C. Two
  - ☒ D. Three

**Q.36** Refer to the following letter, number, symbol series and answer the question that follows.

(Left) Z C & T % 7 D 9 # 6 K & 2 R Y S 3 5 E \* S (Right)

How many such symbols are there which are immediately preceded by a letter and also immediately followed by a number?

- Ans**
- ☒ A. 0
  - ☒ B. 1
  - ☒ C. 2
  - ☒ D. 3

**Q.37** Select the option in which the numbers are related in the same way as are the numbers of the given sets.

(NOTE: Operations should be performed on the whole numbers without breaking down the numbers into its constituent digits.

E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(8, 19, 22)

(3, 9, 12)

- Ans**
- ☒ A. (4, 15, 18)
  - ☒ B. (17, 21, 8)
  - ☒ C. (5, 15, 16)
  - ☒ D. (2, 5, 4)

**Q.38** Select the option that is related to the fifth number in the same way as the fourth number is related to the third number and the second number is related to the first number.

4 : 9 :: 5 : 12 :: 3 : ?

- Ans**
- ☒ A. 7
  - ☒ B. 8
  - ☒ C. 6
  - ☒ D. 11

**Q.39** If we add 9 to each of the following numbers and then write the digits of each number in reverse order and then arrange the numbers in descending order, the position of how many numbers will NOT change?

221, 256, 465, 387, 356

- Ans**
- ☒ A. Zero
  - ☒ B. One
  - ☒ C. Two
  - ☒ D. Three

**Q.40** All 48 students of a class are standing in a row facing the north. Yuvika is 7<sup>th</sup> from the extreme right end of the row. Malini is 22<sup>nd</sup> from the extreme left end. How many students are standing between Malini and Yuvika?

- Ans**
- ☒ A. 17
  - ☒ B. 18
  - ☒ C. 19
  - ☒ D. 20

**Q.41** The given graph provides the details of the price of petrol (in rupees) per litre in 4 months in Delhi. Study the graph and answer the question.



Find the approximate percentage increase of the rate of petrol from January to April

- Ans**
- ☒ A. 18%
  - ☒ B. 19%
  - ☒ C. 12%
  - ☒ D. 17%

**Q.42** Refer to the following number series and answer the question.

13 10 17 25 58 63 94 8 92 29

How many prime numbers are immediately followed by even numbers?

- Ans**
- ☒ A. 4
  - ☒ B. 3
  - ☒ C. 2
  - ☒ D. 1

**Q.43** Three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

- I. All mobiles are laptops.
- II. All laptops are notebooks.
- III. All notebooks are books.

**Conclusions:**

- I. All books are laptops.
- II. Some notebooks are mobiles.
- III. All laptops are books.

- Ans**
- ☒ A. Conclusions I and II follow
  - ☒ B. Conclusions I and III follow
  - ☒ C. Conclusions II and III follow
  - ☒ D. All conclusions follow

**Q.44** 35 students of a class are standing in a queue according to the increasing order of their heights. Devyani is standing 11<sup>th</sup> from the back. If she changes her position with Gauri, she becomes 12<sup>th</sup> from front. How many students are standing between Devyani and Gauri?

- Ans**
- ✓ A. 12
  - ✗ B. 23
  - ✗ C. 24
  - ✗ D. 11

**Q.45** Three statements are given followed by two conclusions. Consider the statements and conclusions to be true even if they vary from commonly known facts and then decide which of the conclusions follow(s) from the given statements.

Statements:

1. All squares are roses.
2. Some roses are parrots.
3. No parrot is a square.

Conclusions:

- (I) Some parrots are roses.  
(II) Some squares are parrots.

- Ans**
- ✗ A. Only conclusion II follows.
  - ✓ B. Only conclusion I follows.
  - ✗ C. Both conclusions I and II follow.
  - ✗ D. None of the conclusions follows.

**Q.46** Select the term from among the given options that can replace the question mark (?) in the following series.

B2AFR, SGB4C, D6CHT, UID8E, ?

- Ans**
- ✗ A. VJE8F
  - ✗ B. F10EJU
  - ✗ C. VJE10F
  - ✓ D. F10EJV

**Q.47** Six people P, Q, R, S, T and U are living on a six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 6. R lives on the floor immediately below the floor of P. Q does not live on the topmost floor. T lives on the floor immediately below the floor of S. P does not live on any of the floors below S. Only three people live between the floors of U and T. T and U live on even numbered floors. Who lives on the floor number 4?

- Ans**
- ✗ A. U
  - ✗ B. P
  - ✓ C. R
  - ✗ D. S

**Q.48** Amongst six friends A, D, F, G, L and S, each has a different age. S is older than only four other friends. D is older than only one friend. G is older than L but younger than A. A is not the oldest. Who is the youngest among all the friends?

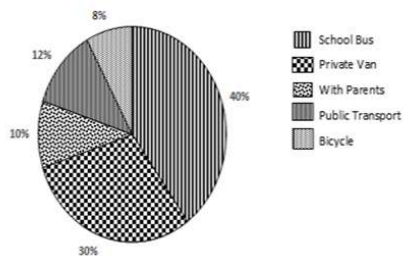
- Ans**
- ☐ A. F
  - ☐ B. S
  - ☒ C. L
  - ☐ D. G

**Q.49** Which of the following numbers will replace the question mark (?) in the given series?

23, 28, 35, 46, 59, ?

- Ans**
- ☐ A. 80
  - ☐ B. 82
  - ☐ C. 78
  - ☒ D. 76

**Q.50** The given pie chart provides details of the percentage distribution of the mode of transport taken by students of a class. Study the pie chart and answer the question.



If 140 students use bicycles, what is the total number of students in the class?

- Ans**
- ☐ A. 2000
  - ☐ B. 1600
  - ☒ C. 1750
  - ☐ D. 1890

**Q.51** A statement is given followed by two assumptions numbered I and II. You have to assume everything in the statement to be true and decide which of the assumptions is/are implicit in the statement.

**Statement:**

Driving on the wrong side of the road will lead to accidents.

**Assumptions:**

- I. Driving slow will avoid accidents.
- II. Following traffic rules will keep roads accident free.

- Ans**
- ☐ A. Only assumption I is implicit
  - ☒ B. Only assumption II is implicit
  - ☐ C. Neither assumption I nor II is implicit
  - ☐ D. Both assumptions I and II are implicit

**Q.52** In this question, a statement is followed by four conclusions. Find out which conclusion is true based on the given statement.

**Statement:**

$$Y \geq R = S \leq T = N > A$$

**Conclusions:**

1.  $Y > T$
2.  $N \geq R$
3.  $Y < S$
4.  $T = A$

**Ans**  A. 1  
 B. 2  
 C. 3  
 D. 4

**Q.53** Six persons O, P, Q, R, S, and T are sitting in a circular arrangement facing the centre of the circle. O is the immediate neighbour of both S and Q. T is sitting second to the right of O and is to the immediate right of Q. P is sitting third to the right of Q. Who among the following is sitting second to the right of Q?

**Ans**  A. O  
 B. P  
 C. T  
 D. R

**Q.54** If 13 October 1995 is a Friday, then what will be the day of the week on 17 November 2000?

**Ans**  A. Friday  
 B. Saturday  
 C. Monday  
 D. Wednesday

**Q.55** In a certain code language, the numbers/symbols are coded using letters as per the table given below and as per the given conditions.

| Number/<br>Symbol | * | 1 | & | 2 | & | 3 | ^ | 4 | % | 5 | \$ | 5 | # | 6 | @ | 7 | ! | 8 |
|-------------------|---|---|---|---|---|---|---|---|---|---|----|---|---|---|---|---|---|---|
| Code              | L | P | O | I | K | M | N | J | U | Y | H  | B | G | T | F | V | C | D |

**Conditions:**

1. If the first element is an even number and the last an odd number, the codes for these two (the first and the last elements) are to be interchanged.
2. If both the second and third elements are odd numbers, the third element is to be coded as the code for the second element.
3. If the first element is a number and the last a symbol, the first and last elements are to be coded as A.

What will be the code for 64%37\* ?

**Ans**  A. AJUMVA  
 B. TJUMVL  
 C. LJUMVT  
 D. AJUMVL

**Q.56** Which of the following is an agricultural waste?

- Ans**
- ☒ A. Husk
  - ☐ B. Plastic
  - ☐ C. Glass
  - ☐ D. Vegetable peel

**Q.57** Which of the following is NOT a use of sodium hydroxide?

- Ans**
- ☐ A. De-greasing metals
  - ☐ B. Paper making
  - ☐ C. Detergent making
  - ☒ D. Sweets making

**Q.58** An object is placed at a distance of 30 cm in front of a convex mirror of focal length 10 cm, on its principal axis. Its image is formed at:

- Ans**
- ☒ A. a point between 0 cm and 10 cm
  - ☐ B. a point between 10 cm and 20 cm
  - ☐ C. 20 cm
  - ☐ D. a point between 20 cm and infinity ( $\infty$ )

**Q.59** Which of the following is an essential element used by the plants to synthesise proteins?

- Ans**
- ☒ A. Nitrogen
  - ☐ B. Iron
  - ☐ C. Magnesium
  - ☐ D. Boron

**Q.60** Select the correct option for precipitation reaction.

- Ans**
- ☐ A. It always occurs at 80°C.
  - ☐ B. One reactant should be a carbon compound.
  - ☐ C. All products are water soluble.
  - ☒ D. Solid mass separates out on mixing two clear solutions.

**Q.61** In Mendeleev's Periodic Table, at which position are the formulae of hydrides and oxides of elements written?

- Ans**
- ☐ A. Bottom
  - ☐ B. Left
  - ☐ C. Right
  - ☒ D. Top

**Q.62** Cartilage tissue is absent in which of the following organs of the body?

- Ans**
- ☐ A. Nose
  - ☐ B. Ear
  - ☐ C. Larynx
  - ☒ D. Kidney

**Q.63** The process by which an organism begins life as a female and then transforms into a male is known as:

- Ans**
- ☐ A. protandry
  - ☒ B. protogyny
  - ☐ C. homozygous
  - ☐ D. heterozygous

**Q.64** The Outer space looks black because of:

- Ans**
- ☐ A. scattering of light by large particles
  - ☐ B. scattering of light by smaller particle
  - ☐ C. no refraction of light takes place
  - ☒ D. no scattering of light takes place

**Q.65** In group 2 of the Modern Periodic Table, the valency of elements is:

- Ans**
- ☐ A. 1
  - ☒ B. 2
  - ☐ C. 3
  - ☐ D. 4

**Q.66** Watershed management emphasizes on:

- a. Conservation of water and soil
- b. Improve primary sources of land and soil
- c. Increase production and income of the watershed community
- d. Increasing income only by increasing agriculture and crop yield

Which among the above statements are correct with respect to Watershed management?

- Ans**
- ☐ A. a and b
  - ☐ B. b and c
  - ☐ C. a, c and d
  - ☒ D. a, b and c

**Q.67** The reaction between lead nitrate and potassium iodide is an example of:

- Ans**
- ☐ A. combination reaction
  - ☐ B. decomposition reaction
  - ☐ C. displacement reaction
  - ☒ D. double displacement reaction



**Q.68** Select the product when zinc granules react with dilute sulphuric acid:

- Ans**
- ☒ A.  $\text{ZnSO}_4$
  - ☐ B.  $\text{ZnCl}_2$
  - ☐ C.  $\text{O}_2$  gas
  - ☐ D.  $\text{N}_2$  gas

**Q.69** The atomic masses of carbon and hydrogen, respectively, are:

- Ans**
- ☐ A. 6 u and 1u
  - ☐ B. 6 u and 2u
  - ☒ C. 12 u and 1u
  - ☐ D. 12 u and 2u

**Q.70** A  $10\ \Omega$  resistor, A, is connected in series to a  $20\ \Omega$  resistor, B, and a 6 V battery. The potential drops across A and B are respectively \_\_\_\_\_.

- Ans**
- ☒ A. 2 V and 4 V
  - ☐ B. 4 V and 2 V
  - ☐ C. 3 V and 3 V
  - ☐ D. 1 V and 5 V

**Q.71** Which of the following metals is less reactive than Al?

- Ans**
- ☐ A. Mg
  - ☐ B. Ca
  - ☐ C. Na
  - ☒ D. Zn

**Q.72** When a ray of light is incident obliquely at the pole, of a concave mirror then the reflected ray will:

- Ans**
- ☐ A. pass straight
  - ☐ B. return without deviation
  - ☒ C. return with Angle  $i = \text{Angle } r$
  - ☐ D. become perpendicular to incident ray

**Q.73** Which of the following sites are used for storage of waste products in plants?

- Ans**
- ☐ A. Phloem fibres
  - ☒ B. Old xylem
  - ☐ C. Guard cells
  - ☐ D. Root hairs

**Q.74** A rectangular coil is moving in a uniform magnetic field. The direction of the magnetic field is perpendicular to the plane of the coil. If the speed of the moving coil in the magnetic field decreases, then:

- Ans**
- ☐ A. it will destroy the magnetic field
  - ☐ B. induced potential difference increases
  - ☒ C. induced potential difference decreases
  - ☐ D. it will strengthen the magnetic field

Q.75 For series combination the correct relation between  $R$ ,  $R_1$ ,  $R_2$  is:

Ans ☒ A.  $R = R_1 \times R_2$

☒ B.  $\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2}$

☒ C.  $R = R_1 + R_2$

☒ D.  $R = \frac{1}{R_1} + \frac{1}{R_2}$

Q.76 When light travels from one medium to another medium then:

Ans ☒ A. incident ray, normal at the point of incidence and reflected ray are in two planes

☒ B. incident ray, normal at the point of incidence and reflected ray are in the same plane

☒ C. incident ray, normal at the point of incidence and refracted ray all are in the same plane

☒ D. incident ray, normal at the point of incidence and emerged ray, all are in the separate plane

Q.77 Magnetic field lines inside a solenoid are in the form of:

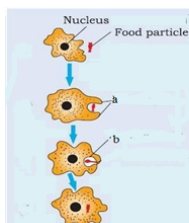
Ans ☒ A. spiral

☒ B. curved lines

☒ C. parallel lines

☒ D. intersecting lines

Q.78 The following diagram shows nutrition in amoeba. Which option correctly identifies the labelling 'a' and 'b' along with their functions?



Ans ☒ A. a - Pseudopodia (take in food)

☒ B. b - Food vacuole (digestion of food)

a - Food vacuole (take in food)

☒ C. b - Pseudopodia (absorption of food)

a - Pseudopodia (take in food)

☒ D. b - Food vacuole (egestion of food)

a - Food vacuole (absorption of food)

☒ E. b - Food vacuole (digestion of food)

**Q.79** Which plant was used by Mendel for his experiments?

- Ans**
- ☐ A. Rose plant
  - ☒ B. Garden peas
  - ☐ C. Lily
  - ☐ D. Chilli

**Q.80** The resistance of a conductor remains almost unaffected by change in temperature. This conductor is made of:

- Ans**
- ☐ A. silver
  - ☒ B. manganin
  - ☐ C. nickel
  - ☐ D. aluminium

Section : General Awareness and Current Affairs

**Q.81** Which of the following is a spring festival celebrated in Goa?

- Ans**
- ☒ A. Shigmotsav
  - ☐ B. Sarok
  - ☐ C. Pongtu
  - ☐ D. Chindang

**Q.82** Which of the following is constant along an indifference curve?

- Ans**
- ☐ A. Output
  - ☐ B. Price
  - ☐ C. Technology
  - ☒ D. Utility

**Q.83** Fundamental Duties in the Constitution of India are said to be "borrowed" from the citizen's duties enumerated in the constitution of \_\_\_\_\_.

- Ans**
- ☒ A. USSR
  - ☐ B. Canada
  - ☐ C. USA
  - ☐ D. UK

**Q.84** On 12 January 2022, the Indian Space Research Organisation (ISRO) successfully conducted the qualification test of the Cryogenic Engine for the Gaganyaan programme for a duration of 720 seconds at the ISRO Propulsion Complex (IPRC) in \_\_\_\_\_.

- Ans**
- ☒ A. Mahendragiri, Tamil Nadu
  - ☐ B. Thiruvananthapuram, Kerala
  - ☐ C. Bengaluru, Karnataka
  - ☐ D. Ahmedabad, Gujarat

**Q.85** What is the annual dropout rate of secondary school students in India as per the 2020-21 report by Unified District Information System for Education Plus (UDISE+) ?

- Ans**
- ☒ A. 12.3%
  - ☒ B. 14.6%
  - ☒ C. 15.1%
  - ☒ D. 16.8%

**Q.86** A party that secures at least \_\_\_\_\_ percent of the total votes in Lok Sabha elections or Assembly Elections in four states and wins at least four seats in the Lok Sabha is recognized as a National Party.

- Ans**
- ☒ A. 6
  - ☒ B. 3
  - ☒ C. 4
  - ☒ D. 2

**Q.87** The Pope declared Mother Teresa 'Saint' in the year \_\_\_\_\_.

- Ans**
- ☒ A. 2016
  - ☒ B. 2015
  - ☒ C. 2017
  - ☒ D. 2014

**Q.88** \_\_\_\_\_ was the difficulty faced during the barter exchange in large economies.

- Ans**
- ☒ A. Lack of a common measure of value
  - ☒ B. Maximum satisfaction to the consumers
  - ☒ C. Liquidity
  - ☒ D. Maximum profit to the producers

**Q.89** The decision to shift the capital of India from Calcutta to Delhi was announced at a Durbar held in \_\_\_\_\_ in 1911 to celebrate the coronation of King George V.

- Ans**
- ☒ A. Calcutta (Kolkata)
  - ☒ B. Delhi
  - ☒ C. Kanpur
  - ☒ D. Mysore (Mysuru)

**Q.90** Which of the following performs the function of Credit Control in India?

- Ans**
- ☒ A. Reserve Bank of India
  - ☒ B. NITI Aayog of India
  - ☒ C. Ministry of Finance
  - ☒ D. Ministry of Education

**Q.91** On 27 April 2021, Union Finance Minister Nirmala Sitharaman inaugurated the country's first 3D printed house at IIT Madras, which was built in \_\_\_\_\_.

- Ans**
- ✓ A. 5 days
  - ✗ B. 10 days
  - ✗ C. 12 days
  - ✗ D. 15 days

**Q.92** What is the term of Panchayat Body in India?

- Ans**
- ✗ A. 2 years
  - ✗ B. 3 years
  - ✗ C. 4 years
  - ✓ D. 5 years

**Q.93** The 'Malanjkhand' is a famous mines of ..... mineral in India.

- Ans**
- ✗ A. Zinc
  - ✗ B. Manganese
  - ✗ C. Iron-ore
  - ✓ D. Copper

**Q.94** Who among the following winners of Major Dhyan Chand Khel Ratna Award-2021 is a Hockey goalkeeper?

- Ans**
- ✗ A. Ravi Kumar Dahiya
  - ✓ B. PR Sreejesh
  - ✗ C. Pramod Bhagat
  - ✗ D. Manpreet Singh

**Q.95** What was the implementation period of the 12<sup>th</sup> Five-Year Plan in India?

- Ans**
- ✓ A. 2012 – 2017
  - ✗ B. 2007 – 2012
  - ✗ C. 2002 – 2007
  - ✗ D. 1997 – 2002

**Q.96** In which year was the 'Kanya Shiksha Pravesh Utsav' launched by the Ministry of Women and Child Development, Government of India?

- Ans**
- ✓ A. 2022
  - ✗ B. 2021
  - ✗ C. 2020
  - ✗ D. 2019

**Q.97** According to the 2011 language census, what is the rank of Telugu in terms of speakers' total number in India?

- Ans**
- ✗ A. 6<sup>th</sup>
  - ✗ B. 5<sup>th</sup>
  - ✗ C. 3<sup>rd</sup>
  - ✓ D. 4<sup>th</sup>

**Q.98** Known as the 'sorrow of Bihar', the river \_\_\_\_\_ causes great destruction due to its frequently changing course.

- Ans**
- ☒ A. Subarnarekha
  - ☒ B. Kosi
  - ☒ C. Brahmani
  - ☒ D. Indravati

**Q.99** The FIDE World Chess Olympiad 2022 is set to be organised in which country?

- Ans**
- ☒ A. India
  - ☒ B. China
  - ☒ C. Australia
  - ☒ D. Canada

**Q.100** Which of the following factors does NOT directly affect the climate of India?

- Ans**
- ☒ A. Altitude
  - ☒ B. Latitude
  - ☒ C. Pressure and winds
  - ☒ D. Snowfall in European countries



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 13/09/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** The LCM and the HCF of two numbers are given as 459 and 3, respectively. If one number is 51, then find the other number.

- Ans**
- ☒ A. 33
  - ☒ B. 21
  - ☒ C. 37
  - ☒ D. 27

**Q.2** A man covers equal distances at the speeds of 5 km/h, 8 km/h and 6 km/h. His average speed for the entire journey is:

- Ans**
- ☒ A.  $5\frac{6}{59}$  km/h
  - ☒ B.  $6\frac{6}{59}$  km/h
  - ☒ C.  $7\frac{6}{59}$  km/h
  - ☒ D.  $8\frac{6}{59}$  km/h

**Q.3** Which of the following represents the equation  $(x + 2)^3 = x(x^2 - 1)$  in standard form?

- Ans**
- ☒ A.  $4x^2 + 10x + 7 = 0$
  - ☒ B.  $6x^2 + 13x + 8 = 0$
  - ☒ C.  $6x^2 + 11x + 6 = 0$
  - ☒ D.  $x^2 + 12x + 8 = 0$

**Q.4** If each interior angle of a regular polygon is  $144^\circ$ , then the number of its sides is:

- Ans**
- ☒ A. 12
  - ☒ B. 10
  - ☒ C. 8
  - ☒ D. 14

**Q.5** One-third of a certain journey is covered at the speed of 25 km/h, one-fourth at 30 km/h and the rest at 50 km/h. The average speed for the whole journey is:

- Ans**
- ☒ A. 35 km/h
  - ☒ B.  $33\frac{1}{6}$  km/h
  - ☒ C.  $33\frac{1}{3}$  km/h
  - ☒ D.  $30\frac{1}{2}$  km/h

**Q.6** The surface area of a sphere is  $196\pi\text{ cm}^2$ . The volume of the sphere is:

- Ans**
- ☒ A.  $\frac{1572\pi}{3}\text{ cm}^3$
  - ☒ B.  $\frac{1472\pi}{3}\text{ cm}^3$
  - ☒ C.  $\frac{1372\pi}{3}\text{ cm}^3$
  - ☒ D.  $\frac{1272\pi}{3}\text{ cm}^3$

**Q.7** If the speed of a vehicle decreases by 10 km/h, it takes 2 hours more than what it usually takes to cover a distance of 1800 km. The time it usually takes is:

- Ans**
- ☒ A. 18 hours
  - ☒ B. 17 hours
  - ☒ C. 19 hours
  - ☒ D. 10 hours

**Q.8** What is the value of  $222.22 + 22.22 + 12 + 0.22 + 0.02$ ?

- Ans**
- ☒ A. 256.08
  - ☒ B. 256.68
  - ☒ C. 255.68
  - ☒ D. 256.86

**Q.9** If the volume of a cube is  $512\text{ cm}^3$ , then the measure of the main diagonal of the cube will be:

- Ans**
- ☒ A.  $8\sqrt{3}\text{ cm}$
  - ☒ B.  $14\sqrt{3}\text{ cm}$
  - ☒ C.  $7\sqrt{3}\text{ cm}$
  - ☒ D.  $17\sqrt{3}\text{ cm}$

**Q.10** How much annual instalment will discharge a debt of ₹9,600 in 5 years at 10% simple interest per annum?

- Ans**
- ☒ A. ₹ 1,450
  - ☒ B. ₹ 1,500
  - ☒ C. ₹ 1,550
  - ☒ D. ₹ 1,600



Q.11 The value of  $597 \times 603$  is:

- Ans
- ☐ A. 659991
  - ☐ B. 559991
  - ☐ C. 459991
  - ☒ D. 359991

Q.12 Find the value of  $\frac{\tan^2 60^\circ + \cot^2 30^\circ}{\tan^2 20^\circ - \sec^2 20^\circ} - \frac{\sin 90^\circ + \cos 0^\circ}{\operatorname{cosec}^2 20^\circ - \cot^2 20^\circ}$ .

- Ans
- ☒ A. -8
  - ☐ B. -2
  - ☐ C. 4
  - ☐ D. -4

Q.13 Which of the following is divisible by 2, 3, and 5?

- Ans
- ☐ A. 2240
  - ☐ B. 14175
  - ☐ C. 54332
  - ☒ D. 3150

Q.14 The sum of twice a number and three times of 52 is 342. What is the sum of four times the number and two times 52?

- Ans
- ☐ A. 776
  - ☐ B. 676
  - ☐ C. 576
  - ☒ D. 476

Q.15 The value of  $6 \times 7 - \{9 \div 3 + [3 \times (5 - 2)]\}$  is:

- Ans
- ☐ A. 11
  - ☐ B. 24
  - ☐ C. 45
  - ☒ D. 30

Q.16 The sum of the present ages of A and B is 80 years. If the ratio of their ages after 8 years will be 17: 15, then the present age of B is:

- Ans
- ☐ A. 55 years
  - ☐ B. 45 years
  - ☐ C. 35 years
  - ☒ D. 37 years

Q.17 The mode of the observations 2, 6, 3, 9, 5, 6, 7, 8, 4, 6, 10, 6 and 11 is:

- Ans
- ☐ A. 11
  - ☐ B. 10
  - ☐ C. 7
  - ☒ D. 6

Q.18 A shopkeeper has the following 2 schemes.

(I) Two successive discounts of 15% and 20%

(II) Buy 5, get 4 free

The single discount from each scheme, respectively, is:

- Ans
- ☐ A. 35%, 40%
  - ☐ B. 30%, 45%
  - ☒ C. 32%, 44.44%
  - ☐ D. 33.33%, 45%

Q.19 A boy can complete a piece of work alone in 10 days, but with the help of his friend he can complete it in 6 days. In how much time will his friend be able to complete the same piece of work alone?

- Ans
- ☐ A. 4 days
  - ☐ B. 8 days
  - ☒ C. 15 days
  - ☐ D.  $4\frac{1}{2}$  days

Q.20 If  $x - \frac{1}{x} = 6$ , then the value of  $x^3 - \frac{1}{x^3}$  is:

- Ans
- ☐ A. 534
  - ☐ B. 434
  - ☐ C. 334
  - ☒ D. 234

Q.21 The mean proportional between  $8+4\sqrt{2}$  and  $6-3\sqrt{2}$  is:

- Ans
- ☐ A.  $4\sqrt{6}$
  - ☐ B.  $3\sqrt{6}$
  - ☒ C.  $2\sqrt{6}$
  - ☐ D.  $\sqrt{6}$

Q.22 If the ratio of two numbers is 5: 7, and their HCF is 8, then their LCM is:

- Ans
- ☐ A. 480
  - ☐ B. 380
  - ☒ C. 280
  - ☐ D. 580

Q.23 The mean proportional of 25 and 36 is:

- Ans
- ☐ A. 36
  - ☒ B. 30
  - ☐ C. 25
  - ☐ D. 60

**Q.24** If the cost price of an article is ₹3,200 and its selling price is ₹4,700, then the profit percentage is:

**Ans**

☒ A.  $56\frac{7}{8}\%$

☒ B.  $56\frac{8}{9}\%$

☒ C.  $46\frac{7}{8}\%$

☒ D.  $46\frac{8}{9}\%$

**Q.25** In which of the following quadrilaterals do diagonals NOT intersect at  $90^\circ$ ?

**Ans**

☒ A. Rhombus

☒ B. Square

☒ C. Parallelogram

☒ D. Kite

#### Section : General Intelligence and Reasoning

**Q.26** Select the number from among the given options that can replace the question mark (?) in the following series.

3, 16, 5, 13, 9, 8, ?, ?, 23, -8

**Ans**

☒ A. 13, 2

☒ B. 15, 1

☒ C. 11, 3

☒ D. 12, 3

**Q.27** One morning Yogesh started from his home to visit his sister in another city. He first drove for 20 km towards the north and then turned towards the east and further drove for 10 km. After this he turned towards the north and drove for 30 km. Finally he turned towards the east and drove for 20 km to reach his sister's home. In which direction is his home from his sister's home?

**Ans**

☒ A. North

☒ B. South

☒ C. South-west

☒ D. North-east

**Q.28** A statement is given followed by two assumptions numbered I and II. You have to assume everything in the statement to be true and decide which of the assumptions is/are implicit in the statement.

**Statement:**

"In order to retain employees, we must reward them with monthly benefits", company chairman tells the manager.

**Assumptions:**

I. Monthly benefits will keep the employees happy.

II. The employees will be punctual.

**Ans**

☒ A. Only assumption I is implicit

☒ B. Only assumption II is implicit

☒ C. Neither assumption I nor II is implicit

☒ D. Both assumptions I and II are implicit

**Q.29** What will come in the place of the question mark (?) in the following equation, if '+' and '-' are interchanged and also '×' and '÷' are interchanged?

$$20 \times 5 \div 5 - 5 + 3 = ?$$

- Ans**
- ✓ A. 22
  - ✗ B. 32
  - ✗ C. 12
  - ✗ D. 2

**Q.30** Select the option that represents the letters that, when placed from left to right in the same sequence in the blanks below, will complete the letter series.

P Q \_ R R R \_ S S S T U \_ V V V W \_ W W

- Ans**
- ✗ A. QRUW
  - ✗ B. PRVW
  - ✓ C. QSUW
  - ✗ D. QSVW

**Q.31** Parul started walking towards the north. After walking for 300 metres she turned right and walked for 400 metres. Then she turned right and walked for 500 metres. She then turned left and walked for 200 metres. Again, she turned left and walked for 200 metres. Finally she turned left and walked for 200 metres. In which direction and how far is Parul from her starting position? (All turns are 90 degree turns only)

- Ans**
- ✗ A. 400 metres west
  - ✓ B. 400 metres east
  - ✗ C. 200 metres west
  - ✗ D. 200 metres east

**Q.32** Each of Prem, Amit, Ram, Sudheer, Tejas, Uma and Vivek has an exam on a different day of a week, starting from Monday and ending on Sunday of the same week. Prem has the exam on Thursday. Only one person has the exam between Prem and Uma. Ram has the exam on the day immediately before Uma but not on a Monday. Only two people have exams between Ram and Tejas. Vivek's exam is on one of the days before Sudheer and on one of the days after Amit. Who among the following has the exam on Monday?

- Ans**
- ✓ A. Amit
  - ✗ B. Sudheer
  - ✗ C. Tejas
  - ✗ D. Prem

**Q.33** If '+' means '-', '-' means '×', '×' means '÷', and '÷' means '+', what will come in place of the question mark (?) in the following equation?

$$12 \times 3 - 25 \div 25 + 25 = ?$$

- Ans**
- ✓ A. 100
  - ✗ B. 200
  - ✗ C. 300
  - ✗ D. 80

**Q.34** Which of the following numbers will replace the question mark (?) in the given series?

23, 27, 35, 47, 63, ?

- Ans**
- ✗ A. 80
  - ✗ B. 82
  - ✗ C. 81
  - ✓ D. 83

**Q.35** Each of A, B, C, D and E has an exam on a different day of a week, starting from Monday and ending on Friday of the same week.

C has the exam on Thursday. Only one person has the exam between B and A. B has the exam on the day immediately before D. Who has the exam on Wednesday?

- Ans**
- ✓ A. A
  - ✗ B. B
  - ✗ C. D
  - ✗ D. E

**Q.36** Given below are two letter-cluster pairs in which the second letter-cluster is related to the first letter-cluster following a certain logic. Select the letter-cluster pair from among the options that follows the same logic.

QTS : WZY

MPG : SVM

- Ans**
- ✓ A. HKW : NQC
  - ✗ B. HKW : BEQ
  - ✗ C. HKW : NEC
  - ✗ D. HKW : BQQ

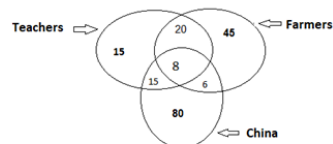
**Q.37** Refer to the following letter and number series and answer the question.

(Left) G C T 7 D 4 6 K 2 R Y 3 5 E S A 4 T Y 7 8 G T (Right)

How many such letters are there in the series which are immediately preceded by a letter and also immediately followed by a number?

- Ans**
- ✗ A. None
  - ✓ B. Four
  - ✗ C. Two
  - ✗ D. Three

**Q.38** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



How many such teachers are there who are also farmers but NOT from China?

- Ans**
- ✓ A. 20
  - ✗ B. 25
  - ✗ C. 45
  - ✗ D. 15

**Q.39** Study the following number arrangement and answer the question given below. All numbers given below are 2 digit numbers.

78 25 96 36 14 45 76 79 39 34 31 38 29 24 26 16 37 43

What will be the sum of all prime numbers present in the above series?

- Ans**
- ✗ A. 190
  - ✓ B. 219
  - ✗ C. 248
  - ✗ D. 261

**Q.40** What will come in the place of the question mark (?) in the following equation, if '+' and '-' are interchanged and also 'x' and '÷' are interchanged?

$$24 \times 6 \div 5 - 3 + 2 = ?$$

- Ans**
- ✓ A. 21
  - ✗ B. 11
  - ✗ C. 10
  - ✗ D. 1

**Q.41** The given table provides details of the marks obtained by a student in different subjects in two term exams. Study the table and answer the question.

|                | Term Exam 1 | Term Exam 2 |
|----------------|-------------|-------------|
| Mathematics    | 80          | 85          |
| Science        | 84          | 89          |
| Social Science | 78          | 82          |
| Hindi          | 85          | 88          |
| English        | 92          | 91          |

What is the average of the maximum marks obtained in Mathematics and the minimum marks obtained in Hindi?

- Ans**
- ✗ A. 80
  - ✗ B. 76
  - ✓ C. 85
  - ✗ D. 88

**Q.42** Select the option in which the numbers are related in the same way as are the numbers of the given sets.

(NOTE: Operations should be performed on the whole numbers without breaking down the numbers into its constituent digits.

E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(2, 42, 4)

(7, 57, 5)

- Ans**
- ✓ A. (3, 83, 8)
  - ✗ B. (5, 57, 7)
  - ✗ C. (1, 19, 9)
  - ✗ D. (8, 46, 4)

**Q.43** Refer to the following letter, number, symbol series and answer the question.

(Left) B F % 6 J Q 6 H & K M 8 1 5 T Z # @ K L 9(Right)

How many such letters are there which are immediately preceded by a letter and also immediately followed by a number?

- Ans**
- ✗ A. 1
  - ✗ B. 2
  - ✓ C. 3
  - ✗ D. 4

**Q.44** In a certain code language, 'MERGE' is written as 'NHWNN' and 'HEAVY' is written as 'IHFCH'. How will 'MORSE' be written in that language?

- Ans**
- ✗ A. NLDIE
  - ✗ B. LPRCH
  - ✗ C. LDYTB
  - ✓ D. NRWZN

**Q.45** Refer to the following letter, symbol series and answer the question.

L J + K - Y % T # U P

If all symbols are dropped from the series, which letter will be at the middle most position in the newly formed series?

- Ans**
- ☒ A. K
  - ☒ B. Y
  - ☒ C. T
  - ☒ D. J

**Q.46** A statement is given below, followed by four conclusions given in the options. Find out which conclusion is true based on the given statement.

Statement:  $T \geq Y > U < I \leq O = P$

- Ans**
- ☒ A.  $U > P$
  - ☒ B.  $P = T$
  - ☒ C.  $T > U$
  - ☒ D.  $Y > I$

**Q.47** Amongst six friends A, B, C, D, E and F, each has a different height. F is taller than only two other friends. A is shorter than only one friend. D is shorter than F but taller than C. E is shorter than B. Who is the third tallest among all the friends?

- Ans**
- ☒ A. F
  - ☒ B. E
  - ☒ C. D
  - ☒ D. A

**Q.48** In a certain code language, 'AVOID' is written as '85395' and 'MULTI' is written as '56679'. How will 'EVENT' be written in that language?

- Ans**
- ☒ A. 45447
  - ☒ B. 45744
  - ☒ C. 45747
  - ☒ D. 47544

**Q.49** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

1. All beds are cots.
2. All sofas are beds.

Conclusions:

- I. All sofas are cots.
- II. Some beds are sofas.

- Ans**
- ☒ A. Only conclusion I follows.
  - ☒ B. Only conclusion II follows.
  - ☒ C. Both conclusions I and II follow.
  - ☒ D. Neither conclusion I nor II follows.

**Q.50** 10 friends of a class appeared for a class test. Each friend got different marks in test. Rama scored more than 4 friends only. Usha scored less than 3 friends only. How many friends scored more than Rama but less than Usha?

- Ans**
- ✓ A. 1
  - ✗ B. 3
  - ✗ C. 4
  - ✗ D. 2

**Q.51** Six persons are sitting around a circular table facing the centre. Madhura is an immediate neighbour of both Rahim and Amit. Sumit is sitting second to the right of Rahim. David is sitting third to the left of Amit. Prem is an immediate neighbour of both Sumit and Amit. Who is an immediate neighbour of both Madhura and Prem?

- Ans**
- ✓ A. Amit
  - ✗ B. Sumit
  - ✗ C. David
  - ✗ D. Rahim

**Q.52** P, Q, R, S, T, U and V are sitting on a wall in a straight row, and all of them are facing north. R is on the immediate right of S. Q is at one of the extreme end and has T as his immediate neighbour. V is the immediate neighbour of T and U. S is sitting third from the extreme right end. Which of the following pairs is sitting at each of the extreme end?

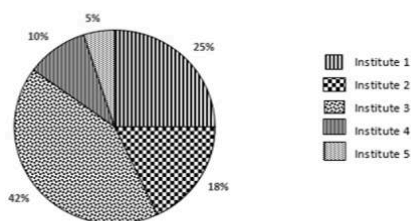
- Ans**
- ✓ A. PQ
  - ✗ B. QR
  - ✗ C. QS
  - ✗ D. QU

**Q.53** Select the option that is related to the fifth number in the same way as the fourth number is related to the third number and the second number is related to the first number.

12 : 18 :: 28 : 42 :: 10 : ?

- Ans**
- ✗ A. 16
  - ✓ B. 15
  - ✗ C. 24
  - ✗ D. 18

**Q.54** The given pie chart provides details of qualified students for an entrance examination from different institutes. Study the pie chart and answer the question.



If 45 students qualified from Institute 1, how many students qualified from Institute 4?

- Ans**
- ✗ A. 27
  - ✗ B. 36
  - ✗ C. 29
  - ✓ D. 18



**Q.55** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

1. All cups are bottles.
2. All bottles are pans.

Conclusions:

- I. All cups are pans.
- II. All bottles are cups.
- III. All pans are cups.
- IV. Some pans are bottles.

- Ans**
- ☒ A. Only conclusions I and IV follow.
  - ☐ B. Only conclusions II and III follow.
  - ☐ C. Only conclusion II follows.
  - ☐ D. Only conclusion III follows.

Section : General Science

**Q.56** A substance gains hydrogen during a chemical process called:

- Ans**
- ☐ A. Oxidation
  - ☐ B. Rusting
  - ☒ C. reduction
  - ☐ D. decomposition

**Q.57** Why do organic carbon compounds have lower melting points than ionic compounds?

- Ans**
- ☐ A. Strong force of attraction between molecules
  - ☐ B. Weak force of attraction between molecules
  - ☐ C. Presence of covalent bonds
  - ☐ D. Presence of ionic bonds

**Note:** For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

**Q.58** Which of the following transports food, carbon dioxide and nitrogenous wastes in dissolved form?

- Ans**
- ☒ A. Plasma
  - ☐ B. WBC
  - ☐ C. RBC
  - ☐ D. Platelets

**Q.59** Which of the following should be managed to ensure sustainability?

- Ans**
- ☐ A. By products of Mining
  - ☐ B. Crop varieties
  - ☐ C. Natural resources
  - ☐ D. Industries

**Note:** For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

**Q.60** Consider the magnitudes and directions of the induced potential difference in the following situations:

(a) A magnet moving with a speed of 1 m/s with its north pole towards a stationary coil.

(b) The same magnet moving with a speed of 1 m/s with its south pole towards the same stationary coil.

The induced potential differences are of \_\_\_\_\_ magnitude(s) and have \_\_\_\_\_ sign(s) in the above two cases

**Ans** ☒ A. the same, the same

☒ B. the same, opposite

☒ C. different, the same

☒ D. different, opposite

**Q.61** You are shocked to see how waste is littered in your society and no one is bothered. As a result, kids of the society fall sick very often. As a science student, how would you react to the situation?

**Ans** ☒ A.

Explain the importance of waste management to all residents, start segregation of waste and start composting

☒ B. Shout at the staff for not taking care

☒ C. Turn a blind eye to the situation

☒ D. Follow their footsteps

**Q.62** The reddish appearance of the sun at the time of sunrise is due to:

**Ans** ☒ A. reflection of light

☒ B. refraction of light

☒ C. scattering of light

☒ D. dispersion of light

**Q.63** Energy conversion in water pump is from \_\_\_\_\_ to \_\_\_\_\_.

**Ans** ☒ A. mechanical, electrical

☒ B. electrical, mechanical

☒ C. light, electrical

☒ D. electrical, heat

**Q.64** Energy conversion in electromagnet is from \_\_\_\_\_ to \_\_\_\_\_.

**Ans** ☒ A. Electric, heat energy

☒ B. Electric energy, magnetic energy

☒ C. Electrical energy, light

☒ D. Magnetic energy, heat energy

**Q.65** If current is doubled and potential difference is reduced to half, then \_\_\_\_\_.

**Ans** ☒ A. resistance will be doubled

☒ B. resistance will be halved

☒ C. resistance will become four times

☒ D. resistance will become one-fourth

**Q.66** The light from a point source is rendered parallel by a concave mirror. What is the position of the light source?

- Ans**
- ☒ A. At Focus
  - ☐ B. Between focus and centre of curvature
  - ☐ C. At centre of curvature
  - ☐ D. At infinity

**Q.67** Which of the following is the best definition of 'biodegradable'?

- Ans**
- ☐ A. Capable of depolymerization into carbon dioxide and water by the action of enzymes
  - ☒ B. Capable of being broken down into harmless products by the action of microbes
  - ☐ C. A suitable and sufficient nutrient source for growth to saprophytic organisms
  - ☐ D. Easily digested into smaller molecules by action of bacteria or bacterial enzymes

**Q.68** Which organic compound does NOT belong to the same homologous series as the other three?

- Ans**
- ☐ A.  $\text{CH}_4$
  - ☐ B.  $\text{C}_2\text{H}_6$
  - ☐ C.  $\text{C}_3\text{H}_8$
  - ☒ D.  $\text{C}_4\text{H}_8$

**Q.69** The refractive indices of two transparent media A and B are  $\frac{3}{2}$  and  $\frac{4}{3}$ , respectively. The refractive index of medium A with respect to medium B is equal to:

- Ans**
- ☐ A.  $\frac{9}{8}$
  - ☐ B.  $\frac{3}{4}$
  - ☒ C.  $\frac{8}{9}$
  - ☐ D.  $\frac{1}{2}$

**Q.70** During the preparation of NaOH by chlor-alkali process, which of the following ions migrates toward the cathode?

- Ans**
- ☐ A.  $\text{CO}_3^{2-}$
  - ☐ B.  $\text{OH}^-$
  - ☒ C.  $\text{Na}^+$
  - ☐ D.  $\text{Cl}^-$

**Q.71** At what temperature does gypsum get converted into Plaster of Paris?

- Ans**
- ☐ A. 473 K
  - ☐ B. 273 K
  - ☒ C. 373 K
  - ☐ D. 573 K

Q.72 Which of the following elements of group 14 is a metalloid?

- Ans
- ☐ A. Pb
  - ☐ B. Sn
  - ☒ C. Ge
  - ☐ D. C

Q.73 Identify the FALSE statement regarding circulation of blood in fishes.

- Ans
- ☒ A. The two chambered heart provides double circulation.
  - ☐ B. Blood from the ventricle goes only to the gills.
  - ☐ C. Blood is sent from the gills to the rest of the body.
  - ☐ D. Blood from the body enters the auricle.

Q.74 An electrical device that works on the principle of Joule's Law of Heating is:

- Ans
- ☐ A. Speaker
  - ☐ B. Electromagnet
  - ☒ C. Immersion rod
  - ☐ D. Electrical bell

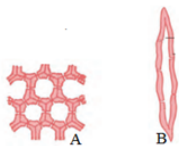
Q.75 Which of the following organelles is/are known as the 'suicide bags' of a cell?

- Ans
- ☒ A. Lysosomes
  - ☐ B. Endoplasmic reticulum
  - ☐ C. Golgi apparatus
  - ☐ D. Ribosomes

Q.76 Which of the following displacement reactions is NOT possible?

- Ans
- ☐ A.  $\text{Fe(s)} + \text{CuSO}_4(\text{aq}) \rightarrow \text{FeSO}_4(\text{aq}) + \text{Cu(s)}$
  - ☒ B.  $\text{Cu(s)} + \text{PbCl}_2(\text{aq}) \rightarrow \text{CuCl}_2(\text{aq}) + \text{Pb(s)}$
  - ☐ C.  $\text{Pb(s)} + \text{CuCl}_2(\text{aq}) \rightarrow \text{PbCl}_2(\text{aq}) + \text{Cu(s)}$
  - ☐ D.  $\text{Zn(s)} + \text{CuSO}_4(\text{aq}) \rightarrow \text{ZnSO}_4(\text{aq}) + \text{Cu(s)}$

Q.77 Both the diagrams A and B given below are of Sclerenchyma tissue in plants, yet they look different. Why?



- Ans
- ☐ A. A – Radial section; B – Transverse section
  - ☐ B. A – Longitudinal section; B – Transverse section
  - ☒ C. A – Transverse section; B – Longitudinal section
  - ☐ D. A – Longitudinal section; B – Oblique section

**Q.78** Which statement about effective nuclear charge is NOT correct?

- Ans**
- ☐ A. It acts on the valence shell electrons.
  - ☐ B. It increases across a period from left to right.
  - ☐ C. It decreases down a group.
  - ☒ D. It depends only upon the nuclear charge.

**Q.79** What is the purpose of establishing 'protected areas'?

- Ans**
- ☐ A. To protect endangered animals
  - ☐ B. To prevent human settlements
  - ☐ C. To preserve natural ecosystems
  - ☐ D. To develop tourism spots

**Note:** For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

**Q.80** A concave mirror has a \_\_\_\_\_ towards the centre of sphere with polish \_\_\_\_\_ the centre of curvature.

- Ans**
- ☐ A. bulge, towards
  - ☒ B. depression, opposite to
  - ☐ C. bulge, opposite
  - ☐ D. depression, towards

**Section : General Awareness and Current Affairs**

**Q.81** Ramadan or Ramazan is the \_\_\_\_\_ month of Islamic calendar and is observed by Muslims worldwide as a month of fasting.

- Ans**
- ☐ A. 6th
  - ☐ B. 7th
  - ☐ C. 8th
  - ☒ D. 9th

**Q.82** Under which of the following Funds has the scheme 'One Stop Centre (OSC) scheme' been implemented across the country since 1 April 2015?

- Ans**
- ☐ A. PM National Relief Fund
  - ☒ B. Nirbhaya Fund
  - ☐ C. Durga Vahini Fund
  - ☐ D. Women Empowerment Fund

**Q.83** Javelin thrower Neeraj Chopra became the \_\_\_\_\_ Indian to win a medal at World Athletics Championships in July 2022.

- Ans**
- ☐ A. first
  - ☒ B. second
  - ☐ C. third
  - ☐ D. fourth

**Q.84** What does the Right to Constitutional Remedies mean?

**Ans** ☒ A. Any person has the right to move freely and live anywhere in India.

☒ B.

Each and every person is equal before the law, which means everyone will receive the same protection as per the laws of the country.

☒ C.

If any citizen feels the fundamental rights have been violated by the State, then they can move the court.

☒ D. All linguistic and religious minorities can set up their own education institutions.

**Q.85** Which of the following statements is correct about Petrology?

**Ans** ☒ A. It has been derived from a Latin word which means brick.

☒ B. It is the sedimentary rock formed out of deposits of glaciers.

☒ C. It is the branch of science concerned with the origin, structure and composition of rocks.

☒ D.

It is the branch of science concerned with the origin, structure and composition of petroleum

**Q.86** Shevroy Hills are a part of the \_\_\_\_\_.

**Ans** ☒ A. Eastern Ghats

☒ B. Western Ghats

☒ C. Chotanagpur Plateau

☒ D. Deccan Plateau

**Q.87** Vishu is one of the very famous festivals of which of the following states of India?

**Ans** ☒ A. Kerala

☒ B. West Bengal

☒ C. Odisha

☒ D. Gujarat

**Q.88** In which year was India's first complete census operation undertaken?

**Ans** ☒ A. 1881

☒ B. 1875

☒ C. 1877

☒ D. 1879

**Q.89** As of July 2022 which of the following organisations runs 'School to School' programme that builds a relationship of empathy and dignity between urban and rural children?

**Ans** ☒ A. Oxfam India

☒ B. HelpAge India

☒ C. CARE

☒ D. Goonj



**Q.90** Which of the following is NOT a variable cost for a firm?

- Ans**
- ☐ A. Labour
  - ☐ B. Commissions
  - ☒ C. Property taxes
  - ☐ D. Packing

**Q.91** In December 2021, Supreme Court stated that the Law Commission can consider the issue for appointment of Dowry Prohibition Officer, equivalent to Right to Information Officer. Who were the justices to give this order?

- Ans**
- ☐ A. Justice L Nageswara Rao and Sanjay Kishan Kaul
  - ☐ B. Justice Uday Umesh Lali and AM Khanwilkar
  - ☒ C. Justice DY Chandrachud and AS Bopanna
  - ☐ D. Justice Indira Banerjee and Hemant Gupta

**Q.92** \_\_\_\_\_ means cases that can be directly considered by the Supreme Court without going to the lower courts before that.

- Ans**
- ☐ A. Writ Jurisdiction
  - ☒ B. Original Jurisdiction
  - ☐ C. Appellate Jurisdiction
  - ☐ D. Advisory Jurisdiction

**Q.93** Which of the following is NOT an example of variable costs?

- Ans**
- ☐ A. Packaging
  - ☐ B. Raw Material
  - ☐ C. Distribution
  - ☒ D. Rent

**Q.94** The urban local government which works for the development of any Metropolitan City with a population of more than \_\_\_\_\_ is known as the Municipal Corporation in India.

- Ans**
- ☐ A. 2 lakh
  - ☐ B. 5 lakh
  - ☒ C. 10 lakh
  - ☐ D. 12 lakh

**Q.95** How many scientists got the Shanti Swarup Bhatnagar Award 2021 for Science & Technology?

- Ans**
- ☐ A. 7
  - ☐ B. 9
  - ☒ C. 11
  - ☐ D. 13

**Q.96** What is the full name of ADSL, which is a technology that provides high transmission speeds for video and voice to homes over an ordinary copper telephone wire?

- Ans**
- ☐ A. Arithmetic Digital Subscriber Line
  - ☐ B. Algorithm Digital Subscriber Line
  - ☐ C. Asynchronized Digital Subscriber Line
  - ☒ D. Asymmetric Digital Subscriber Line

**Q.97** Hollong (*Dipterocarpus macrocarpus*) is the tallest tree in the state of \_\_\_\_ and also its State Tree.

- Ans**
- ☐ A. Manipur
  - ☐ B. Nagaland
  - ☒ C. Assam
  - ☐ D. Sikkim

**Q.98** Which of the following sportspersons was awarded the Padma Bhushan in January 2022?

- Ans**
- ☐ A. Neeraj Chopra
  - ☒ B. Devendra Jhajharia
  - ☐ C. Pramod Bhagat
  - ☐ D. Sumit Antil

**Q.99** Which of the following is/are a capital receipt for the government?

- (A) Loans taken by the government from the public
- (B) Borrowings from foreign countries and Institutes
- (C) Disinvestment of assets

- Ans**
- ☐ A. Only A
  - ☐ B. Only A and B
  - ☐ C. Only A and C
  - ☒ D. All – A, B and C

**Q.100** \_\_\_\_\_ is a translation service and information site developed jointly by the Central Institute of Indian Languages, Sahitya Akademi and National Book Trust in 2002.

- Ans**
- ☐ A. Praroop .net
  - ☐ B. Pratilipi .net
  - ☐ C. Anuvaad .net
  - ☒ D. Anukriti .net





# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 13/09/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

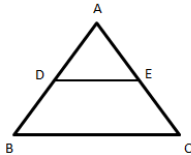
Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

- Q.1** In the given figure, in  $\triangle ABC$ ,  $DE \parallel BC$ ,  $AD = 7$  cm,  $AE = 3.5$  cm and  $DB = 6$  cm. What is the value of  $AC$ ? [Note: Diagram is not drawn to scale or measurements indicated.]



- Ans**
- ☒ A. 3 cm
  - ☒ B. 4.5 cm
  - ☒ C. 6.5 cm
  - ☒ D. 4 cm

- Q.2** If the cost price of 24 pencils is equal to the selling price of 16 pencils, then the gain percentage is \_\_\_\_\_.

- Ans**
- ☒ A. 25%
  - ☒ B. 50%
  - ☒ C. 42%
  - ☒ D. 38%

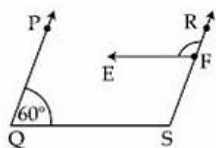
- Q.3** What is the value of  $5^5 \times (125)^{-\frac{2}{3}} \times (25)^{-\frac{1}{2}}$  ?

- Ans**
- ☒ A. 5
  - ☒ B.  $\frac{1}{25}$
  - ☒ C.  $\frac{1}{5}$
  - ☒ D. 25

- Q.4** One-third of a journey is covered at a speed of 25 km/h, the next one-third of the journey is covered at a speed of 40 km/h and the remaining journey is covered at a speed of 50 km/h. The average speed (in km/h, rounded off to 1 decimal place) for the entire journey is:

- Ans**
- ☒ A. 25.3
  - ☒ B. 30.3
  - ☒ C. 33.3
  - ☒ D. 35.3

**Q.5** In the given figure,  $QS \parallel EF$  and  $RS \parallel PQ$ . If  $m\angle PQS = 60^\circ$ , then  $m\angle RFE = ?$



- Ans**
- ☒ A.  $140^\circ$
  - ☒ B.  $120^\circ$
  - ☒ C.  $110^\circ$
  - ☒ D.  $130^\circ$

**Q.6** Father's age is three times the sum of ages of his two children. After 6 years, his age will be twice the sum of the ages of both the children. The age of the father is:

- Ans**
- ☒ A. 52 years
  - ☒ B. 54 years
  - ☒ C. 50 years
  - ☒ D. 36 years

**Q.7** The HCF and the LCM of two numbers are 1080 and 30240, respectively. If one of the numbers is 4320, then the other number is \_\_\_\_\_.

- Ans**
- ☒ A. 1080
  - ☒ B. 8640
  - ☒ C. 7560
  - ☒ D. 30240

**Q.8** Which of the following describes the nature of the roots of the quadratic equation  $4x^2 - 7\sqrt{3}x + 12 = 0$ ?

- Ans**
- ☒ A. No real roots
  - ☒ B. Two equal roots
  - ☒ C. Two distinct real roots
  - ☒ D. One real root and one imaginary root

**Q.9** A train travels 20 km in 24 minutes. If its speed is increased by 5 km/h, the time taken by it to cover the same distance will be \_\_\_\_\_ minutes.

- Ans**
- ☒ A.  $27\frac{9}{11}$
  - ☒ B.  $21\frac{9}{11}$
  - ☒ C.  $26\frac{9}{11}$
  - ☒ D.  $29\frac{9}{11}$

**Q.10** The sum of two numbers is 9 and the sum of their squares are 41. The numbers are:

- Ans**
- ☒ A. 7, 2
  - ☒ B. 6, 3
  - ☒ C. 5, 4
  - ☒ D. 1, 8

**Q.11** Find the value of  $\sec 33^\circ \operatorname{cosec} 57^\circ - \cot 57^\circ \tan 33^\circ + \cot 47^\circ \cot 43^\circ$ .

- Ans**
- ☐ A. 0
  - ☐ B. 1
  - ☒ C. 2
  - ☐ D. -1

**Q.12** The sum of five consecutive even numbers is 2720. The sum of the third and fifth numbers is:

- Ans**
- ☐ A. 1392
  - ☐ B. 1292
  - ☐ C. 1192
  - ☒ D. 1092

**Q.13** If 63 chocolates are to be divided between A and B in the ratio 4 : 5, then how many chocolates will B get?

- Ans**
- ☐ A. 28
  - ☐ B. 49
  - ☐ C. 27
  - ☒ D. 35

**Q.14** The sides of a rectangle are in the ratio 8 : 10 and its perimeter is 90 cm. The area of this rectangle is:

- Ans**
- ☐ A.  $550 \text{ cm}^2$
  - ☐ B.  $520 \text{ cm}^2$
  - ☐ C.  $450 \text{ cm}^2$
  - ☒ D.  $500 \text{ cm}^2$

**Q.15** Simplify  $\frac{12^3 \times 6^2 \times 8}{4^5 \times 3^5}$ .

- Ans**
- ☒ A. 2
  - ☐ B. 4
  - ☐ C. 8
  - ☐ D. 1

**Q.16** The ratio of the sum of two numbers and their difference is 8 : 3. The ratio of the greater number to the smaller number is:

- Ans**
- ☐ A. 12 : 7
  - ☐ B. 7 : 12
  - ☒ C. 11 : 5
  - ☐ D. 5 : 11

**Q.17** The simple interest on a principal amount is ₹192 for a period of 2 years at the rate of 8% per annum. The principal amount is:

- Ans**
- ☐ A. ₹1,000
  - ☒ B. ₹1,200
  - ☐ C. ₹1,400
  - ☐ D. ₹1,600

**Q.18** The length of each of the two equal sides of an isosceles triangle is 5 cm each and the length of its base is 8 cm. The area (in  $\text{cm}^2$ ) of the triangle is:

- Ans**
- ☒ A. 9
  - ☒ B. 12
  - ☒ C. 15
  - ☒ D. 18

**Q.19** A man sells a cupboard at a certain price S, 20% of which is his profit. If the price at which he buys the cupboard increases by 10% and he sells it at a 4% higher price than S, then his profit percentage will be:

- Ans**
- ☒ A. 18.18%
  - ☒ B. 21.8%
  - ☒ C. 22.7%
  - ☒ D. 23.4%

**Q.20**  $(34)^3$  is equal to:

- Ans**
- ☒ A. 29304
  - ☒ B. 39204
  - ☒ C. 39304
  - ☒ D. 40304

**Q.21** The sum of the ages of a man and his son is 68 years. After 5 years, the age of man will be five times the age of his son. The present age of the son is:

- Ans**
- ☒ A. 10 years
  - ☒ B. 9 years
  - ☒ C. 8 years
  - ☒ D. 7 years

**Q.22** If  $1.5x = 0.02y$ , then the value of  $\frac{1}{\left(\frac{y+x}{y-x}\right)}$  is \_\_\_\_\_.

- Ans**
- ☒ A.  $\frac{370}{38}$
  - ☒ B.  $\frac{37}{380}$
  - ☒ C.  $\frac{37}{38}$
  - ☒ D.  $\frac{38}{37}$

**Q.23** If a person covers 10.5 km in 2 hours, then the distance covered by him at the same speed in 5 hours will be:

- Ans**
- ☒ A. 25.50 km
  - ☒ B. 26.25 km
  - ☒ C. 26.20 km
  - ☒ D. 25.75 km

**Q.24** The arithmetic mean of the observations 3, 6, 8, 10, 12, 14, 18, 24 and 31 is:

- Ans**
- ☒ A. 17
  - ☒ B. 16
  - ☒ C. 15
  - ☒ D. 14

**Q.25** The sum of the first five prime numbers is:

- Ans**
- ✓ A. 28
  - ✗ B. 29
  - ✗ C. 27
  - ✗ D. 26

Section : General Intelligence and Reasoning

**Q.26** A statement is given below, followed by four conclusions given in the options. Find out which conclusion is true based on the given statement.

Statement:  $X \leq F \leq U \geq A < Z > J$

- Ans**
- ✗ A.  $U \geq A \geq F$
  - ✗ B.  $U > Z > J$
  - ✓ C.  $F \leq U \geq A$
  - ✗ D.  $A < Z < X$

**Q.27** At 6:00 a.m., a wrist watch's hour hand is showing north-west, which direction will hour hand show at 9:00 p.m.?

- Ans**
- ✗ A. North-West
  - ✗ B. South
  - ✗ C. South-West
  - ✓ D. North-East

**Q.28** Six boxes, J, K, L, M, N and O, are kept one over the other, but not necessarily in the same order. J is kept immediately above N. Only one box is kept between K and O. O is the bottom-most box, and M is the top-most box. Which box is kept immediately below M?

- Ans**
- ✗ A. K
  - ✓ B. J
  - ✗ C. L
  - ✗ D. N

**Q.29** P, Q, R, S, T, U and V live on different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 7. U lives on the floor immediately above V. T lives immediately above P and immediately below R. S does not live on any floor immediately above U or above R. P lives on third floor which is immediately above Q. Who lives on the first floor?

- Ans**
- ✗ A. T
  - ✗ B. Q
  - ✓ C. S
  - ✗ D. R

**Q.30** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding / deleting / multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(6, 30, 54)

(16, 80, 144)

- Ans**
- ✗ A. (12, 48, 108)
  - ✗ B. (8, 35, 72)
  - ✗ C. (15, 75, 105)
  - ✓ D. (21, 105, 189)

**Q.31** If '+' means '×', '×' means '+', '-' means '-', and '-' means '+', then what will be the value of the given expression?

$$79 - 87 + 5 \div 48 \times 3$$

- Ans**
- ☐ A. 512
  - ☒ B. 498
  - ☐ C. 656
  - ☐ D. 452

**Q.32** In a certain code language, 'BRICK' is written as 'BCIKR' and 'HOTEL' is written as 'EHLOT'. How will 'SPORT' be written in that language?

- Ans**
- ☐ A. OPRTS
  - ☐ B. RSTPO
  - ☒ C. OPRST
  - ☐ D. SROTP

**Q.33** If 7 September 2012 is a Friday, then what will be the day of the week on 17 December 2014?

- Ans**
- ☐ A. Monday
  - ☐ B. Thursday
  - ☒ C. Wednesday
  - ☐ D. Sunday

**Q.34** Three statements are given, followed by two conclusions numbered I and II. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

Statements:

1. All jugs are cups.
2. All cups are espressos.
3. Some jugs are saucers.

Conclusions:

- I. Some espressos are saucers.
- II. Some cups are jugs.

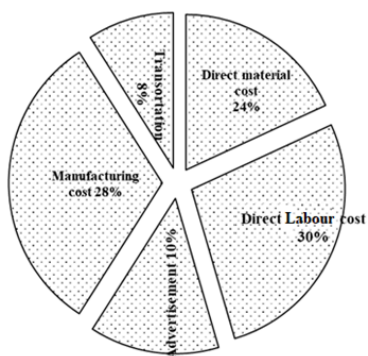
- Ans**
- ☐ A. Only conclusion I follows
  - ☐ B. Only conclusion II follows
  - ☐ C. Either conclusion I or II follow
  - ☒ D. Both conclusions I and II follow

**Q.35** Which of the following numbers will replace the question mark (?) in the given series?

105, 107, 103, ?, 101, 111

- Ans**
- ☐ A. 108
  - ☒ B. 109
  - ☐ C. 97
  - ☐ D. 95

- Q.36** The following pie chart shows the percentage distribution of the expenditure incurred in manufacturing a certain product. Study the pie chart and answer the question.



If 500 products are manufactured and the direct labour cost on them amounts to ₹ 62,500, then what should be the selling price of the product so that manufacturer can earn a profit of 50%?

- Ans** ☒ A. ₹550  
☒ B. ₹600  
☒ C. ₹625  
☒ D. ₹700

- Q.37** Select the triad which follows the same pattern as that followed by the two triads given below. Both triads follow the same pattern.

NE - MF - LG  
 LS - KT - JU

- Ans** ☒ A. ET- FS - GR  
☒ B. AV - ZW - YX  
☒ C. BD - ZE - YF  
☒ D. RG - SH - TI

- Q.38** In a certain code language, 'POWER' is written as 'RRAJX' and 'HELLO' is written as 'JHPQU'. How will 'NEVER' be written in that language?

- Ans** ☒ A. PHZXJ  
☒ B. PHZJX  
☒ C. PHZJZ  
☒ D. PHJZX

- Q.39** A certain number of people are standing together, each having a different height. A is taller than D, but shorter than F. C is shorter than E and taller than B, who is taller than F. Only one person is taller than E, and only two persons are shorter than D. If no other person is part of the group, what is the total number of people in the group?

- Ans** ☒ A. Ten  
☒ B. Six  
☒ C. Seven  
☒ D. Nine

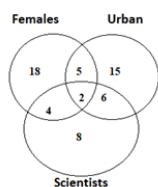
- Q.40** Refer to the following letter, number and symbol series and answer the question.

(Left) H T & Q % 9 D 6 @ 6 L & 4 P Z # 5 7 U \* Y (Right)

How many such symbols are there in the series which are immediately preceded by a letter and also immediately followed by a number?

- Ans** ☒ A. One  
☒ B. Two  
☒ C. Three  
☒ D. Four

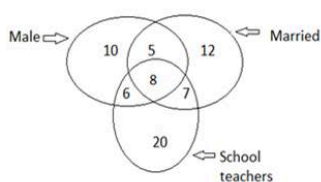
**Q.41** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



How many such Female Scientists are there who are NOT from an Urban area?

- Ans**
- ☒ A. 2
  - ☒ B. 4
  - ☒ C. 5
  - ☒ D. 6

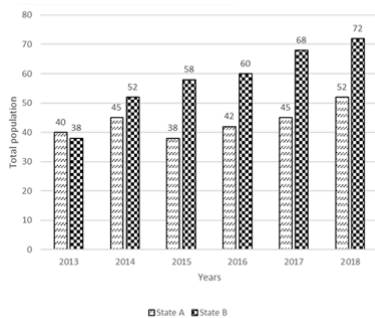
**Q.42** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



How many married males are school teachers?

- Ans**
- ☒ A. 13
  - ☒ B. 14
  - ☒ C. 15
  - ☒ D. 8

**Q.43** The column graph given below shows the population of two states (in lakhs) over the years. Study the graph and answer the question.



What is the difference in the population of state A and B together in years 2013 and 2018?

- Ans**
- ☒ A. 46 lakhs
  - ☒ B. 27 lakhs
  - ☒ C. 28 lakhs
  - ☒ D. 22.0 lakhs

**Q.44** Which of the following numbers will replace the question mark (?) in the given series?  
15, 26, 48, 81, 125, ?

- Ans**
- ☒ A. 169
  - ☒ B. 180
  - ☒ C. 170
  - ☒ D. 182



**Q.45** Select the option in which the numbers are related in the same way as are the numbers of the given sets.

(NOTE: Operations should be performed on the whole numbers without breaking down the numbers into its constituent digits.

E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(6, 7, 8)

(23, 34, 45)

**Ans** ☒ A. (3, 4, 9)

☒ B. (7, 12, 17)

☒ C. (17, 22, 25)

☒ D. (8, 19, 28)

**Q.46** Five friends I, J, K, L and M are sitting in a row facing north. Only I is seated between L and M. K is seated 2<sup>nd</sup> from the left end and is not an immediate neighbour of M. Where is J seated?

**Ans** ☒ A. 3<sup>rd</sup> from the right end

☒ B. 2<sup>nd</sup> from the right end

☒ C. At the extreme right end

☒ D. At the extreme left end

**Q.47** Select the conclusion that is true based on the given statement.

Statement:  $F > N \geq Z \leq S = B < W$

**Ans** ☒ A.  $F > S$

☒ B.  $W > Z$

☒ C.  $N > B$

☒ D.  $N \geq W$

**Q.48** Refer to the following letter arrangement and answer the question that follows.

A W S X Z E C D R V F T B H N M H Y J K I O L

How many letters are there in the given series between the letter that is third from the left end and second vowel from the right end of the given series?

**Ans** ☒ A. 15

☒ B. 16

☒ C. 17

☒ D. 19

**Q.49** A, B, C, D, E, F, G and H are sitting around a square table facing the centre of the table (but not necessarily in the same order). Four of them are sitting at the corners while four of them are sitting at the exact centre of the sides. A is on the immediate right of H who is sitting at the exact center of one of the sides of the table. D is an immediate neighbour of A. B is sitting on the immediate right of D. F is the immediate neighbor of B and C. E is sitting to the immediate left of G. Who is sitting to the immediate left of H?

**Ans** ☒ A. F

☒ B. E

☒ C. G

☒ D. D

**Q.50** Given below is a statement followed by two possible conclusions I and II. Read the information carefully and select the correct option.

**Statement:**

In order to minimise the consumption of plastic bags, the supermarkets across a metro city X have announced that all their customers need to bring their own bags or will have to buy jute bags from the supermarket that cost ₹13 per bag. Which of the following can be concluded from the given information?

I. The revenue of plastic bag manufacturing companies catering to city X may reduce to some extent.

II. The smaller general stores across city X will not need to ban plastic bags.

**Ans**

- ✓ **A. Only I can be concluded from the given information.**  
✗ **B. Only II can be concluded from the given information.**  
✗ **C. Both I and II can be concluded from the given information.**  
✗ **D. Neither I nor II can be concluded from the given information.**

**Q.51** How many such pairs of letters are there in the word MASTER (in the forward direction) which have as many letters between them in the word as there are in the English alphabetical order?

**Ans**

- ✗ **A. 1**  
✓ **B. 2**  
✗ **C. 3**  
✗ **D. 4**

**Q.52** Each of the digits in the number 8759236 is arranged in ascending order from left to right. The position of how many digits will remain unchanged as compared to that in the original number?

**Ans**

- ✓ **A. One**  
✗ **B. Two**  
✗ **C. Three**  
✗ **D. Four**

**Q.53** Raveena travels 5 km towards South from her house. From there, she goes 7 km towards East, then 4 km towards South, then 7 km towards West and then finally 5 km towards South. How far is Raveena from her house and in which direction?

**Ans**

- ✗ **A. 14 km, North**  
✗ **B. 9 km, North**  
✓ **C. 14 km, South**  
✗ **D. 5 km, South**

**Q.54** What will come in the place of '?' in the following equation, if '+' and '-' are interchanged and also 'x' and '÷' are interchanged?

$$17 - 3 \div 2 + 12 \times 4 = ?$$

**Ans**

- ✓ **A. 20**  
✗ **B. 21**  
✗ **C. 22**  
✗ **D. 24**

**Q.55** Select the option that represents the letters that, when placed from left to right in the same sequence in the blanks below, will complete the letter series.

A \_ D F \_ A C \_ F B \_ C D F \_ A C D \_ D

**Ans**

- ✓ **A. CADACF**  
✗ **B. CADFCC**  
✗ **C. CDFCCA**  
✗ **D. CDADFA**

**Q.56** Which of the following gases is released when zinc oxide reacts with carbon?

- Ans**
- ✓ A. Carbon monoxide
  - ✗ B. Carbon dioxide
  - ✗ C. Methane
  - ✗ D. Ozone

**Q.57** Magnetic lines move from west to east direction and the conductor placed horizontally moves towards the upward direction. In such a case, the direction of induced current is towards:

- Ans**
- ✗ A. east
  - ✗ B. west
  - ✓ C. north
  - ✗ D. south

**Q.58** Which of the following elements have similar properties with Eka-silicon, Eka-boron and Eka-aluminium, respectively?

- Ans**
- ✗ A. Germanium, Carbon, and Gallium
  - ✗ B. Carbon, Scandium, and Indium
  - ✓ C. Germanium, Scandium, and Gallium
  - ✗ D. Scandium, Gallium, and Germanium

**Q.59** What is the pH of salt containing a mixture of a strong base and a weak acid?

- Ans**
- ✗ A. pH less than 7
  - ✗ B. pH equal to 7
  - ✓ C. pH more than 7
  - ✗ D. pH equal to 0

**Q.60** Which of the following solid compounds is formed when lead nitrate is heated?

- Ans**
- ✗ A.  $\text{Pb}(\text{OH})_2$
  - ✓ B.  $\text{PbO}$
  - ✗ C.  $\text{Pb}(\text{CO}_3)_2$
  - ✗ D.  $\text{Pb}$

**Q.61** Is there any advantage of the structure of the nephron as a long tubular structure?

- Ans**
- ✗ A.  
No, the long tubular structure has no advantage because filtration occurs at the cup-shaped end.
  - ✓ B.  
Yes, the long tube gives time and space for re-absorption of excess water from the initial filtrate.
  - ✗ C. No, all nephrons are not long – some are short and others are long, but all are functional.
  - ✗ D.  
Yes, the long tubes can be coiled and packed at high density to give firmness to the kidney.

Q.62 The first Indian Reserve Forest is \_\_\_\_\_.

- Ans
- ☐ A. Pench National Park
  - ☐ B. Kaziranga National Park
  - ☐ C. Jim Corbett National Park
  - ☒ D. Satpura National Park

Q.63 A ray of light undergoes refraction through a triangular glass prism. The angle between the incident ray and emergent ray is called:

- Ans
- ☐ A. angle of incidence
  - ☐ B. angle of emergence
  - ☒ C. angle of deviation
  - ☐ D. angle of refraction

Q.64 Which of the following balanced equations is correct for the given reaction?

Calcium chloride + Sulphuric acid  $\rightarrow$  Calcium sulphate + Hydrogen chloride

- Ans
- ☐ A.  $\text{CaCl}_2 + \text{H}_2\text{SO}_4 \rightarrow \text{CaSO}_4 + \text{HCl}$
  - ☒ B.  $\text{CaCl}_2 + \text{H}_2\text{SO}_4 \rightarrow \text{CaSO}_4 + 2\text{HCl}$
  - ☐ C.  $\text{CaCl}_2 + 2\text{H}_2\text{SO}_4 \rightarrow \text{CaSO}_4 + 2\text{HCl}$
  - ☐ D.  $2\text{CaCl}_2 + \text{H}_2\text{SO}_4 \rightarrow 2\text{CaSO}_4 + 2\text{HCl}$

Q.65 In general, the oxides of non-metals are \_\_\_\_\_ in nature.

- Ans
- ☐ A. neutral
  - ☐ B. basic
  - ☒ C. acidic
  - ☐ D. amphoteric

Q.66 The first Fullerene to be identified was \_\_\_\_\_.

- Ans
- ☒ A. C-60
  - ☐ B. C-160
  - ☐ C. C-600
  - ☐ D. C-660

Q.67 What is the effect of bile salts in the digestion of food?

- Ans
- ☐ A. They digest fat globules to release fatty acids.
  - ☒ B. They break up big fat globules into small globules.
  - ☐ C. They activate lipases to begin digestion of proteins.
  - ☐ D. They contains fat-digestive enzymes called lipases.

Q.68 What is an aquifer?

- Ans
- ✓ A. Water stored underground between layers of hard rock
  - ✗ B. Water that flows through natural channels in an estuary
  - ✗ C. Pockets of freshwater trapped in sandy beds in a desert
  - ✗ D. Sheets of frozen water found in rocky caves at high altitudes

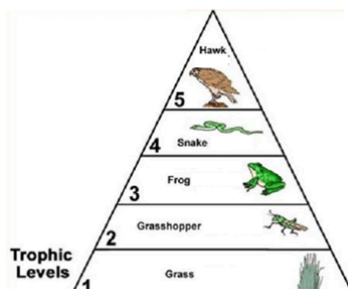
Q.69 Which of the following methods is NOT utilised by plants to eliminate waste?

- Ans
- ✗ A. Storage of waste in cell vacuoles
  - ✗ B. Excretion of waste in the soil
  - ✓ C. Elimination of waste by sweating
  - ✗ D. Elimination of waste by falling leaves

Q.70 Petroleum is called \_\_\_\_\_.

- Ans
- ✗ A. a renewable resource since it is derived from dead plants
  - ✗ B. a non-renewable resource since it cannot be made in a factory
  - ✗ C. a renewable resource since a single oil well gives oil everyday
  - ✓ D. a non-renewable resource since conditions that produced it no longer exist

Q.71 A simple food chain of 5 trophic levels is shown below. If the snake which is present in the fourth trophic level gets 10 kJ of energy, then what amount of energy is available at the producers?



- Ans
- ✗ A. 100 kJ
  - ✓ B. 10,000 kJ
  - ✗ C. 1,000 kJ
  - ✗ D. 1,00,00,000 kJ

Q.72 A 5 cm long pin is placed 50 cm far from a concave mirror of focal length 40 cm. Its image will be formed at \_\_\_\_\_.

- Ans
- ✗ A. 1 m behind the mirror
  - ✓ B. 2 m in front of the mirror
  - ✗ C. 1 m in front of the mirror
  - ✗ D. 2 m behind the mirror

Q.73 When resistors are connected in parallel combination, then resultant resistance will be:

- Ans
- ✗ A. More than largest resistance
  - ✓ B. Less than least resistance
  - ✗ C. Equal to highest resistance
  - ✗ D. Equal to least resistance

**Q.74** A point on the principal axis of a concave mirror, from where a ray of light reflects back without any deviation, is:

- Ans**
- ☐ A. pole
  - ☐ B. principal focus
  - ☒ C. centre of curvature
  - ☐ D. infinity

**Q.75** A real image of equal size is obtained at a distance of 48 cm from the lens. The type of the lens and its focal length is:

- Ans**
- ☐ A. concave lens of focal length of 48 cm
  - ☒ B. convex lens of focal length 24 cm
  - ☐ C. convex lens of focal length 48 cm
  - ☐ D. concave lens of focal length 24 cm

**Q.76** Which of the following metals is able to liberate hydrogen gas from dilute hydrochloric acid?

- Ans**
- ☐ A. Cu
  - ☒ B. Pb
  - ☐ C. Hg
  - ☐ D. Ag

**Q.77** What are the finger like projections that increase the area of absorption of the small intestine called?

- Ans**
- ☒ A. Villi
  - ☐ B. Cilia
  - ☐ C. Sphincters
  - ☐ D. Glands

**Q.78** Which of the following is an INCORRECT formula for electric power?

- Ans**
- ☐ A.  $P = I^2 R$
  - ☐ B.  $P = \frac{V^2}{R}$
  - ☒ C.  $P = \frac{V}{I}$
  - ☐ D.  $P = IV$

**Q.79** The magnitudes of the magnetic field at a point at distance  $r$  from a straight conductor carrying current  $I$ ,  $2I$  and  $3I$ , one by one, are  $B_1$ ,  $B_2$  and  $B_3$ , respectively. Which of the following relations is correct?

- Ans**
- ☐ A.  $B_1 > B_2 > B_3$
  - ☐ B.  $B_2 > B_3 > B_1$
  - ☒ C.  $B_3 > B_2 > B_1$
  - ☐ D.  $B_1 = B_2 = B_3$

**Q.80** Three resistors of 4  $\Omega$ , 8  $\Omega$  and 6  $\Omega$  are connected in parallel combination with a 9 V battery. The total current drawn from the battery is:

- Ans**
- ☐ A. 4.2 A
  - ☒ B. 4.8 A
  - ☐ C. 6.4 A
  - ☐ D. 8.4 A

**Q.81** Which of the following festivals is mainly celebrated in Vadakkunnathan temple of Kerala?

- Ans**
- ☐ A. Bastar Dussehra
  - ☐ B. Thiruvathira
  - ☒ C. Thrissur Pooram
  - ☐ D. Kullu Dussehra

**Q.82** How many children received the Pradhan Mantri Rashtriya Bal Puraskar 2022 award from PM Narendra Modi on National girl child day?

- Ans**
- ☐ A. 9
  - ☐ B. 19
  - ☒ C. 29
  - ☐ D. 39

**Q.83** The budget expenditure of the government is broadly classified into how many categories?

- Ans**
- ☒ A. 2
  - ☐ B. 3
  - ☐ C. 4
  - ☐ D. 5

**Q.84** Rigveda consists of a collection of:

- Ans**
- ☒ A. 1028 hymns
  - ☐ B. 2028 hymns
  - ☐ C. 3028 hymns
  - ☐ D. 4028 hymns

**Q.85** During which of the following years the first Five Year Plan was implemented?

- Ans**
- ☐ A. 1947-1952
  - ☐ B. 1954-1959
  - ☒ C. 1951-1956
  - ☐ D. 1961-1966

**Q.86** Banas is a tributary of which of the following rivers?

- Ans**
- ☐ A. Gandak
  - ☐ B. Rapti
  - ☐ C. Tunga
  - ☒ D. Chambal



**Q.87** Hindi continues to be the most widely spoken language in India at \_\_\_\_\_ of the population, and continues to grow at a rapid pace, mostly driven by higher population growth in Hindi speaking states as per census 2011.

- Ans**
- ☒ A. 44.04%
  - ☒ B. 43.63%
  - ☒ C. 41.03%
  - ☒ D. 42.03%

**Q.88** \_\_\_\_\_ from the Indian Institute of Science, Bengaluru, received the Shanti Swarup Bhatnagar Prize for Biological Sciences for 2021.

- Ans**
- ☒ A. Amit Singh
  - ☒ B. Binoy Kumar Saikia
  - ☒ C. Arun Kumar Shukla
  - ☒ D. Anish Ghosh

**Q.89** As of March 2022, how many High Courts are there in India?

- Ans**
- ☒ A. 22
  - ☒ B. 23
  - ☒ C. 24
  - ☒ D. 25

**Q.90** Which of the following schemes is formulated to mitigate gender disparity in science and engineering research funding in various Science & Technology programs in Indian academic institutions and R&D laboratories?

- Ans**
- ☒ A. SERB-DRIVE
  - ☒ B. SERB-CONTROL
  - ☒ C. SERB-POWER
  - ☒ D. SERB-ENERGY

**Q.91** Marginal cost of production refers to the change in total cost to produce \_\_\_\_\_ additional unit(s).

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.92** Bhima River, which is a major tributary of the Krishna River, flows through:

- Ans**
- ☒ A. Maharashtra and Karnataka
  - ☒ B. Rajasthan and Haryana
  - ☒ C. Goa and Karnataka
  - ☒ D. Tamil Nadu and Karnataka

**Q.93** Which of the following is/are a function of money?

- (A) Used as a store of value.
- (B) Used as a measure of value.

- Ans**
- ☒ A. Only A
  - ☒ B. Only B
  - ☒ C. Both A and B
  - ☒ D. Neither A nor B



**Q.94** Which of the following fundamental rights is mentioned in Article 32 of the Indian Constitution?

- Ans**
- ☐ A. Right to Equality
  - ☐ B. Right to Freedom
  - ☐ C. Right to Property
  - ☒ D. Right to Constitutional Remedies

**Q.95** The Young Bengal Movement was started by \_\_\_\_\_, who had come to Calcutta in 1826 and was appointed in the Hindu College as a teacher of English literature and History.

- Ans**
- ☒ A. Henry Lui Vivian Derozio
  - ☐ B. Keshab Chandra Sen
  - ☐ C. Pandit Ishwar Chandra Vidyasagar
  - ☐ D. Swamy Dayanand Saraswati

**Q.96** Which country was ranked 101<sup>st</sup> in the Global Hunger Index 2021?

- Ans**
- ☐ A. Sri Lanka
  - ☒ B. India
  - ☐ C. Nepal
  - ☐ D. Bangladesh

**Q.97** In which country were the 22<sup>nd</sup> Commonwealth Games held?

- Ans**
- ☐ A. India
  - ☒ B. England
  - ☐ C. Australia
  - ☐ D. Canada

**Q.98** In which of the following years, the 73<sup>rd</sup> and 74<sup>th</sup> Constitutional Amendment Acts came into force, which gave Constitutional status to Panchayati raj institutions (PRIs) and urban local bodies (ULBs) respectively?

- Ans**
- ☐ A. 1991
  - ☐ B. 1992
  - ☒ C. 1993
  - ☐ D. 1994

**Q.99** Which of the following is the highest layer of atmosphere?

- Ans**
- ☐ A. Mesosphere
  - ☐ B. Thermosphere
  - ☐ C. Stratosphere
  - ☒ D. Exosphere

**Q.100** Who is the captain of the Indian women's cricket team for the commonwealth game 2022?

- Ans**
- ☐ A. Mithali Raj
  - ☒ B. Harmanpreet Kaur
  - ☐ C. Jhula Goswami
  - ☐ D. Shafali Verma

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Blackbook





# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 13/09/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** A man buys a table for ₹2,800 and sells it at a loss of 30%. The selling price (in ₹) of the table is \_\_\_\_\_.

- Ans**
- ☒ A. 1,440
  - ☒ B. 1,960
  - ☐ C. 1,890
  - ☐ D. 1,770

**Q.2** The value of  $\sin^2 \theta + \cos^2 \theta - (\sec^2 \theta - \tan^2 \theta) + \tan \theta \cos \theta - \sin \theta$  is \_\_\_\_\_.

- Ans**
- ☐ A.  $4\sin\theta\cos\theta$
  - ☐ B.  $\sec^2 \theta$
  - ☐ C.  $-1$
  - ☒ D. 0

**Q.3** The ratio of Kamal's to Kiran's age is 4 : 5. Kamal will be 30 years old after 6 years. What is the present age of Kiran?

- Ans**
- ☒ A. 30 years
  - ☐ B. 24 years
  - ☐ C. 40 years
  - ☐ D. 28 years

**Q.4** The number of factors of any prime number is:

- Ans**
- ☐ A. 4
  - ☐ B. 3
  - ☒ C. 2
  - ☐ D. 1

**Q.5** The total surface area of a solid hemisphere is  $42 \text{ cm}^2$ . Its radius (in cm) is:

Take  $\pi = \frac{22}{7}$

**Ans**

✓ **A.**  $\frac{7}{\sqrt{11}}$

✗ **B.**  $\frac{7\sqrt{2}}{\sqrt{11}}$

✗ **C.**  $\frac{7\sqrt{2}}{\sqrt{22}}$

✗ **D.**  $\frac{7\sqrt{3}}{\sqrt{22}}$

**Q.6** A man walking at a speed of 10 km/h crosses a bridge in  $7\frac{1}{2}$  minutes. The length of the bridge is \_\_\_\_\_ metres.

**Ans** ✗ **A.** 1500

✓ **B.** 1250

✗ **C.** 1480

✗ **D.** 1560

**Q.7** The value of  $\{1 + (1 - 2)^{-1} + 2 - (1 - 2)^{-2}\}^2$  is:

**Ans** ✓ **A.** 1

✗ **B.** 0

✗ **C.** 8

✗ **D.** 9

**Q.8** Three chairs and two tables cost ₹1,850. Five chairs and three tables cost ₹2,850. Find the cost of two chairs and two tables.

**Ans** ✗ **A.** ₹700

✓ **B.** ₹1,700

✗ **C.** ₹1,400

✗ **D.** ₹1,300

**Q.9** The volume (in  $\text{cm}^3$ ) of a solid right circular cylinder whose diameter of base is 7 cm and height is 20 cm is \_\_\_\_\_. (Use  $\pi = \frac{22}{7}$ )

**Ans** ✗ **A.** 3080

✗ **B.** 980

✓ **C.** 770

✗ **D.** 1440

Q.10 The correct expression of  $8.\overline{46}$  in the fractional form is \_\_\_\_\_.

- Ans
- ☒ A.  $\frac{846}{99}$
  - ☒ B.  $\frac{84}{99}$
  - ☒ C.  $\frac{838}{99}$
  - ☒ D.  $\frac{83}{99}$

Q.11 Simplify  $x^2 + y^2 + (x - y)^2 + (x + y)^2 - 20$ :

- Ans
- ☒ A.  $3x^2 + 3y^2 - 20$
  - ☒ B.  $3x^2 + 3y^2 + 20$
  - ☒ C.  $3x^2 - 3y^2 - 20$
  - ☒ D.  $3x^2 - 3y^2 + 20$

Q.12 100 surnames were randomly picked up from a local telephone directory and the frequency distribution of the number of letters from the English alphabets in the surnames was obtained as follows.

|                    |       |       |        |         |         |         |
|--------------------|-------|-------|--------|---------|---------|---------|
| Number of letters  | 1 - 4 | 4 - 7 | 7 - 10 | 10 - 13 | 13 - 16 | 16 - 19 |
| Number of surnames | 6     | 30    | 40     | 16      | 4       | 4       |

The median number of letters in the surnames is:

- Ans
- ☒ A. 8.02
  - ☒ B. 7.09
  - ☒ C. 7.04
  - ☒ D. 8.05

Q.13 Tanvi saves ₹5,000 from her salary every month after spending 80% of her monthly salary. Tanvi's salary is:

- Ans
- ☒ A. ₹20,000
  - ☒ B. ₹30,000
  - ☒ C. ₹25,000
  - ☒ D. ₹35,000

Q.14 If  $13 : 12 :: x : 60$  then, the value of x is:

- Ans
- ☒ A. 65
  - ☒ B. 78
  - ☒ C. 56
  - ☒ D. 91

Q.15 Which of the following describes the nature of the roots of the quadratic equation  $5x^2 - 16x + 10 = 0$ ?

- Ans
- ☒ A. No real roots
  - ☒ B. Two equal roots
  - ☒ C. Two distinct real roots
  - ☒ D. One real root and one imaginary root

**Q.16** The mean literacy rate of a few cities as displayed in the following distribution is:

| Literacy rate in % | No. of cities |
|--------------------|---------------|
| 25-35              | 6             |
| 35-45              | 5             |
| 45-55              | 4             |
| 55-65              | 1             |

- Ans**
- ☐ A. 28
  - ☐ B. 32
  - ☐ C. 36
  - ☒ D. 40

**Q.17** A pipe can fill an empty tank in 15 minutes while another pipe can empty the same tank, when completely full, in 20 minutes. How much time (in minutes) will it take to completely fill the empty tank if both the pipes are opened simultaneously?

- Ans**
- ☐ A. 54
  - ☐ B. 56
  - ☒ C. 60
  - ☐ D. 48

**Q.18** Mohan borrows a sum of ₹2,20,000 at the rate of 8% per annum simple interest. At the end of the first year, he repays ₹27,600 towards return of principal amount borrowed. If Mohan clears all pending dues at the end of the second year, including interest payment that accrued during the first year, how much does he pay at the end of the second year?

- Ans**
- ☒ A. ₹2,25,392
  - ☐ B. ₹2,27,600
  - ☐ C. ₹2,26,800
  - ☐ D. ₹2,25,512

**Q.19** A person sells a sofa at a certain price. If he sold it at 60% of this price, then there will be a loss of 20%. The percentage profit when sofa was sold at the original selling price is:

- Ans**
- ☐ A.  $15\frac{1}{2}\%$
  - ☐ B.  $12\frac{1}{2}\%$
  - ☒ C.  $33\frac{1}{3}\%$
  - ☐ D. 12%

**Q.20** If the number of sides of a regular polygon is 12, then the measure of each exterior angle is:

- Ans**
- ☐ A.  $48^\circ$
  - ☐ B.  $36^\circ$
  - ☒ C.  $30^\circ$
  - ☐ D.  $40^\circ$

**Q.21** The value of  $72 \div (9 - 7)$  of  $3 - 6 \times 2 + 8$  is:

- Ans**
- ☐ A. 104
  - ☐ B. 44
  - ☒ C. 8
  - ☐ D. 68

Q.22 The L.C.M. of 70, 28 and 42 is \_\_\_\_\_.

- Ans
- ☐ A. 700
  - ☐ B. 280
  - ☒ C. 420
  - ☐ D. 116

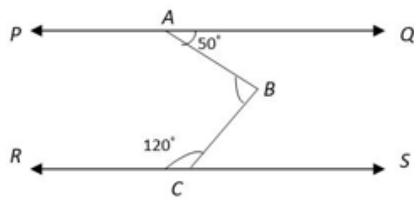
Q.23 The discriminant of the equation  $4x^2 - 5x - 3 = 0$  is:

- Ans
- ☐ A. -23
  - ☐ B. 23
  - ☐ C. -73
  - ☒ D. 73

Q.24  $16x^2 + 4y^2 + 25z^2 - 16xy + 20yz - 40zx$  is equal to:

- Ans
- ☐ A.  $(4x + 2y - 5z)^2$
  - ☐ B.  $(4x - 2y + 5z)^2$
  - ☐ C.  $(4x + 2y + 5z)^2$
  - ☒ D.  $(4x - 2y - 5z)^2$

Q.25 What is the measure of  $\angle ABC$  in the given figure, given that  $PQ \parallel RS$ ?



- Ans
- ☐ A.  $90^\circ$
  - ☐ B.  $140^\circ$
  - ☒ C.  $110^\circ$
  - ☐ D.  $70^\circ$

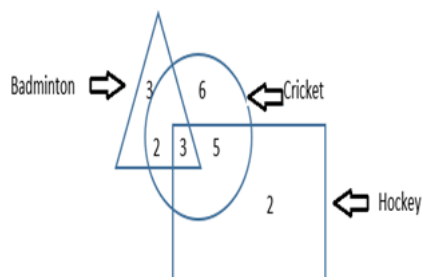
#### Section : General Intelligence and Reasoning

Q.26 Eight men L, M, N, O, P, Q, R and S were sitting around a square table, facing the centre. Some of them were sitting at the corners, while some were sitting at the exact centre of the sides. P was sitting fourth to the left of Q. Only O was sitting between M and Q. N was sitting to the immediate right of L. R was sitting to the immediate left of M. L and P were sitting at corners. Who was sitting fourth to the left of R?

- Ans
- ☐ A. O
  - ☐ B. N
  - ☒ C. S
  - ☐ D. L

**Q.27** Study the given diagram carefully and answer the question that follows.

The numbers in different sections indicate the number of people who play different sports.



How many people play both Hockey and Cricket but not Badminton ?

- Ans** ☒ A. 5  
☒ B. 3  
☒ C. 8  
☒ D. 2

**Q.28** Select the conclusion that is true based on the given statement.

Statement:  $A \geq Q > Z \leq S = O < W$

- Ans** ☒ A.  $A > O$   
☒ B.  $W > Z$   
☒ C.  $Q > O$   
☒ D.  $W \geq A$

**Q.29** Which of the following numbers will replace the question mark (?) in the given series?

54, 149, 294, 489, ?

- Ans** ☒ A. 596  
☒ B. 734  
☒ C. 674  
☒ D. 692

**Q.30** A group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/<br>symbol | 4 | & | 5 | ^ | 8 | @ | 2 | 6 | % | \$ | 9 | 5 | 3 | # |
|-------------------|---|---|---|---|---|---|---|---|---|----|---|---|---|---|
| Code<br>Letter    | G | B | H | T | V | M | A | K | L | D  | F | E | Q | U |

Conditions:

- (i) If the first element is a symbol and the last element is a number, the codes for these two (the first and the last elements) are to be interchanged.  
(ii) If the first element is an odd number and the last element is an even number, the first and last elements are to be coded as ©.  
(iii) If both the second and third elements are perfect squares, the third element is to be coded as the code for the second element.

What will be the code ^ \$ 9 # 8 ?

- Ans** ☒ A. VDFUT  
☒ B. TDFUV  
☒ C. VDUFT  
☒ D. TDUFV



**Q.31** If 5 March 2009 is a Thursday, then what will be the day of the week on 11 March 2016?

- Ans**
- ☒ A. Thursday
  - ☒ B. Wednesday
  - ☒ C. Monday
  - ☒ D. Friday

**Q.32** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

14 : 196 :: 16 : 256 :: 18 : ?

- Ans**
- ☒ A. 328
  - ☒ B. 326
  - ☒ C. 314
  - ☒ D. 324

**Q.33** All 30 students are standing in a straight line facing the north. Amit is at 12<sup>th</sup> position from the extreme left end. What is the position of Amit when considered from the extreme right end?

- Ans**
- ☒ A. 19<sup>th</sup>
  - ☒ B. 17<sup>th</sup>
  - ☒ C. 18<sup>th</sup>
  - ☒ D. 20<sup>th</sup>

**Q.34** What approximate value should come in place of the question mark (?) in the following equation?

$12.89 + 3.05 \times 84.95 \div 5.07 - 23.88 = ?$

- Ans**
- ☒ A. 44
  - ☒ B. 48
  - ☒ C. 35
  - ☒ D. 40

**Q.35** Town C is to the north of Town F. Town O is to the east of Town F. Town Z is to the west of Town O. Town Y is to the south of Town Z. Town C is to the north-east of Town Y. What is the position of Town C with respect to Town Z?

- Ans**
- ☒ A. North-East
  - ☒ B. North-West
  - ☒ C. South-East
  - ☒ D. North

**Q.36** Three statements are given followed by three conclusions. Consider the statements and conclusions to be true even if they vary from commonly known facts and then decide which of the conclusions follow(s) from the given statements.

Statements:

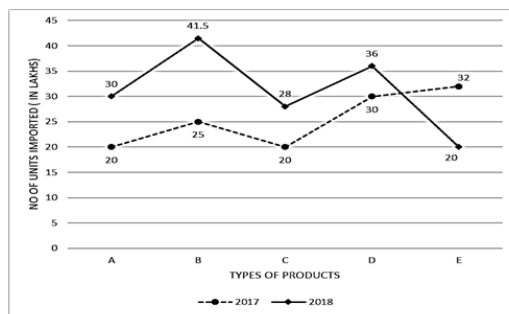
1. Some nails are rings.
2. All rings are fingers.
3. All nails are bracelets.

Conclusions:

- (I) Some bracelets are rings.
- (II) Some fingers are nails.
- (III) No ring is a bracelet.

- Ans**
- ☒ A. Only conclusion III follows.
  - ☒ B. Only conclusion II follows.
  - ☒ C. Only conclusions I and II follow.
  - ☒ D. None of the conclusions follow.

**Q.37** The line graph given below shows the total number of different products, A, B, C, D and E, (in lakhs) imported by a company in 2017 and 2018. Study the graph and answer the question.



The import of which type of product in 2017 was equal to the average import of A and E types of product in 2018?

- Ans**
- ☒ A. A
  - ☒ B. B
  - ☒ C. D
  - ☒ D. E

**Q.38** Which two signs should be interchanged to make the following equation correct?

$$28 \div 4 - 12 \times 5 + 11 = 56$$

- Ans**
- ☒ A.  $\times$  and  $\div$
  - ☒ B.  $+$  and  $-$
  - ☒ C.  $\times$  and  $+$
  - ☒ D.  $\div$  and  $-$

**Q.39** Select the number from among the given options that can replace the question mark (?) in the following series.

2, 4, 5, 11, 20, 36, ?

- Ans**
- ☒ A. 56
  - ☒ B. 67
  - ☒ C. 71
  - ☒ D. 74

**Q.40** Farhan started from his home and walked a distance of 'Y' eastwards. Then, he turned right and walked 10 m. After that, he turned right again and walked 25 m. Then, he took a left turn and walked 10 m, followed by a right turn and walking 15 m. He finally took a right turn and walked 20 m to reach his home. What is the value of Y?

- Ans**
- ☒ A. 55m
  - ☒ B. 50m
  - ☒ C. 40m
  - ☒ D. 30m

**Q.41** This question is based on the following 3-letter words:

(left) BAT DIG FIT WIN (right)

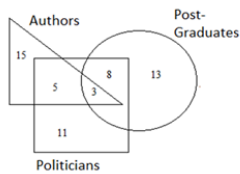
If 'T' is added before each word, which of the following will form a meaningful English word?

- Ans**
- ☒ A. Only FIT
  - ☒ B. Only BAT
  - ☒ C. Only WIN
  - ☒ D. Only DIG

**Q.42** If the digits of the number 31275848 are arranged in decreasing order from left to right, what will be the sum of the first 3 digits from the left?

- Ans**
- ☒ A. 20
  - ☒ B. 12
  - ☒ C. 6
  - ☒ D. 23

**Q.43** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



How many people are politicians as well as authors but do not have post-graduate degree?

- Ans**
- ☒ A. 5
  - ☒ B. 3
  - ☒ C. 8
  - ☒ D. 11

**Q.44** Refer to the following letter, number and symbol series and answer the question.

(Left) V 2 5 @ ¢ W ¥ # 2 Ω R Q 1 @ F B 4 # H 6 J % Y 3 Z (Right)

If all the numbers are dropped from the series, which of the following will be fifth from the right?

- Ans**
- ☒ A. H
  - ☒ B. #
  - ☒ C. J
  - ☒ D. B

- Q.45** Select the set in which the numbers are related in the same way as are the numbers of the following sets.  
(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 12 – Operations on 12 such as adding/ subtracting/multiplying etc. to 12 can be performed. Breaking down 12 into 1 and 2 and then performing mathematical operations on 1 and 2 is not allowed)

(15, 450, 10)

(12, 540, 15)

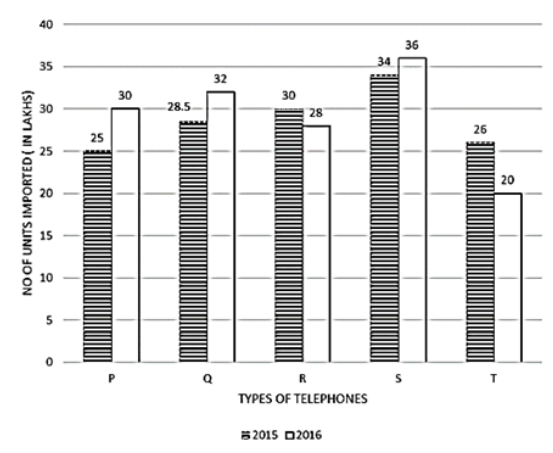
**Ans** ☒ A. (9, 18, 81)

☒ B. (5, 25, 5)

☒ C. (5, 60, 6)

☒ D. (11, 330, 10)

- Q.46** The bar graph given below shows the total number of different types of telephones P, Q, R, S and T (in lakh) imported by a company in 2015 and 2016. Study the graph and answer the question.



The average import of Q and R types of telephones in 2016 was equal to the average import of which types of telephone in 2015?

**Ans** ☒ A. P and Q

☒ B. Q and R

☒ C. R and S

☒ D. S and T

- Q.47** Which of the following term will replace the question mark (?) in the given series to make it logically complete?  
TR11, QO16, NL21, KI26, ?

**Ans** ☒ A. HF31

☒ B. HF33

☒ C. KG31

☒ D. KG33

- Q.48** All the students of a class are sitting in a queue facing north. Priti is at 17<sup>th</sup> position from the start of the queue. Poonam is sitting ahead of Priti and there are exactly four students between them. Poonam is at 16<sup>th</sup> position from the end of the queue. How many students are there in the class?

**Ans** ☒ A. 27

☒ B. 29

☒ C. 37

☒ D. 26

**Q.49** Six people, A, B, C, D, E and F are sitting in a straight line, facing North (but not necessarily in the same order). Only one person sits to the left of D. Only two persons sit between F and C. B sits third to the right of E. D sits to the immediate left of F. E sits at the extreme left end. Who among the following has A and F as his immediate neighbours?

- Ans**
- ☐ A. C
  - ☐ B. E
  - ☐ C. D
  - ☒ D. B

**Q.50** Read the given statement and the arguments carefully and select the appropriate answer from the given options.

Statement:

Indian society is a symbol of unity in diversity.

Arguments:

- I. People of different cultures celebrate their identity in Indian society.
- II. Brain-drain in India is an indicator of unity in diversity.

- Ans**
- ☐ A. I weakens while II strengthens the statement.
  - ☒ B. II weakens while I strengthens the statement.
  - ☐ C. Both I and II weaken the statement.
  - ☐ D. Both I and II strengthen the statement.

**Q.51** In this question, the statement is followed by four conclusions. Find out which conclusion is true based on the given statement:

Statement:  $E < H < K = G > F > D$

- Ans**
- ☐ A.  $K < E$
  - ☐ B.  $D > G$
  - ☐ C.  $K < D$
  - ☒ D.  $G > E$

**Q.52** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

DHP : HLT

MSO : QWS

- Ans**
- ☒ A. SKF : WOJ
  - ☐ B. SEW : WOJ
  - ☐ C. SWE : WJO
  - ☐ D. WSE : WJO

**Q.53** Refer to the following number series and answer the question.

6 3 5 3 5 6 3 2 2 2 5 1 9 5 4 8 9 5 2 7

How many such numbers are there in the series each of which is immediately preceded by an odd number and immediately followed by an even number?

- Ans**
- ☐ A. 2
  - ☐ B. 4
  - ☒ C. 5
  - ☐ D. 3

- Q.54** In this question, a group of letters is coded using symbols as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Letters | A | S | V | J | I | L | N  | E |
|---------|---|---|---|---|---|---|----|---|
| Codes   | @ | > | ^ | % | = | # | \$ | + |

Conditions:

1. If both the first and the last letters of the word are vowels, then both these letters will be coded as '&'.  
 2. If both the first and the last letters of the word are consonants, then the first letter of the word will be coded as '\*'.  
 \*\*.

What will be the code for the word 'JAVELINS'?

- Ans**
- ☒ A. % > ^ + # = \$ >
  - ☒ B. % @ ^ + # = \$ \*
  - ☒ C. % @ ^ + # = \$ >
  - ☒ D. \* @ ^ + # = \$ >

- Q.55** A certain number of people are sitting in a row facing north. Y sits fourth to the right of A. Only four people sit between Y and Z. B sits second to the left of Z. Only one person sits between Z and C. X sits to the immediate right of C. X sits at one of the extreme ends of the row. If no other person is sitting in the row, what is the total number of persons seated?

- Ans**
- ☒ A. 13
  - ☒ B. 15
  - ☒ C. 14
  - ☒ D. 12

#### Section : General Science

- Q.56** Naphthalene balls are prepared from \_\_\_\_\_.

- Ans**
- ☒ A. coke
  - ☒ B. coal tar
  - ☒ C. coal gas
  - ☒ D. petroleum

- Q.57** An electromagnet is formed when:

- Ans**
- ☒ A. a current is passed through magnet
  - ☒ B. a magnet is placed near current carrying conductor
  - ☒ C. a current is passed through a coil wound around a soft iron core
  - ☒ D. a current is passed through a coil wound around a glass rod

- Q.58** Which of the following waste items should NOT be thrown into general trash?

- Ans**
- ☒ A. Old furniture
  - ☒ B. Old vessels
  - ☒ C. Old batteries
  - ☒ D. Old shoes

**Q.59** Which of the following circulates around the body and plugs the leaks by helping to clot the blood at the points of injury?

- Ans**
- ☐ A. Plasma
  - ☒ B. Platelets
  - ☐ C. RBC
  - ☐ D. WBC

**Q.60** The class of compounds with a functional group which has no oxygen atom is:

- Ans**
- ☒ A. halo compounds
  - ☐ B. Ketones
  - ☐ C. Esters
  - ☐ D. carboxylic acid

**Q.61** To obtain sharp signals from a dish antenna, the receiver of the dish antenna should be placed \_\_\_\_\_.

- Ans**
- ☐ A. behind the dish
  - ☐ B. in front of the dish at C
  - ☒ C. in front of the dish at F
  - ☐ D. in front of the dish between C and F

**Q.62** Select the correct example for mechanical barrier method of contraception from the options given below.

- Ans**
- ☐ A. Use of contraceptive pills
  - ☐ B. Use of copper-T
  - ☒ C. Use of condom
  - ☐ D. Vasectomy

**Q.63** What is the physical state of a precipitate in a chemical reaction?

- Ans**
- ☐ A. Liquid
  - ☒ B. Solid
  - ☐ C. Aqueous
  - ☐ D. Gaseous

**Q.64** Which of the following elements is a metalloid?

- Ans**
- ☐ A. Bismuth
  - ☒ B. Antimony
  - ☐ C. Iron
  - ☐ D. Selenium

**Q.65** What happens when calcium sulphate hemihydrate is mixed with water?

- Ans**
- ☒ A. It sets as a hard solid mass.
  - ☐ B. A clear solution is formed.
  - ☐ C. SO<sub>2</sub> gas is liberated.
  - ☐ D. Lime water is formed.

**Q.66** When a ray of light travels from a denser to a rarer medium, it will:

- Ans**
- ☒ A. bend towards the normal
  - ☒ B. bend away from the normal
  - ☒ C. have similar angles of incidence and refraction
  - ☒ D. not hold the phenomenon of refraction

**Q.67** Which of the following has the value of pH lower than that of pure water?

- Ans**
- ☒ A. Milk of magnesia
  - ☒ B. NaOH
  - ☒ C. Gastric juice
  - ☒ D.  $\text{NH}_4\text{OH}$

**Q.68** In plants the exchange of carbon dioxide and oxygen takes place by:

- Ans**
- ☒ A. osmosis
  - ☒ B. plasmolysis
  - ☒ C. diffusion
  - ☒ D. fermentation

**Q.69** Two resistors, each of  $20\ \Omega$ , are connected in parallel. The combination, in turn, is connected in series to a third resistor of  $20\ \Omega$  and a battery of 3 V. The power supplied by the battery is:

- Ans**
- ☒ A. 0.15 W
  - ☒ B. 0.30 W
  - ☒ C. 0.675 W
  - ☒ D. 1.35 W

**Q.70** Which of the following devices is NOT based on the heating effect of electric current?

Electric kettle, Electric bulb, Oven, Electric generator

- Ans**
- ☒ A. Electric kettle
  - ☒ B. Electric bulb
  - ☒ C. Oven
  - ☒ D. Electric generator

**Q.71** Which of the following molecular formulas is related to cyclic hydrocarbon?

- Ans**
- ☒ A.  $\text{C}_7\text{H}_{16}$
  - ☒ B.  $\text{C}_6\text{H}_{12}$
  - ☒ C.  $\text{C}_4\text{H}_{10}$
  - ☒ D.  $\text{C}_5\text{H}_{12}$

**Q.72** A beam of light parallel to the \_\_\_\_\_ of a concave mirror, after reflection, will pass through the principal focus.

- Ans**
- ☒ A. surface of mirror
  - ☒ B. principal axis
  - ☒ C. object on the principal axis
  - ☒ D. focal plane



Q.73 Which of the following is a two-carbon molecule?

- Ans
- ☐ A. Glucose
  - ☐ B. Lactic acid
  - ☐ C. Pyruvic acid
  - ☒ D. Ethanol

Q.74 A strong magnet is moved towards a stationary coil. The induced current in the coil is the minimum when the angle between the direction of motion of the magnet and the plane of the coil is \_\_\_\_\_.

- Ans
- ☒ A.  $0^\circ$
  - ☐ B.  $30^\circ$
  - ☐ C.  $60^\circ$
  - ☐ D.  $90^\circ$

Q.75 What is the primary purpose of rainwater harvesting?

- Ans
- ☒ A. Help each raindrop to seep into the ground
  - ☐ B. Collect pure fresh drinking water
  - ☐ C. Reduce dependence on municipality water
  - ☐ D. Promote drip irrigation

Q.76 Systolic pressure is a measure of \_\_\_\_\_.

- Ans
- ☐ A. ventricular relaxation
  - ☒ B. ventricular contraction
  - ☐ C. atrial relaxation
  - ☐ D. atrial contraction

Q.77 Which of the following aqueous solutions is formed when copper sulphate solution reacts with zinc metal?

- Ans
- ☐ A. Zinc oxide
  - ☐ B. Zinc sulphide
  - ☐ C. Zinc cuprite
  - ☒ D. Zinc sulphate

Q.78 When a photograph of Earth is taken from space its background looks dark because of:

- Ans
- ☐ A. no reflection of light
  - ☐ B. no refraction of light
  - ☐ C. no dispersion of light
  - ☒ D. no scattering of light

Q.79 Which of the following will NOT react with oxygen at high temperature?

- Ans
- ☐ A. Copper
  - ☒ B. Nichrome
  - ☐ C. Aluminium
  - ☐ D. Iron

**Q.80** In general, the oxides of metals are \_\_\_\_\_ in nature.

- Ans**
- ☐ A. acidic
  - ☒ B. basic
  - ☐ C. neutral
  - ☐ D. amphoteric

Section : General Awareness and Current Affairs

**Q.81** \_\_\_\_\_ of the Constitution of India lays down the qualifications for the membership of Parliament.

- Ans**
- ☐ A. Article 81
  - ☐ B. Article 82
  - ☐ C. Article 83
  - ☒ D. Article 84

**Q.82** As of March 2022, which of the following is the largest bank in private sector in India?

- Ans**
- ☐ A. Kotak Mahindra Bank Ltd
  - ☐ B. ICICI Bank
  - ☒ C. HDFC Bank
  - ☐ D. Axis Bank

**Q.83** As of 31 March 2022, the official language of the state of \_\_\_\_\_ is Hindi.

- Ans**
- ☒ A. Rajasthan
  - ☐ B. Arunachal Pradesh
  - ☐ C. Goa
  - ☐ D. Punjab

**Q.84** Vesak, the festival that is observed on the full-moon day of the lunar month of Vaisakha, which falls in April or May, is the festival for which religion?

- Ans**
- ☐ A. Sikhism
  - ☒ B. Buddhism
  - ☐ C. Jews
  - ☐ D. Jainism

**Q.85** Which of the following awards is given for significant contribution in the field of atomic energy?

- Ans**
- ☐ A. Shanti Swarup Bhatnagar Award
  - ☒ B. Homi Bhabha Award
  - ☐ C. Dr. B.C. Roy Award
  - ☐ D. Borlaug Award

**Q.86** In March 2022, the Karnataka Government announced the Vinaya Samarasya Yojana, an awareness programme meant to eradicate \_\_\_\_\_ in Gram Panchayats across the state.

- Ans**
- ☐ A. unemployment
  - ☒ B. untouchability
  - ☐ C. poverty
  - ☐ D. illiteracy

**Q.87** Which edition of 'Khelo India Youth Games' was held in June 2022?

- Ans**
- ☐ A. First
  - ☐ B. Second
  - ☐ C. Third
  - ☒ D. Fourth

**Q.88** Yajurveda is \_\_\_\_\_ fold.

- Ans**
- ☐ A. 4
  - ☒ B. 2
  - ☐ C. 3
  - ☐ D. 5

**Q.89** Which of the following statements about the Himalayas is INCORRECT?

- Ans**
- ☒ A. The Patkai hills lie between the lesser Himalayas and the Shiwaliks.
  - ☐ B. The outer-most range of the Himalayas is called the Shiwaliks.
  - ☐ C. The Brahmaputra marks the eastern-most boundary of the Himalayas.
  - ☐ D. The Kumaon Himalayas lie between the Satluj and Kali rivers.

**Q.90** Sri Bhagavan Mahavir Govt. Museum is located in:

- Ans**
- ☒ A. Andhra Pradesh
  - ☐ B. Karnataka
  - ☐ C. Maharashtra
  - ☐ D. New Delhi

**Q.91** According to the Ministry of New and Renewable Energy, out of the total estimated potential more than 95% of commercially exploitable wind resources are concentrated in how many states in India?

- Ans**
- ☒ A. Seven
  - ☐ B. Four
  - ☐ C. Three
  - ☐ D. Two

**Q.92** Where is India's first ever e-waste (electronic waste) clinic set up?

- Ans**
- ☒ A. Bhopal
  - ☐ B. Bengaluru
  - ☐ C. Hyderabad
  - ☐ D. Jaipur

**Q.93** In July 2021, which Government's Department of Women and Child Development (WCD) came up with a policy to define street children, and asked 10 of its agencies to identify and rehabilitate them?

- Ans**
- ☒ A. Delhi
  - ☐ B. Jammu and Kashmir
  - ☐ C. Punjab
  - ☐ D. West Bengal

**Q.94** The Industries (Development and Regulation) Act was enacted in \_\_\_\_\_ in India.

- Ans**
- ✓ A. 1951
  - ✗ B. 1953
  - ✗ C. 1954
  - ✗ D. 1957

**Q.95** In the month of March 2022, who was appointed as the Chairman of Air India?

- Ans**
- ✗ A. Ratan Tata
  - ✓ B. N Chandrasekaran
  - ✗ C. Adi Godrej
  - ✗ D. M Damodaran

**Q.96** Which plateau is spread across Rajasthan, Madhya Pradesh and Gujarat with an average altitude of 500 m?

- Ans**
- ✗ A. Deccan Plateau
  - ✓ B. Malwa Plateau
  - ✗ C. Chotanagpur Plateau
  - ✗ D. Marwar Plateau

**Q.97** Which of the following awards is given to Gram Panchayats/Village Councils for their outstanding contribution to the socio-economic development by involving Gram Sabhas?

- Ans**
- ✗ A. Deen Dayal Upadhyay Panchayat Sashaktikaran Puraskar (DDUPSP)
  - ✓ B. Nanaji Deshmukh Rashtriya Gaurav Gram Sabha Puraskar (NDRGGSP)
  - ✗ C. Gram Panchayat Development Plan Award (GPDPA)
  - ✗ D. Child-friendly Gram Panchayat Award (CFGPA)

**Q.98** In March 2022, which Indian cricketer broke Kapil Dev's record for the highest score by an Indian coming to bat at No. 7 or below in Test cricket by scoring an unbeaten 175 in the test match against Sri Lanka?

- Ans**
- ✓ A. Ravindra Jadeja
  - ✗ B. Rishabh Pant
  - ✗ C. Virat Kohli
  - ✗ D. Rohit Sharma

**Q.99** According to Constitution of India, which is NOT a fundamental duty of a citizen from following?

- Ans**
- ✗ A. To value and preserve the rich heritage of our composite culture
  - ✗ B. To defend the country and render national service when called upon to do so
  - ✓ C. To treat men and women equally, have the right to an adequate means of livelihood
  - ✗ D. To cherish and follow the noble ideals which inspired our national struggle for freedom

**Q.100** According to the Government budget of 2022-23, what is the estimated growth rate of the Indian economy for financial year 2022-23?

- Ans**
- ✗ A. 9.1%
  - ✓ B. 9.2%
  - ✗ C. 9.3%
  - ✗ D. 9.4%



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 14/09/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** The sum of the present ages of Bunty and Bubbly is 32 years. After 2 years, Bunty's age will be three times that of Bubbly. Bunty's present age (in years) is:

- Ans**
- ✓ A. 25
  - ✗ B. 20
  - ✗ C. 13
  - ✗ D. 7

**Q.2** A vendor offers successive discounts of 12% and 15% on an article whose marked price is ₹2,000. He earns a profit of 20% in the transaction. The cost price (rounded off to the nearest integer) of the article is:

- Ans**
- ✓ A. ₹1,247
  - ✗ B. ₹1,297
  - ✗ C. ₹1,347
  - ✗ D. ₹1,397

**Q.3** Which of the following numbers is a divisible by 8?

- Ans**
- ✗ A. 1245964
  - ✓ B. 1246864
  - ✗ C. 1247564
  - ✗ D. 1248164

**Q.4** Find the median of 4, 6, 6, 8, 8, 8, 10, 12.

- Ans**
- ✗ A. 6
  - ✗ B. 10
  - ✓ C. 8
  - ✗ D. 12

**Q.5** The volume (in  $\text{cm}^3$ ) of a wire of diameter 2 cm and length 7 m is:

Take  $\pi = \frac{22}{7}$

- Ans**
- ☒ A. 2200
  - ☐ B. 2400
  - ☐ C. 1200
  - ☐ D. 1100

**Q.6** A person sells an article for ₹1,820 and loses 9%. If he wants to sell it at a profit of 9%, the selling price of the article should be:

- Ans**
- ☐ A. ₹2,080
  - ☒ B. ₹2,180
  - ☐ C. ₹2,280
  - ☐ D. ₹2,480

**Q.7** Pipe A can fill a tank in 15 minutes, while pipe B can empty the completely filled tank in 20 minutes. Initially, pipe A is opened and after 5 minutes pipe B is also opened. In how much time (in minutes) will the remaining tank be filled completely?

- Ans**
- ☐ A. 20
  - ☐ B. 30
  - ☒ C. 40
  - ☐ D. 50

**Q.8** Manganese and aluminium are mixed in the ratio of 2 : 3 to make an alloy. The quantity (in kg) of aluminium required to be melted with 24 kg of manganese is \_\_\_\_\_.

- Ans**
- ☐ A. 12
  - ☒ B. 36
  - ☐ C. 48
  - ☐ D. 72

**Q.9** The internal surface area (in  $\text{m}^2$ ) of an open cuboidal tank whose internal length, internal breadth, and internal height are given as 6 m, 4 m, and 3 m, respectively, is:

- Ans**
- ☐ A. 72
  - ☒ B. 84
  - ☐ C. 108
  - ☐ D. 124

**Q.10** The value of  $\sqrt{0.04} + \sqrt{6.25} + \sqrt{12.25} - 8.2$  is \_\_\_\_\_.

- Ans**
- ☐ A. 2
  - ☐ B. 2.2
  - ☒ C. -2
  - ☐ D. -2.2

Q.11 Find the value of  $y$  if  $\frac{1}{(125)^{-y}} = \frac{1}{5^{-4y+1}}$ .

- Ans
- ☒ A.  $\frac{1}{3}$
  - ☒ B.  $-1$
  - ☒ C.  $5$
  - ☒ D.  $1$

Q.12 The value of  $(x - y)(x + y) + (y - z)(y + z) + (z + x)(z - x)$  is:

- Ans
- ☒ A.  $x + y + z$
  - ☒ B.  $0$
  - ☒ C.  $x^2 + y^2 + z^2$
  - ☒ D.  $1$

Q.13 In a triangle, if one angle measures twice the smallest angle and the third one measures three times the smallest angle, then the measure of the greatest angle is \_\_\_\_\_.

- Ans
- ☒ A.  $45^\circ$
  - ☒ B.  $30^\circ$
  - ☒ C.  $90^\circ$
  - ☒ D.  $120^\circ$

Q.14 The roots of the quadratic equation  $x^2 - 10x + 21 = 0$  are:

- Ans
- ☒ A.  $7, -3$
  - ☒ B.  $3, -7$
  - ☒ C.  $-7, -3$
  - ☒ D.  $7, 3$

Q.15 Find the number of sides of a regular polygon, each interior angle of which is  $90^\circ$ .

- Ans
- ☒ A.  $5$
  - ☒ B.  $8$
  - ☒ C.  $4$
  - ☒ D.  $3$

Q.16 The HCF of 2410 and 2700 is \_\_\_\_\_.

- Ans
- ☒ A.  $1$
  - ☒ B.  $2$
  - ☒ C.  $5$
  - ☒ D.  $10$

Q.17 When the price of a magazine was reduced by 30%, its sale increased by 70%. The net revenue:

- Ans
- ☒ A. increased by 19%
  - ☒ B. increased by 17%
  - ☒ C. decreased by 19%
  - ☒ D. decreased by 20%



**Q.18** Manjit is 2 years elder to his friend Ranjit. Manjit's father is twice as old as Manjit and Ranjit is twice as old as his sister. The ages of Manjit's father and Ranjit's sister differ by 43 years. The ages of Manjit and Ranjit, respectively, are:

- Ans**
- ☐ A. 26 and 24
  - ☒ B. 28 and 26
  - ☐ C. 36 and 34
  - ☐ D. 38 and 36

**Q.19** X is twice as good a workman as Y and together they finish a piece of work in 14 days. In how many days will X alone finish the work?

- Ans**
- ☐ A. 28 days
  - ☒ B. 21 days
  - ☐ C. 20 days
  - ☐ D. 22 days

**Q.20** Simplify  $\frac{6+6 \times 6}{3 \times 3 + 5} \div \frac{\frac{1}{2} \div \frac{1}{2} \text{ of } \frac{1}{2}}{\frac{1}{2} \div \frac{1}{2} \times \frac{1}{2}}$ .

- Ans**
- ☐ A. 3
  - ☒ B.  $\frac{3}{4}$
  - ☐ C.  $\frac{4}{3}$
  - ☐ D.  $\frac{1}{3}$

**Q.21** At what rate per cent per annum will a certain sum of money double itself in 2 years, the interest being compounded annually? [Give your answer correct to 1 decimal place.]

- Ans**
- ☐ A. 44.4%
  - ☒ B. 41.4%
  - ☐ C. 40.4%
  - ☐ D. 39.4%

**Q.22** The quadratic equation whose roots are 3 and  $\frac{1}{3}$  is:

- Ans**
- ☐ A.  $3x^2 + 10x + 3 = 0$
  - ☐ B.  $3x^2 + 10x - 3 = 0$
  - ☒ C.  $3x^2 - 10x + 3 = 0$
  - ☐ D.  $3x^2 - 10x - 3 = 0$

**Q.23** What is the value of  $k$  if  $\frac{2^{-2k} \times 4^{k+3}}{4^{-k+2}} = 2^{k-2}$

- Ans**
- ☐ A. 1
  - ☐ B. 2
  - ☐ C. -1
  - ☒ D. -4



Q.24 If  $\cos\theta = \frac{x}{\sin\theta}$ , then the value of  $\sin^6\theta + \cos^6\theta =$  \_\_\_\_\_.

- Ans
- ☒ A. 0
  - ☒ B. 1
  - ☒ C.  $3x^2 - 1$
  - ☒ D.  $1 - 3x^2$

Q.25 What is the mode of the data given below? [Give your answer correct to 2 decimal places.]

| Age in years    | 15-25 | 25-35 | 35-45 | 45-55 | 55-65 | 65-75 | 75-85 |
|-----------------|-------|-------|-------|-------|-------|-------|-------|
| No. of patients | 12    | 18    | 20    | 25    | 30    | 20    | 15    |

- Ans
- ☒ A. 58.33
  - ☒ B. 55.33
  - ☒ C. 63.33
  - ☒ D. 57.33

### Section : General Intelligence and Reasoning

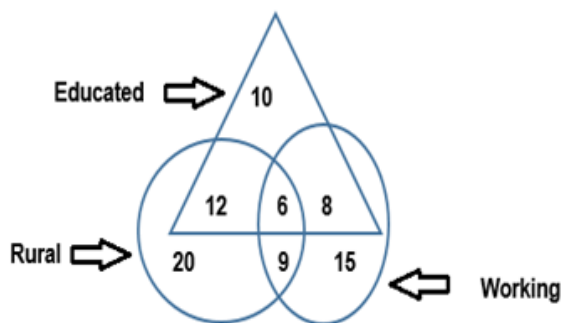
Q.26 Which of the following terms will replace the question mark (?) in the given series to make it logically complete?

PJC13, KEX20, FZS27, AUN34, ?

- Ans
- ☒ A. VIP41
  - ☒ B. VPI41
  - ☒ C. PVI39
  - ☒ D. PST39

Q.27 Study the given diagram carefully and answer the question that follows.

The numbers in different sections indicate the number of people.



How many people are both Educated and Working but not Rural ?

- Ans
- ☒ A. 8
  - ☒ B. 6
  - ☒ C. 9
  - ☒ D. 14

**Q.28** Read the given statement and the arguments carefully and select the appropriate answer from the given options.

Statement:

Fake news has become a problem of the 21<sup>st</sup> century over the globe.

Arguments:

- I. A global level mechanism is needed to combat this worldwide problem.
- II. Problems related to fake news are only present in India.

**Ans** ☒ A. I weakens while II strengthens the statement.  
☒ B. II weakens while I strengthens the statement.  
☒ C. Both I and II weaken the statement.  
☒ D. Both I and II strengthen the statement.

**Q.29** In a certain code language, 'RAPID' is written as 'ARPDI' and 'LOCAL' is written as 'OLCLA'. How will 'NEVER' be written in that language?

**Ans** ☒ A. EVNRE  
☒ B. ENVRE  
☒ C. ENEVR  
☒ D. ENVER

**Q.30** What will come in the place of the question mark (?) in the following equation, if '+' and '-' are interchanged and also '×' and '÷' are interchanged?

$$12 \times 6 + 9 - 3 + 2 = ?$$

**Ans** ☒ A. 19  
☒ B. 18  
☒ C. 28  
☒ D. 29

**Q.31** If 5 August 2012 is a Sunday, then what will be the day of the week on 17 September 2015?

**Ans** ☒ A. Monday  
☒ B. Tuesday  
☒ C. Wednesday  
☒ D. Thursday

**Q.32** If 1 is added to the first digits and 1 is subtracted from the last digits of each of the following numbers, then in how many numbers will the first digit be exactly divisible by the last digit?

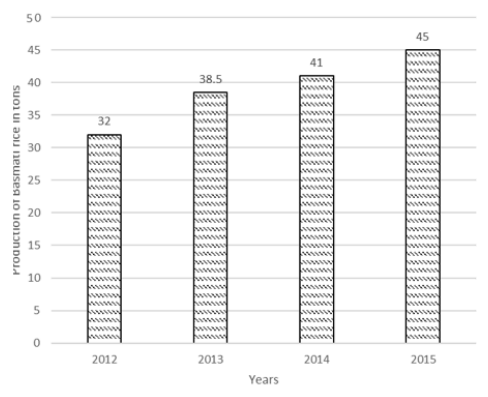
242, 657, 864, 264, 674, 218, 845

**Ans** ☒ A. 0  
☒ B. 1  
☒ C. 2  
☒ D. 3

**Q.33** P, R, T, V and W live on different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it is numbered 2, and so on till the topmost floor is numbered 5. V lives on the floor immediately below W. P lives on the floor immediately above T. R lives on the floor immediately above P. W lives on the floor immediately below T. Who lives on the third floor?

**Ans** ☒ A. R  
☒ B. P  
☒ C. T  
☒ D. W

- Q.34** The following bar graph shows the production of Basmati rice (in tons) over the years. Based on the following graph answer the question below.



What is the approximate percentage increase in Basmati rice production in 2015 as compared to Basmati rice production in 2012?

- Ans**
- ☒ A. 28.4%
  - ☒ B. 48.38%
  - ☒ C. 40.6%
  - ☒ D. 28.12%

- Q.35** Refer to the following letter series and answer the question.

(Left) T B Y M R E S I C X Z O W A Q D F H G U K (Right)

Which letter is fifth to the right of the twelfth letter from your right end of the given series?

- Ans**
- ☒ A. R
  - ☒ B. X
  - ☒ C. Q
  - ☒ D. W

- Q.36** If each of the digits in the number 354698329 is arranged in ascending order from left to right, then the position of how many digits will change as compared to that in the original number?

- Ans**
- ☒ A. 6
  - ☒ B. 8
  - ☒ C. 5
  - ☒ D. 4

- Q.37** In a certain code language, 'STRAIGHT' is written as 'TUSAIHIU' and 'TAKEOVER' is written as 'UBLEOWFS'. How will 'TENDENCY' be written in that language?

- Ans**
- ☒ A. UFODEODZ
  - ☒ B. UFPDEODZ
  - ☒ C. UFOEDODZ
  - ☒ D. UFODEOEZ

- Q.38** Which of the following numbers will replace the question mark (?) in the given series?

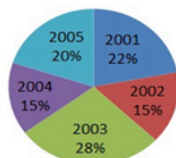
12, 14, 18, 26, 42, ?

- Ans**
- ☒ A. 72
  - ☒ B. 74
  - ☒ C. 78
  - ☒ D. 76

- Q.39** Seven people, P, Q, R, S, T, U, and V are sitting in a straight line, facing north. Exactly two people are sitting to the left of T. Q is sitting second to the right of R who is to the immediate right of someone at the end. Only three people are sitting between T and P. Q is not an immediate neighbour of P. S is sitting to the immediate right of U. Who is sitting at the extreme left end of the line?

**Ans** ☒ A. V  
☒ B. P  
☒ C. S  
☒ D. U

- Q.40** The given pie chart shows the sales of a company over five years. Study the chart and answer the question.



Total sale in five years = ₹50,00,000

Sale = expenditure + profit

Profit % = (profit/expenditure) x 100 %

If profit of the company in 2005 was 25%, then find the expenditure in 2005?

**Ans** ☒ A. ₹8,00,000  
☒ B. ₹7,50,000  
☒ C. ₹62,500  
☒ D. ₹7,20,000

- Q.41** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

ABC : EFG

PQR : TUV

**Ans** ☒ A. PKL : RSM  
☒ B. MNO : PQR  
☒ C. GHI : DEF  
☒ D. XYZ : BCD

- Q.42** Read the given statement(s) and conclusions carefully and decide which of the conclusions logically follow(s) from the statement(s).

Statement:

$C = A \leq S < H \leq I = G$

Conclusions:

I.  $G \geq S$

II.  $C < H$

**Ans** ☒ A. Only conclusion I follows  
☒ B. Either conclusion I or II follows  
☒ C. Neither conclusion I nor II follows  
☒ D. Only conclusion II follows

**Q.43** Select the number from among the given options that can replace the question mark (?) in the following series.

7, 23, ?, 79, 119, 167

- Ans**
- ☒ A. 39
  - ☒ B. 47
  - ☒ C. 52
  - ☒ D. 61

**Q.44** Each of students, D, F, G, H, S, T and V has an exam on a different day of a week starting from Monday and ending on Sunday of the same week but not necessarily in the same order. D's exam is on the day immediately before G's exam. V's exam is on the day immediately after T's exam. Only one student has exam between D and F. V's exam is on Wednesday and H's exam is on Friday. F's exam is neither on Monday nor on Saturday. Who has exam on Thursday?

- Ans**
- ☒ A. F
  - ☒ B. D
  - ☒ C. G
  - ☒ D. V

**Q.45** This question is based on the five, three-digit numbers given below:

(Left) 876 643 453 974 227 (Right)

(Example: 697 – First digit = 6, second digit = 9 and third digit = 7)

(NOTE - All operations to be done from left to right.)

If all the numbers of the given series are arranged in descending order, the position of which of the following numbers will remain unchanged?

- Ans**
- ☒ A. 876
  - ☒ B. 643
  - ☒ C. 453
  - ☒ D. 227

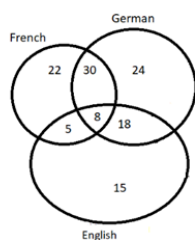
**Q.46** Sapna went 2 km straight from her office in the west direction then took a right turn and travelled 4 km. She again turned right and travelled 5 km and then turned left and reached home after travelling 1 km. Which direction was she facing when reached home?

- Ans**
- ☒ A. North
  - ☒ B. West
  - ☒ C. East
  - ☒ D. South

**Q.47** Five people, A, D, E, F and K, are sitting around a circular table facing the centre. A is the immediate neighbour of D and E. F is the immediate neighbour of E and K. Who is the immediate neighbour of both A and F?

- Ans**
- ☒ A. D
  - ☒ B. E
  - ☒ C. K
  - ☒ D. B

- Q.48** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of people with knowledge of different languages – French, German and English.



How many people know at least two languages?

- Ans** ☒ A. 53  
☒ B. 61  
☒ C. 35  
☒ D. 23

- Q.49** Six boxes, D, E, F, G, H, and I, are kept one over the other but not necessarily in the same order.

Only two boxes are kept between D and I. D is kept at the third place from the top. Only one box is between E and I. Also, there is only one box between E and F. Which box is kept at the third place from the bottom?

- Ans** ☒ A. E  
☒ B. F  
☒ C. H  
☒ D. G

- Q.50** Amongst six friends O, P, Q, R, S and T, each has a different height. P is taller than O. Q is taller than S but shorter than O. R is shorter than S but taller than T. Who is the tallest among all the friends?

- Ans** ☒ A. O  
☒ B. P  
☒ C. Q  
☒ D. R

- Q.51** Select the option that is related to the seventh number in the same way as the second number is related to the first number, the fourth number is related to the third number and the sixth number is related to the fifth number.

27 : 13 :: 65 : 32 :: 71 : 35 :: 51 : ?

- Ans** ☒ A. 26  
☒ B. 25  
☒ C. 17  
☒ D. 15

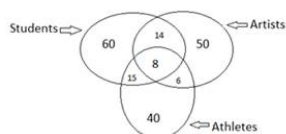
- Q.52** If each digit of the number 72514368 is subtracted from 9, how many even digits will be there in the newly formed number?

- Ans** ☒ A. 6  
☒ B. 5  
☒ C. 4  
☒ D. 3

- Q.53** When asked about the direction of the stadium from the bus stop, Akhil said, "One must walk 100 m towards the south. Then one must take a left turn and walk 120 m. Then one must take a left turn again and walk 370 m. Then, again, one must take a left turn and walk 400 m. Then one must take a left turn again and walk 370 m. Then, again, one must take a left turn and walk 110 m. Finally, one must take one last left turn and walk 100 m to reach the stadium". How far and in which direction is the stadium from the bus stop? (All turns are 90 degree turns only)

**Ans** ☒ A. 170 m, East  
☒ B. 170 m, West  
☒ C. 140 m, East  
☒ D. 140 m, West

- Q.54** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



How many people are Students but neither Artists nor Athletes?

**Ans** ☒ A. 40  
☒ B. 60  
☒ C. 14  
☒ D. 15

- Q.55** Select the set in which the numbers are related in the same way as are the numbers of the following sets.  
 (NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(28, 33, 48)  
 (67, 72, 87)

**Ans** ☒ A. (125, 150, 165)  
☒ B. (25, 38, 43)  
☒ C. (57, 72, 82)  
☒ D. (29, 34, 49)

#### Section : General Science

- Q.56** What is the solid product formed when ferrous sulphate is heated?

**Ans** ☒ A. Ferrous oxide  
☒ B. Iron  
☒ C. Ferric oxide  
☒ D. Ferrous sulphide

- Q.57** Which of the following foods is called a 'body-building' food?

**Ans** ☒ A. Food rich in proteins, like peas  
☒ B. Food rich in vitamins, like apples  
☒ C. Food rich in fats, like butter  
☒ D. Food rich in carbohydrates, like wheat

**Q.58** If the induced current in the coil of a conductor of resistance  $4\ \Omega$  is  $1\ \text{mA}$ , then EMF induced in the coil is:

- Ans**
- ☐ A.  $1\ \text{mV}$
  - ☐ B.  $1\ \text{V}$
  - ☒ C.  $4\ \text{mV}$
  - ☐ D.  $4\ \text{V}$

**Q.59** If the current and potential difference are tripled in a circuit, keeping the resistance constant, then power will increase:

- Ans**
- ☐ A. Three fold
  - ☐ B. One third
  - ☐ C. six fold
  - ☒ D. nine fold

**Q.60** When a bar magnet is used as a source of constant magnetic field, the direction of the magnetic field is:

- Ans**
- ☐ A. from south pole to the north pole of the magnet
  - ☒ B. from north pole to the south pole of the magnet
  - ☐ C. normal to the length of the magnet
  - ☐ D. normal to the south pole of the magnet

**Q.61** The bond generally NOT found in carbon compounds is:

- Ans**
- ☐ A. single bond
  - ☐ B. double bond
  - ☐ C. triple bond
  - ☒ D. ionic bond

**Q.62** Which of the following statements is correct with respect to phloem?

- Ans**
- ☐ A. Sieve tubes in phloem are made up of dead cells.
  - ☒ B. Phloem carries photosynthetic products from leaves to other plant parts.
  - ☐ C. Phloem transport is uni-directional.
  - ☐ D. Companion cells of phloem have perforated walls.

**Q.63** Which set of three elements does NOT constitute a Dobereiner's triad?

- Ans**
- ☐ A. Li, Na, K
  - ☐ B. Ca, Sr, Ba
  - ☐ C. Cl, Br, I
  - ☒ D. Fe, Co, Ni

**Q.64** Which compound is used for faster cooking?

- Ans**
- ☐ A.  $\text{CaOCl}_2$
  - ☐ B.  $\text{NaOH}$
  - ☐ C.  $\text{Na}_2\text{CO}_3$
  - ☒ D.  $\text{NaHCO}_3$



**Q.65** The correct relation between P, V and R is:

**Ans**

☐ A.  $V = \frac{P}{R}$

☐ B.  $P = \frac{V^2}{R^2}$

☒ C.  $P = \frac{V^2}{R}$

☐ D.  $P = V^2 R$

**Q.66** If an object is placed at 20 cm from a convex mirror of focal length 30 cm, the image will be formed at \_\_\_\_\_.

**Ans**

☐ A. -16 cm

☐ B. -12 cm

☐ C. +6 cm

☒ D. +12 cm

**Q.67** If the size of a spherical mirror increases in such a way that its radius of curvature gets doubled, then its focal length will \_\_\_\_\_.

**Ans**

☐ A. become infinite

☒ B. increase to double

☐ C. decrease by its half

☐ D. remain same

**Q.68** Which of the following compounds has the highest boiling point?

**Ans**

☐ A.  $\text{CHCl}_3$

☒ B.  $\text{CH}_3\text{COOH}$

☐ C.  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_3$

☐ D.  $\text{CH}_3\text{CH}_2\text{OH}$

**Q.69** The different points mentioned below constitute Reproductive Health. Select the INCORRECT option.

**Ans**

☐ A. Knowledge of reproductive processes and organs

☐ B. Safe and effective family planning methods

☒ C. Determining the sex of the unborn child

☐ D. Prevention of Sexually transmitted diseases

**Q.70** Which of the following chemicals is used in black and white photography?

**Ans**

☐ A. Silver oxide

☐ B. Sodium chloride

☐ C. Sodium oxide

☒ D. Silver bromide

**Q.71** Which of the following is the least important reason for building a large dam?

- Ans**
- ☒ A. Guaranteed supply of water for households
  - ☒ B. Renewable source of electricity for a region
  - ☒ C. Control of flooding in downstream areas
  - ☒ D. Site for boating, fishing and picnics for families

**Q.72** \_\_\_\_\_ are responsible for the determination of sex.

- Ans**
- ☒ A. Allosomes
  - ☒ B. Autosomes
  - ☒ C. Pleiotropic genes
  - ☒ D. Germ cells

**Q.73** A beam of white light passes through a glass prism and a spectrum is obtained. Which of the following colour components bends the least?

Yellow, Orange, Blue, Violet

- Ans**
- ☒ A. Yellow
  - ☒ B. Orange
  - ☒ C. Blue
  - ☒ D. Violet

**Q.74** Which chemical can be used for making germ-free drinking water?

- Ans**
- ☒ A. NaOH
  - ☒ B. CaOCl<sub>2</sub>
  - ☒ C. Ca(OH)<sub>2</sub>
  - ☒ D. NH<sub>4</sub>OH

**Q.75** Why is deoxygenated blood kept separate from oxygenated blood in the hearts of some animals like human beings?

- Ans**
- ☒ A. To help in keeping the body temperature constant
  - ☒ B. To maximise oxygenation of blood in the lungs
  - ☒ C. To provide oxygen to a large-bodied animal
  - ☒ D. To help in the growth and functioning of muscles

**Q.76** When a graph is plotted between V and I:

- Ans**
- ☒ A. a curved graph is obtained
  - ☒ B. a horizontal straight line is obtained
  - ☒ C. an inclined straight line is obtained
  - ☒ D. a vertical straight line is obtained

**Q.77** Sardar Sarovar Dam stands on which river?

- Ans**
- ☒ A. Narmada
  - ☒ B. Godavari
  - ☒ C. Krishna
  - ☒ D. Brahmaputra

**Q.78** In the Newlands' arrangement of elements in the increasing order of their atomic masses, the last element was:

- Ans**
- ☒ A. Th
  - ☐ B. He
  - ☐ C. H
  - ☐ D. Mg

**Q.79** If the magnification of an image is  $-0.65$ , then the nature of the image is:

- Ans**
- ☐ A. virtual, erect and enlarged
  - ☐ B. real, erect and smaller
  - ☒ C. real, inverted and smaller
  - ☐ D. real, inverted and enlarged

**Q.80** Which of the following animals have two-chambered heart?

- Ans**
- ☐ A. Mammals
  - ☐ B. Birds
  - ☐ C. Reptiles
  - ☒ D. Fishes

Section : General Awareness and Current Affairs

**Q.81** In the month of March 2022, who was given the captaincy of Royal Challengers Bangalore for IPL 2022?

- Ans**
- ☒ A. Faf du Plessis
  - ☐ B. Virat Kohli
  - ☐ C. Glenn Maxwell
  - ☐ D. Finn Allen

**Q.82** What is the time limit set to complete probe from day of registration of complaint under the Shakti Criminal Laws (Maharashtra Amendment Bill), 2020 cleared by Maharashtra Assembly in December 2021?

- Ans**
- ☐ A. 10 Days
  - ☐ B. 15 Days
  - ☐ C. 21 Days
  - ☒ D. 30 Days

**Q.83** In which year was the nationalisation of banks done by the Government of India?

- Ans**
- ☐ A. 1967
  - ☐ B. 1968
  - ☒ C. 1969
  - ☐ D. 1970

**Q.84** Vardhamana Mahavira was the \_\_\_\_\_ Tirthankara of Jainism.

- Ans**
- ☒ A. 24<sup>th</sup>
  - ☐ B. 20<sup>th</sup>
  - ☐ C. 2<sup>nd</sup>
  - ☐ D. 5<sup>th</sup>

**Q.85** The English and Foreign Languages University located in Hyderabad was founded in the year \_\_\_\_\_.

- Ans**
- ☐ A. 1947
  - ☐ B. 1950
  - ☐ C. 1952
  - ☒ D. 1958

**Q.86** Genital herpes infection is caused by:

- Ans**
- ☒ A. virus
  - ☐ B. bacteria
  - ☐ C. protozoa
  - ☐ D. fungus

**Q.87** Anamudi mountain is located in which of the following states?

- Ans**
- ☐ A. Tamil Nadu
  - ☒ B. Kerala
  - ☐ C. Karnataka
  - ☐ D. Telangana

**Q.88** In the cabinet of which Prime Minister of India, Dr. Manmohan Singh became the finance minister for the first time?

- Ans**
- ☐ A. Vishwanath Pratap Singh
  - ☐ B. Rajiv Gandhi
  - ☐ C. Indira Gandhi
  - ☒ D. PV Narasimha Rao

**Q.89** As of July 2022, who among the following is the CEO of Teach for India, an educational non-profit organisation that runs a two year fellowship program and alumni network to foster educational excellence and leadership in India?

- Ans**
- ☐ A. Pallavi Rane
  - ☐ B. Anika Parashar
  - ☒ C. Shaheen Mistri
  - ☐ D. Sohini Bhattacharya

**Q.90** As per the Indian Minerals Yearbook 2020 released by the Indian Bureau of Mines, at \_\_\_\_\_, Gujarat was the leading producer of salt in India in the year 2019-20.

- Ans**
- ☐ A. 88.59%
  - ☒ B. 81.45%
  - ☐ C. 77.96%
  - ☐ D. 86.83%

**Q.91** What is the quorum to constitute a sitting of the Lok Sabha?

- Ans**
- ☐ A. One-fourth of the total number of Members of the House
  - ☐ B. One-fifth of the total number of Members of the House
  - ☒ C. One-tenth of the total number of Members of the House
  - ☐ D. Half of the total number of Members of the House

Q.92

The tenure of the chairman of the IPO-bound Life Insurance Corporation (LIC) has been extended by one more year by the government, till March 2023. Who is the chairman of LIC?

Ans

- ☐ A. Raj Kumar
- ☐ B. Arun Kumar Anand
- ☒ C. Mangalam Ramasubramanian Kumar
- ☐ D. Tablesh Pandey

Q.93

Which of the following is NOT a fundamental right in the Constitution of India?

Ans

- ☐ A. Right to Equality
- ☐ B. Right to Freedom
- ☐ C. Right to Constitutional Remedies
- ☒ D. Right to Acquire Property

Q.94

The National Bank for Agriculture and Rural Development (NABARD) launched the 'JIVA' programme' in February 2022 to promote \_\_\_\_\_.

Ans

- ☐ A. forest gardening
- ☐ B. dairy farming
- ☐ C. horticulture
- ☒ D. natural farming

Q.95

In which of the following states of India is 'Sazo' festival celebrated?

Ans

- ☐ A. Jharkhand
- ☒ B. Himachal Pradesh
- ☐ C. Telangana
- ☐ D. Karnataka

Q.96

Who among the following was one of the founders of the Congress Socialist Party which was founded in 1934?

Ans

- ☐ A. Jyotiba Phule
- ☐ B. Jatindra Nath Das
- ☒ C. Jay Prakash Narayan
- ☐ D. Khan Abdul Ghaffar Khan

Q.97

Which of the following rivers does not flow in Punjab?

Ans

- ☐ A. Beas
- ☐ B. Ravi
- ☐ C. Chenab
- ☒ D. Brahmani

**Q.98** As per the Union Budget of India 2022-23, India's economic growth is estimated to be \_\_\_\_\_.

- Ans**
- ☒ A. 7.3%
  - ☒ B. 8.6%
  - ☒ C. 9.2%
  - ☒ D. 10.4%

**Q.99** Who among the following won the silver in the World Athletics Championship - 2022?

- Ans**
- ☒ A. Neeraj Chopra
  - ☒ B. Priyanka Goswami
  - ☒ C. Avinash Sable
  - ☒ D. Mira bai Chanu

**Q.100** Which of the following states in India has no Panchayati Raj institution?

- Ans**
- ☒ A. West Bengal
  - ☒ B. Assam
  - ☒ C. Meghalaya
  - ☒ D. Tripura



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 14/09/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** An alloy is made of aluminium and nickel in the ratio 3 : 4. The quantity (in kg) of nickel required to be melted with 36 kg of aluminium is \_\_\_\_\_.

- Ans**
- ☒ A. 18
  - ☒ B. 3
  - ☒ C. 48
  - ☒ D. 32

**Q.2** Farah got married 8 years ago. Today her age is  $\frac{9}{7}$  times her age at the time of her marriage. At present her daughter's age is  $\frac{1}{6}$  of her age. Her daughter's age 3 years ago was:

- Ans**
- ☒ A. 3 years
  - ☒ B. 6 years
  - ☒ C. 9 years
  - ☒ D. 12 years

**Q.3** Find the cost of tiling the verandah, at the rate of ₹ 24 per m<sup>2</sup>, if the length and breadth of the verandah are in the ratio 3 : 1 and its perimeter is 40 m.

- Ans**
- ☒ A. ₹ 1,700
  - ☒ B. ₹ 1,800
  - ☒ C. ₹ 1,600
  - ☒ D. ₹ 1,900

**Q.4** Simplify  $12 \text{ of } 3 - 24 \text{ of } 4 \div 12$ .

- Ans**
- ☒ A. -5
  - ☒ B. 4
  - ☒ C. 5
  - ☒ D. 28

**Q.5** m and n are two parallel lines. If l is a transversal intersecting m and n, then the sum of the interior angles formed on the same side of l is equal to:

- Ans**
- ☒ A.  $90^\circ$
  - ☒ B.  $180^\circ$
  - ☒ C.  $270^\circ$
  - ☒ D.  $360^\circ$

**Q.6** 25% of a number is 1320. Find 35% of the same number.

- Ans**
- ☒ A. 1260
  - ☒ B. 1166
  - ☒ C. 1644
  - ☒ D. 1848

**Q.7** The average of the all natural numbers between 12 and 39 which are divisible by 5 is \_\_\_\_\_.

- Ans**
- ☒ A. 25.5
  - ☒ B. 21
  - ☒ C. 25
  - ☒ D. 28

**Q.8** If  $\frac{5^{3n+2}}{5^{4n-1}} = 25$ , then n = \_\_\_\_\_.

- Ans**
- ☒ A. 5
  - ☒ B. -1
  - ☒ C. 2
  - ☒ D. 1

**Q.9** Two numbers are in the ratio 11 : 17 and the difference between the numbers is 18. The HCF and the LCM of these numbers, respectively, are:

- Ans**
- ☒ A. 9 and 567
  - ☒ B. 5 and 569
  - ☒ C. 3 and 561
  - ☒ D. 7 and 563

**Q.10** A train goes from A to B at a speed of 20 km/h and returns from B to A by the same route at 30 km/h. The average speed (in km/h) of the train during the two-way journey is:

- Ans**
- ☒ A. 22
  - ☒ B. 23
  - ☒ C. 24
  - ☒ D. 25

**Q.11** The roots of the quadratic equation  $x^2 + 10x + 21 = 0$  are:

- Ans**
- ☒ A. 7, -3
  - ☒ B. 3, -7
  - ☒ C. -3, -7
  - ☒ D. 7, 3



**Q.12** The value of  $2\sqrt{2}\sin 45^\circ \sin 30^\circ + 2\sqrt{3}\cos 60^\circ \tan 60^\circ - \sin 90^\circ$  is \_\_\_\_\_.

- Ans**
- ☐ A. 0
  - ☐ B. 1
  - ☐ C. -1
  - ☒ D. 3

**Q.13** The value of  $(625)^{-1/2}$  is \_\_\_\_\_.

- Ans**
- ☐ A. 25
  - ☐ B. 0.25
  - ☒ C. 0.04
  - ☐ D. 2.5

**Q.14** If  $\frac{196}{0.196} = \frac{19.6}{n}$ , then the value of  $n$  = \_\_\_\_\_.

- Ans**
- ☐ A. 0.196
  - ☐ B. 0.00196
  - ☒ C. 0.0196
  - ☐ D. 1.96

**Q.15** If the interest on a sum of ₹  $y$  at 4% per annum compounded annually for 2 years is ₹612, then the total amount payable at the end of the two-year period will be \_\_\_\_\_.

- Ans**
- ☐ A. ₹8,002
  - ☒ B. ₹8,112
  - ☐ C. ₹8,262
  - ☐ D. ₹7,812

**Q.16** A and B can do a piece of work in 12 days and 8 days, respectively. The number of days required to complete the work if both A and B work together is:

- Ans**
- ☐ A. 2.4
  - ☐ B. 3.2
  - ☒ C. 4.8
  - ☐ D. 6.4

**Q.17** If the lengths of the sides of a triangle are  $x + 1$ ,  $7 - x$  and  $4x - 2$ , then the value of  $x$  for which the triangle represents an isosceles triangle is \_\_\_\_\_.

- Ans**
- ☐ A. 2.4
  - ☐ B. 1
  - ☒ C. 1.8
  - ☐ D. 3

**Q.18** The LCM of two numbers is 1260 and their HCF is 30. If one of the two numbers is 180, find the other number.

- Ans**
- ☐ A. 200
  - ☒ B. 210
  - ☐ C. 240
  - ☐ D. 270

**Q.19** Find the volume (in  $\text{cm}^3$ ) of a sphere having a diameter of 8 cm, giving your answer correct to two places of decimal.

Take  $\pi = \frac{22}{7}$

- Ans**
- ☐ A. 248.19
  - ☐ B. 258.19
  - ☒ C. 268.19
  - ☐ D. 278.19

**Q.20** The value of  $\sqrt{190 + \sqrt{11 + \sqrt{617 + 8}}}$  is \_\_\_\_\_.

- Ans**
- ☐ A. 12
  - ☐ B. 16
  - ☐ C. 13
  - ☒ D. 14

**Q.21** The roots of  $6 - 4x^2 + 5x = 0$  are:

- Ans**
- ☐ A.  $-2, -\frac{3}{4}$
  - ☐ B.  $2, \frac{3}{4}$
  - ☒ C.  $2, -\frac{3}{4}$
  - ☐ D.  $-2, \frac{3}{4}$

**Q.22** A train travels at an average speed of 30 miles per hour for  $2\frac{1}{2}$  hours and then travels at a speed of 60 miles per hour for  $1\frac{1}{2}$  hours. The total distance (in miles) covered by the train is \_\_\_\_\_.

- Ans**
- ☐ A. 90
  - ☐ B. 180
  - ☒ C. 165
  - ☐ D. 135

**Q.23** ABCD is a quadrilateral in which P, Q, R and S are mid-points of the sides AB, BC, CD and DA, respectively. The quadrilateral PQRS is necessarily a:

- Ans**
- ☐ A. rectangle
  - ☐ B. Trapezium, but not a parallelogram
  - ☐ C. rhombus
  - ☒ D. parallelogram

**Q.24** A dishonest vendor claims that he is selling goods at their cost price. But he is weighing 850 grams for 1000 grams. What is his profit percentage (rounded off to 2 decimal places)?

- Ans**
- ☐ A. 14.65%
  - ☐ B. 15.65%
  - ☐ C. 16.65%
  - ☒ D. 17.65%

**Q.25** A shopkeeper offered a machine at a discount of 10% after setting its marked price at 10% above the cost price. His loss percentage is \_\_\_\_\_.

- Ans**
- ☒ A. 10%
  - ☒ B. 9.8%
  - ☒ C. 7.8%
  - ☒ D. 1%

Section : **General Intelligence and Reasoning**

**Q.26** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(10, 144)

(17,361)

- Ans**
- ☒ A. (12, 169)
  - ☒ B. (9, 100)
  - ☒ C. (21, 529)
  - ☒ D. (11, 144)

**Q.27** Three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

Statements:

1. All pens are sketch-pens.
2. Some sketch-pens are markers.
3. No marker is a drawing.

Conclusions:

- I. Some drawings are markers.
- II. No pen is a drawing.
- III. Some sketch-pens are pens.

- Ans**
- ☒ A. Only conclusions I and II follow
  - ☒ B. Only conclusions II and III follow
  - ☒ C. Only conclusion I follows
  - ☒ D. Only conclusions III follows

**Q.28** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

All TVs are radios.

Some radios are mobiles.

All mobiles are pen drives.

Conclusions:

(I) Some radios are pen drives.

(II) Some TVs are mobiles.

- Ans**
- ✓ A. Only conclusion I follows
  - ✗ B. Only conclusion II follows
  - ✗ C. Neither conclusion I nor II follow
  - ✗ D. Both conclusions I and II follow

**Q.29** Five persons are sitting in a straight row, facing North. K and N are sitting at the two extreme ends. R is sitting to the immediate left of L. M is sitting to the immediate left of N. K and L are the immediate neighbours of R. What is R's position when counted from the extreme left end?

- Ans**
- ✓ A. Second
  - ✗ B. Third
  - ✗ C. Fourth
  - ✗ D. Fifth

**Q.30** In the given question, the statement is followed by two conclusions. Which of the two conclusion(s) is/are true based on the given statement?

Statement:  $B = T < E \leq G > H > Q$

Conclusions: I.  $G > B$

II.  $G > Q$

- Ans**
- ✗ A. Only conclusion I is true
  - ✗ B. Only conclusion II is true
  - ✗ C. Neither conclusion I nor II is true
  - ✓ D. Both conclusions I and II are true

**Q.31** Read the given statement and the arguments carefully and select the appropriate answer from the given options.

**Statement:**

Farmers in Village X should switch to crops that require comparatively less water for irrigation as compared to sugarcane.

**Arguments:**

- I. Availability of water for irrigation has been on a constant decline in Village X for last few years.
- II. Main source of income of farmers in Village X is through sale of sugarcane crop to the nearby sugar factories.

- Ans**
- ✗ A. I weakens while II strengthens the statement.
  - ✗ B. II weakens while I strengthens the statement.
  - ✗ C. Both I and II weaken the statement.
  - ✓ D. Both I and II strengthen the statement.

**Q.32** Seven boxes, O, P, Q, R, S, T and U, are kept one over the other, but not necessarily in the same order. Only four boxes are between Q and P. U is exactly in the middle of the pile. R is immediately below Q. S is exactly third from the bottom. Only T is between S and P. Q is immediately below O. Which box is at the top-most position?

- Ans**
- ☒ A. Q
  - ☒ B. O
  - ☒ C. R
  - ☒ D. P

**Q.33** In a row of people all facing north, Mohit is at 20<sup>th</sup> position from the extreme left end and 30<sup>th</sup> from the extreme right end of the row. How many people are there in the row?

- Ans**
- ☒ A. 40
  - ☒ B. 49
  - ☒ C. 50
  - ☒ D. 39

**Q.34** In this question, the statement is followed by four conclusions. Find out which conclusion is true based on the given statement.

Statement:  $Z < X \geq U = Y < V \leq W$

- Ans**
- ☒ A.  $Y > W$
  - ☒ B.  $V > U$
  - ☒ C.  $Z > X$
  - ☒ D.  $X < Y$

**Q.35** 30 soldiers are standing in a straight row facing the north. Ramsingh is 6<sup>th</sup> from the right end and Abhimanyu is 14<sup>th</sup> from the right end as well. How many soldiers are standing between Ramsingh and Abhimanyu?

- Ans**
- ☒ A. 8
  - ☒ B. 16
  - ☒ C. 24
  - ☒ D. 7

**Q.36** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

13 : 19 :: 3 : 7 :: 31 : ?

- Ans**
- ☒ A. 41
  - ☒ B. 47
  - ☒ C. 51
  - ☒ D. 39

- Q.37** In a certain code language, the numbers/symbols are coded using letters as per the table given below and as per the given conditions.

| Number/ Symbol | 1 | ! | 2 | @ | 3 | # | 4 | \$ | 5 | % | 6 | ^ | 7 | & | 8 | * | 9 |
|----------------|---|---|---|---|---|---|---|----|---|---|---|---|---|---|---|---|---|
| Code           | T | D | C | R | G | B | Y | H  | N | J | P | L | Q | S | D | F | Z |

**Conditions:**

- I. If the first element is an even number and the last is an odd number, the code for the first and last elements will be K.
- II. If both the second and third elements are even numbers, the codes for these two are to be interchanged.
- III. If the first element is a number and the last a symbol, the code for the first element is to be used for the last element also.

What will be the code for 2\$4%3&?

- Ans** ☒ A. CHYJGC  
☒ B. CHYJGS  
☒ C. SHYJGC  
☒ D. SHYJGS

- Q.38** Town F is to the north of Town M. Town B is to the west of Town M. Town C is to the east of Town M. Town D is to the south of Town C. What is the position of Town F with respect to Town D?

- Ans** ☒ A. North-East  
☒ B. North- West  
☒ C. South-East  
☒ D. South-West

- Q.39** Refer to the following letter-symbol series and answer the question that follows.

N S S F \$ & H H Y T G B R ^ @ D R \$ V % ^ V # D % C D @

How many such symbols are there that are immediately preceded by a letter and also immediately followed by a letter?

- Ans** ☒ A. 1  
☒ B. 2  
☒ C. 3  
☒ D. 4

- Q.40** If '+' means '×', '×' means '+', '÷' means '−', and '−' means '÷', then what will be the value of the given expression?

$215 \times 5 \div 4 - 18 \times 3$

- Ans** ☒ A. 95  
☒ B. 39  
☒ C. 86  
☒ D. 45

- Q.41** Six friends, F, G, H, J, K and L are having dinner sitting around a round table in a restaurant facing the center (but not necessarily in the same order). K is the immediate neighbor of H and J. F is sitting to the immediate right of H. L is to the immediate left of J. Who is sitting to the immediate right of G?

- Ans** ☒ A. F  
☒ B. L  
☒ C. H  
☒ D. J

**Q.42** If '+' means '×', '×' means '+', '+' means '−', and '−' means '+', then what will be the value of the given expression?

$$87 \times 3 - 8 + 5 \div 10$$

**Ans** ✓ **A. 59**

✗ **B. 19**

✗ **C. 47**

✗ **D. 57**

**Q.43** Which of the following terms will replace the question mark (?) in the given series to make it logically complete?

ZRW21, XPU25, VNS29, TLQ33, ?

**Ans** ✓ **A. RJO37**

✗ **B. JRO37**

✗ **C. ORJ37**

✗ **D. OPJ36**

**Q.44** Refer to the following number-symbol series and answer the question that follows.

(Left) 1 3 & > 3 S 8 4 ! > 9 3 4 1 @ S 3 5 > @ # 2 9 8 6 9 ! 9 (Right)

If all the numbers are dropped from the series, which of the following symbols will be the seventh to the left of the third from the right?

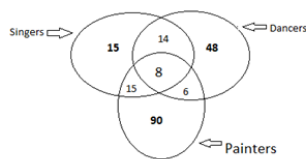
**Ans** ✗ **A. &**

✓ **B. >**

✗ **C. S**

✗ **D. @**

**Q.45** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



How many people are Singers as well Dancers but not Painters?

**Ans** ✗ **A. 22**

✗ **B. 8**

✓ **C. 14**

✗ **D. 15**

**Q.46** If 13 May 2007 is a Sunday, then what will be the day of the week on 17 May 2013?

**Ans** ✓ **A. Friday**

✗ **B. Monday**

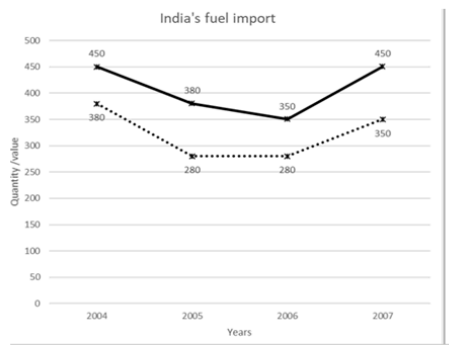
✗ **C. Sunday**

✗ **D. Wednesday**

**Q.47** Alok starts from Point B and drives 5 km towards the north. He then takes a right turn, drives 10 km, turns right and drives 5 km. He takes a final right turn, drives 3 km and stops at Point X. How far and towards which direction should he drive in order to reach Point B from Point X? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 7 km towards the east
  - ☒ B. 5 km towards the east
  - ☒ C. 7 km towards the west
  - ☒ D. 6 km towards the west

**Q.48** The line graph given below shows India's total quantity of fuel imported (in million tonnes) (dotted line) and the total value of that fuel imported (in USD billion) (solid line) for the year 2004-2007. Study the graph and answer the question.



What was the ratio of the quantity of fuel imported to the value of fuel imported in the year 2006?

- Ans**
- ☒ A. 4 : 5
  - ☒ B. 4 : 6
  - ☒ C. 7 : 9
  - ☒ D. 2 : 3

**Q.49** If  $\times$  stands for  $-$ ,  $\div$  stands for  $+$ ,  $+$  stands for  $\div$  and  $-$  stands for  $\times$ , what will come in place of the question mark (?) in the following equation?

$$24 \div 30 - 9 \div 15 \times 18 = ?$$

- Ans**
- ☒ A. 32
  - ☒ B. 29
  - ☒ C. 24
  - ☒ D. 42

**Q.50** Which of the following numbers will replace the question mark (?) in the given series?

15, 17, 20, 25, 32, ?

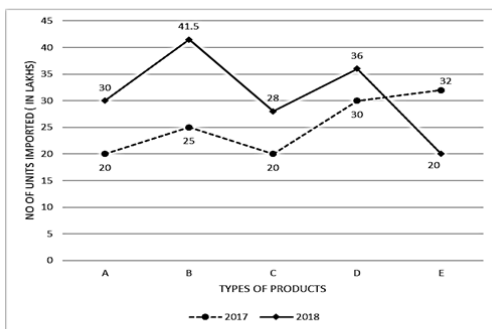
- Ans**
- ☒ A. 45
  - ☒ B. 44
  - ☒ C. 43
  - ☒ D. 40

**Q.51** Which of the following numbers will replace the question mark (?) in the given series?  
14, 18, 26, 38, 54, ?

- Ans**
- ☒ A. 78
  - ☒ B. 70
  - ☒ C. 74
  - ☒ D. 72



- Q.52** The line graph given below shows the total number of different products A, B, C, D and E (in lakh) are imported by a company in 2017 and 2018. Study the graph carefully and answer the following question.



What was the ratio of the number of type C products imported in the year 2017 to that in 2018?

- Ans** ☒ A. 5 : 7  
☒ B. 4 : 6  
☒ C. 7 : 5  
☒ D. 2 : 3

- Q.53** The position of how many letters will remain unchanged if each of the letters in the word HMADIST is arranged in alphabetical order?

- Ans** ☒ A. None  
☒ B. One  
☒ C. Two  
☒ D. Three

- Q.54** In a code language, 'mangoes are here' is written as 'tod din mul', 'no fruit is like mangoes' as 'mado si fla pri tod' and 'I am here' as 'lopi din nro'. What code words are written for 'mangoes' and 'here' respectively?

- Ans** ☒ A. tod, mul  
☒ B. tod, din  
☒ C. din, mul  
☒ D. mul, tod

- Q.55** Select the option that is related to the fifth letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster and the fourth letter-cluster is related to the third letter-cluster.

TXB : QWE :: REA : ODD :: DUW : ?

- Ans** ☒ A. BTZ  
☒ B. ATZ  
☒ C. AQX  
☒ D. ATX

Section : General Science

**Q.56** In terrestrial animals, exchange of gases takes place by diffusion. Which among the following statements are true about respiration in these animals?

- a. Diffusion through their surface
- b. They have fine and delicate surface that enables exchange of gases
- c. They may have passages for flow of air
- d. They have less surface area but heavy blood flow for respiration

**Ans** ☒ A. a and b

☒ B. a, c and d

☒ C. a, b and c

☒ D. a and d

**Q.57** \_\_\_\_\_ is a suitable mirror that can be used to focus sunlight to a point.

**Ans** ☒ A. A concave mirror

☒ B. A convex mirror

☒ C. A plane mirror

☒ D. A glass plate

**Q.58** Which system is affected the most by AIDS?

**Ans** ☒ A. Immune system

☒ B. Excretory system

☒ C. Nervous system

☒ D. Circulatory system

**Q.59** If an object is placed 36 cm in front of a concave mirror of focal length 18 cm, then its image will be formed \_\_\_\_\_.

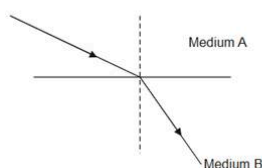
**Ans** ☒ A. at 18 cm in front of the mirror

☒ B. at 18 cm behind the mirror

☒ C. at 36 cm in front of the mirror

☒ D. at 36 cm behind the mirror

**Q.60** The path of a ray of light incident on an interface separating two transparent media is shown in the figure. The refractive index ( $n$ ) of medium B with respect to medium A is given by:



**Ans** ☒ A.  $n > 1$

☒ B.  $n = 1$

☒ C.  $0 < n < 1$

☒ D.  $n = 0$

**Q.61** Which of the following elements has three shells with two valence electrons?

**Ans** ☒ A. P

☒ B. Si

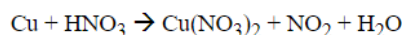
☒ C. Mg

☒ D. Cl

**Q.62** How many molecules of carbon dioxide are formed during the breakdown of pyruvate using oxygen in the mitochondria?

- Ans**
- ☐ A. Two
  - ☒ B. Three
  - ☐ C. Five
  - ☐ D. Six

**Q.63** Copper reacts with conc. nitric acid to produce cupric nitrate and nitrogen dioxide as follows.



Which of the following balanced equations is correct?

- Ans**
- ☐ A.  $\text{Cu} + 2 \text{HNO}_3 \rightarrow \text{Cu}(\text{NO}_3)_2 + \text{NO}_2 + 2 \text{H}_2\text{O}$
  - ☐ B.  $2 \text{Cu} + 4 \text{HNO}_3 \rightarrow 2 \text{Cu}(\text{NO}_3)_2 + 2 \text{NO}_2 + 2 \text{H}_2\text{O}$
  - ☐ C.  $\text{Cu} + 4 \text{HNO}_3 \rightarrow \text{Cu}(\text{NO}_3)_2 + 2 \text{NO}_2 + \text{H}_2\text{O}$
  - ☒ D.  $\text{Cu} + 4 \text{HNO}_3 \rightarrow \text{Cu}(\text{NO}_3)_2 + 2 \text{NO}_2 + 2 \text{H}_2\text{O}$

**Q.64** Autotrophs store their food in the form of:

- Ans**
- ☐ A. glycogen
  - ☒ B. starch
  - ☐ C. protein
  - ☐ D. fats

**Q.65** Which of the following statements is INCORRECT about plaster of Paris?

- Ans**
- ☐ A. It is used in making cosmetics and casts for statues.
  - ☒ B. It is also known as calcium sulphate dihydrate.
  - ☐ C. It is used for making surfaces smooth before painting.
  - ☐ D. It is used for setting fractured bones.

**Q.66** Which of the following substances show biological magnification?

- Ans**
- ☐ A. Greenhouse gases
  - ☐ B. Carbon soot deposits
  - ☐ C. Acidic fumes
  - ☒ D. Chemical pesticides

**Q.67** Which of the following is the Modern Periodic Law?

- Ans**
- ☒ A. 'Properties of elements are a periodic function of their atomic number'.
  - ☐ B. 'Properties of elements are a periodic function of their atomic mass'.
  - ☐ C. 'Properties of elements are a periodic function of their melting points'.
  - ☐ D. 'Properties of elements are a periodic function of their boiling points'.

Q.68 Which of the following metals is the most reactive?

Ans ☒ A. Mg

☐ B. Cu

☐ C. Fe

☐ D. Zn

Q.69 If the number of turns in a solenoid increases, then:

Ans ☒ A. magnetic field increases

☐ B. magnetic field decreases

☐ C. magnetic field remains constant

☐ D. magnetic field decreases to zero

Q.70 Conversion of energy in electric motor is:

Ans ☐ A. Sunlight to electrical energy

☒ B. Electrical energy to mechanical energy

☐ C. Mechanical energy to electrical energy

☐ D. Electrical energy to heat energy

Q.71 If the length of the wire is doubled and cross section area of the wire is halved then the resistivity of the material is:

Ans ☐ A. doubled

☐ B. halved

☒ C. unchanged

☐ D. increased by 4 times

Q.72 Which of the following is/are an abiotic component of an ecosystem?

Ans ☐ A. Fungi

☐ B. Insects

☐ C. Microorganisms

☒ D. Soil

Q.73 An electric transformer works on the principle of:

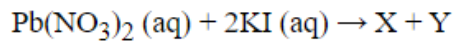
Ans ☒ A. electromagnetic induction

☐ B. photoelectric effect

☐ C. Joule's heating effect

☐ D. Ohm's law

Q.74 In the given double displacement reaction, identify the products X and Y.



Ans ☒ A.  $\text{PbI}_2 (\text{s}) + 2\text{KNO}_3 (\text{aq})$

☐ B.  $\text{PbI}_2 (\text{s}) + \text{KCl} (\text{s})$

☐ C.  $\text{PbI}_2 + \text{HNO}_3$

☐ D. No reaction occurs

Q.75 What happens when a pencil is immersed in water?

Ans ☐ A. Colour of pencil changes

☐ B. Pencil appears bright

☒ C. Pencil appears bent

☐ D. Pencil looks curved

Q.76 In case of  $\text{N}_2$ , the molecule has \_\_\_\_\_.

Ans ☒ A. a triple bond between the two nitrogen atoms

☐ B. a single bond between the two nitrogen atoms

☐ C. a double bond between the two nitrogen atoms

☐ D. an ionic bond between the two nitrogen atoms

Q.77 Who was the mastermind behind the Arabari Project of West Bengal, which started in 1972?

Ans ☐ A. Sunder lal Bahuguna

☐ B. Dr. Rajendra Singh

☒ C. Dr. AK Banerjee

☐ D. Dr. Sunita Narain

Q.78 Which of the following reactions is an example of double displacement?

Ans ☐ A.  $\text{Pb}(\text{s}) + \text{CuCl}_2(\text{aq}) \rightarrow \text{PbCl}_2(\text{aq}) + \text{Cu}(\text{s})$

☐ B.  $\text{Zn}(\text{s}) + \text{CuSO}_4(\text{aq}) \rightarrow \text{ZnSO}_4(\text{aq}) + \text{Cu}(\text{s})$

☒ C.  $\text{Na}_2\text{SO}_4(\text{aq}) + \text{BaCl}_2 (\text{aq}) \rightarrow \text{BaSO}_4(\text{s}) + 2\text{NaCl}(\text{aq})$

☐ D.  $\text{Fe}(\text{s}) + \text{CuSO}_4(\text{aq}) \rightarrow \text{FeSO}_4(\text{aq}) + \text{Cu}(\text{s})$

Q.79 If a toaster is connected to 440 V AC instead of 220 V AC, then the heat produced per second will be \_\_\_\_\_ of the initial amount.

Ans ☐ A. twice

☐ B. half

☒ C. four times

☐ D. one-fourth

**Q.80** Which of the following statements is INCORRECT?

- Ans**
- ☒ A. Carbon dioxide is more soluble in water than oxygen.
  - ☒ B. The respiratory pigment is present in the white blood corpuscles.
  - ☒ C. The pyruvate is converted into lactic acid which is a three-carbon molecule.
  - ☒ D. The walls of the alveoli contain an extensive network of blood-vessels.

Section : General Awareness and Current Affairs

**Q.81** The Kanya Shiksha Pravesh Utsav campaign launched by the Government of India in March 2022 aims at enhancing enrolment and retention of girls between \_\_\_\_\_ of age in schools.

- Ans**
- ☒ A. 6 to 10 years
  - ☒ B. 11 to 14 years
  - ☒ C. 14 to 16 years
  - ☒ D. 15 to 18 years

**Q.82** Which of the following fundamental duties is added by the 86<sup>th</sup> Amendment of the constitution in 2002?

- Ans**
- ☒ A. To cherish and follow the noble ideals which inspired our national struggle for freedom
  - ☒ B. To defend the country and render national service when called upon to do so
  - ☒ C. To safeguard public property and to abjure violence
  - ☒ D.

Who is a parent or guardian, to provide opportunities for education to his child, or as the case may be, ward between the age of six and fourteen years

**Q.83** Which zone separates the troposphere from the stratosphere?

- Ans**
- ☒ A. Tropopause
  - ☒ B. Mesopause
  - ☒ C. Stratopause
  - ☒ D. Thermopause

**Q.84** How many Indian Institutes of Technology were started under the First Five-Year Plan?

- Ans**
- ☒ A. Five
  - ☒ B. Four
  - ☒ C. Three
  - ☒ D. Two

**Q.85** In which year was Operation Flood started with an aim to create a nationwide milk grid?

- Ans**
- ☒ A. 1970
  - ☒ B. 1979
  - ☒ C. 1981
  - ☒ D. 1985

**Q.86** Which of the following is NOT an example of fixed cost for a firm?

- Ans**
- ☐ A. Rental lease
  - ☐ B. Insurance
  - ☐ C. Property tax
  - ☒ D. Maintenance and repair

**Q.87** In Economics, Average product = \_\_\_\_\_ ÷ Labour

- Ans**
- ☐ A. Marginal product
  - ☐ B. Fixed cost
  - ☐ C. Variable cost
  - ☒ D. Total product

**Q.88** Which of the following Articles discusses the veto power of the President of India?

- Ans**
- ☒ A. Article 111
  - ☐ B. Article 114
  - ☐ C. Article 122
  - ☐ D. Article 145

**Q.89** January 2022, researchers at the IIT Kharagpur have developed a new highly accurate, portable, yet user-friendly, affordable and non-invasive device for detecting \_\_\_\_\_ in resource-constrained clinical settings.

- Ans**
- ☒ A. oral cancer
  - ☐ B. lung cancer
  - ☐ C. blood cancer
  - ☐ D. breast cancer

**Q.90** On 31<sup>st</sup> January 2022, who was appointed as Director General of the National Institute of Electronics and Information Technology?

- Ans**
- ☐ A. Dr. Narayan Pradhan
  - ☐ B. Dr. Pinaki Talukdar
  - ☒ C. Dr. Madan Mohan Tripathi
  - ☐ D. Dr. Amrita Hazra

**Q.91** As per the report of the National Rubber Policy 2019, India is the \_\_\_\_\_ largest producer of Natural Rubber in the world.

- Ans**
- ☐ A. fifth
  - ☒ B. sixth
  - ☐ C. seventh
  - ☐ D. eighth



**Q.92** In India, \_\_\_\_\_ is observed as Rashtriya Ekta Diwas or National Unity Day every year.

**Ans** ☒ A. 31 October

☐ B. 2 October

☐ C. 30 January

☐ D. 15 December

**Q.93** Which Indian Chess player was in attendance along with other officials to receive the official hosting rights of FIDE 44th World Chess Olympiad 2022 on behalf of India?

**Ans** ☐ A. Dibyendu Barua

☐ B. Koneru Humpy

☐ C. Abhijit Kunte

☒ D. Viswanathan Anand

**Q.94** Which two languages got the Classical language status in 2008?

**Ans** ☐ A. Tamil and Sanskrit

☐ B. Sanskrit and Malayalam

☐ C. Malayalam and Odia

☒ D. Kannada and Telugu

**Q.95** As of August 2022, which Article of the Constitution of India says "No child below the age of fourteen years shall be employed to work in any factory or mine or engaged in any other hazardous employment"?

**Ans** ☐ A. Article 19

☒ B. Article 24

☐ C. Article 27

☐ D. Article 32

**Q.96** In all Panchayat institutions, not less than \_\_\_\_\_ of the total number of seats reserved, shall be reserved for women belonging to the Scheduled Castes or, as the case may be, the Scheduled Tribes.

**Ans** ☒ A. One-third

☐ B. Two-third

☐ C. Half

☐ D. Three-fourths

**Q.97** Who among the following was the founder of the Arya Samaj?

**Ans** ☐ A. Bal Gangadhar Tilak

☒ B. Dayanand Saraswati

☐ C. Ram Mohan Roy

☐ D. Ishwar Chandra Vidyasagar

**Q.98** Which of the following is a Middle Indian dialect that is closely related to Sanskrit, and is one of the major languages of Buddhist scriptures and literature?

**Ans** ☐ A. Varhadi

☒ B. Pali

☐ C. Paisaci

☐ D. Saraiki



Q.99

In which of the following cities is the Indian Institute of Tropical Meteorology located?

Ans

 A. Delhi

 B. Pune

 C. Mumbai

 D. Kochi

Q.100 Nitu Ghangas won Gold in which sport at the Commonwealth Games 2022?

Ans

 A. Wrestling

 B. Athletics

 C. Boxing

 D. Judo



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 14/09/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** A dishonest shopkeeper sells goods at cost price but uses a weight of 940 gm for one kg. His gain percentage (rounded off to two decimal places) is:

- Ans**
- ☒ A. 5.38%
  - ☒ B. 6.08%
  - ☒ C. 6.38%
  - ☒ D. 4.38%

**Q.2** Two trains are moving in opposite directions at speeds of 80 km/h and 120 km/h. The length of one train is 300 m. The time taken by them to cross each other is 12 seconds. The length (in m) of the other train, correct to 2 decimal places, is:

- Ans**
- ☒ A. 333.33
  - ☒ B. 366.67
  - ☒ C. 377.77
  - ☒ D. 388.88

**Q.3** If  $-(2/3)$  is a root of the equation  $kx^2 - 13x - 10 = 0$ , then the value of k is:

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.4** Three numbers are in the ratio 5 : 6 : 8 and their LCM is 1200. The sum of the numbers is:

- Ans**
- ☒ A. 210
  - ☒ B. 200
  - ☒ C. 190
  - ☒ D. 180

**Q.5** The marks scored by 10 students are given below.

17, 13, 18, 11, 15, 13, 19, 18, 13, 17

The mode of the data is:

**Ans** ✓ A. 13

✗ B. 17

✗ C. 11

✗ D. 19

**Q.6** The ratio of the lengths of two corresponding sides of two similar triangles is 3 : 1. The ratio of their corresponding angles is:

**Ans** ✓ A. 1 : 1

✗ B. 2 : 1

✗ C. 3 : 1

✗ D. 1 : 3

**Q.7** The value of  $(\sin 32^\circ \cos 58^\circ + \cos 32^\circ \sin 58^\circ)$  is:

**Ans** ✗ A. 0

✓ B. 1

✗ C. 2

✗ D. 3

**Q.8** A cylindrical rod has an outer curved surface area of  $2800 \text{ cm}^2$ . If the length of the rod is 100 cm, then the outer radius (in cm) of the rod, correct to two places of decimal, is:

Take  $\pi = \frac{22}{7}$

**Ans** ✗ A. 2.45

✗ B. 3.45

✓ C. 4.45

✗ D. 5.45

**Q.9** Neeraj and his sister are 12 years and 3 years old, respectively. After how many years will Neeraj's sister be half as old as Neeraj?

**Ans** ✗ A. 3

✓ B. 6

✗ C. 7

✗ D. 9

**Q.10** A, B and C invested ₹ 10,000, ₹12,000, and ₹15,000, respectively, for 5, 6, and 9 months, respectively, in a business. If A's share in the profit is ₹2,500, then the total profit is:

**Ans** ✗ A. ₹12,550

✗ B. ₹12,650

✗ C. ₹12,700

✓ D. ₹12,850

Q.11 The roots of the equation  $\sqrt{3}x^2 - 8x + 5\sqrt{3} = 0$  are:

- Ans
- ☐ A.  $-\sqrt{3}, \frac{5}{\sqrt{3}}$
  - ☐ B.  $\sqrt{3}, \frac{-5}{\sqrt{3}}$
  - ☐ C.  $-\sqrt{3}, \frac{-5}{\sqrt{3}}$
  - ☒ D.  $\sqrt{3}, \frac{5}{\sqrt{3}}$

Q.12 A shopkeeper marked the price of an article at 10% higher than its cost price. He then gives two successive discounts of 5% each. What is his loss or profit percentage?

- Ans
- ☒ A. 0.725% loss
  - ☐ B. 0.525% loss
  - ☐ C. 0.725% profit
  - ☐ D. 0.525% profit

Q.13 The average age of a husband and his wife was 23 years at the beginning of their marriage. After 5 years of marriage, they had a one-year-old child. The average age of the family of three when the child was born was:

- Ans
- ☐ A. 24 years
  - ☐ B. 23 years
  - ☐ C. 20 years
  - ☒ D. 18 years

Q.14 Factorise  $49a^2 + 70ab + 25b^2$ .

- Ans
- ☒ A.  $(7a + 5b)^2$
  - ☐ B.  $(5a + 7b)^2$
  - ☐ C.  $(7a - 5b)^2$
  - ☐ D.  $(5a - 7b)^2$

Q.15 The LCM of 36, 48, 120 and 300 is:

- Ans
- ☐ A. 900
  - ☐ B. 1200
  - ☐ C. 1800
  - ☒ D. 3600

Q.16 The average of  $3^2, 4^2, 5^2, 6^2$  and  $7^2$  is \_\_\_\_\_.

- Ans
- ☐ A. 28
  - ☒ B. 27
  - ☐ C. 25
  - ☐ D. 24

Q.17 The volume (in  $\text{m}^3$ ) of a cube, each of whose edges is 9 m, is:

- Ans
- ☐ A. 486
  - ☐ B. 527
  - ☐ C. 648
  - ☒ D. 729

Q.18 Simplify  $34 - 66 \div 6 + 18 \times 8$ .

- Ans
- ☐ A. 104
  - ☒ B. 167
  - ☐ C. 138
  - ☐ D. -600

Q.19 Raghav's monthly salary is ₹18,000. Raghav took a loan of ₹30,000 on simple interest for 3 years at the rate of 5% per annum. The amount that he will be paying as simple interest in 3 years is what percentage of his monthly salary?

- Ans
- ☒ A. 25%
  - ☐ B. 20%
  - ☐ C. 30%
  - ☐ D. 35%

Q.20 Evaluate  $0.\overline{696} \times 0.\overline{27}$ .

- Ans
- ☐ A.  $\frac{2083}{10989}$
  - ☐ B.  $\frac{2085}{10989}$
  - ☐ C.  $\frac{2087}{10989}$
  - ☒ D.  $\frac{2088}{10989}$

Q.21 In an isosceles triangle, the vertex angle measures  $80^\circ$ . What is the measure of each of the base angles?

- Ans
- ☒ A.  $50^\circ$  and  $50^\circ$
  - ☐ B.  $60^\circ$  and  $40^\circ$
  - ☐ C.  $60^\circ$  and  $60^\circ$
  - ☐ D.  $60^\circ$  and  $50^\circ$

Q.22 Evaluate  $999^3$ .

- Ans
- ☒ A. 997002999
  - ☐ B. 997003999
  - ☐ C. 997004999
  - ☐ D. 997005999

**Q.23** The value of  $\frac{(0.064) + (0.008)}{0.16 + 0.04 - 0.08}$  is \_\_\_\_\_.

- Ans**
- ☐ A. 0.05
  - ☐ B. 2.7
  - ☒ C. 0.6
  - ☐ D. 1.4

**Q.24** If 2, 3, 8 and y are in proportion, find the value of y.

- Ans**
- ☐ A. 48
  - ☐ B. 24
  - ☐ C. 16
  - ☒ D. 12

**Q.25** A boy covers 450 m in 2 minutes 30 seconds. How many kilometres will he cover in an hour if he travels at the same speed mentioned above?

- Ans**
- ☐ A. 13.5
  - ☒ B. 10.8
  - ☐ C. 12.8
  - ☐ D. 9.6

#### Section : General Intelligence and Reasoning

**Q.26** Which of the following options is the closest approximate value which will come in place of question mark(?) in the following equation?

$$5.18 \times 4 + 2.06 \times 5 - 10 \div 2 + 1 = ?$$

- Ans**
- ☐ A. 30
  - ☒ B. 26
  - ☐ C. 40
  - ☐ D. 15

**Q.27** If 19 November 2005 is a Saturday, then what will be the day of the week on 23 November 2008?

- Ans**
- ☐ A. Wednesday
  - ☒ B. Sunday
  - ☐ C. Friday
  - ☐ D. Tuesday

**Q.28** 40 students of a class are standing in a queue according to the increasing order of their heights. Suhani is 8<sup>th</sup> from the front, while Syma is 8<sup>th</sup> from the back. How many students are standing between Suhani and Syma?

- Ans**
- ☐ A. 21
  - ☐ B. 23
  - ☒ C. 24
  - ☐ D. 25

**Q.29** Amit starts from Point Y and drives 8 km towards the north. He then takes a right turn, drives 12 km, turns right and drives 11 km. He then takes a right turn and drives 15 km. He takes a final right turn, drives 3 km and stops at Point Z. How far and towards which direction should he drive in order to reach Point Y from Point Z? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 3 km towards the north
  - ☒ B. 2 km towards the east
  - ☒ C. 3 km towards the east
  - ☒ D. 2 km towards the west

**Q.30** Each vowel in the word THUNDER is changed to the letter following it in the English alphabetical order and each consonant is changed to the letter preceding it in the English alphabetical order. Which of the following letters will appear in the middle of the group of letters thus formed?

- Ans**
- ☒ A. O
  - ☒ B. M
  - ☒ C. V
  - ☒ D. N

**Q.31** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

OKD : RNG

MKS : PNV

- Ans**
- ☒ A. RVH : UYK
  - ☒ B. RVH : VUK
  - ☒ C. HVK : UKH
  - ☒ D. HKV : EKH

**Q.32** Select the number from among the given options that can replace the question mark (?) in the following series.

3, 4, 4, 6, 12, 15, ?, 49, 196, 201

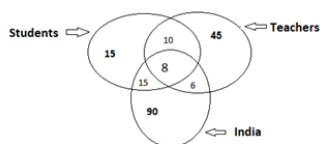
- Ans**
- ☒ A. 27
  - ☒ B. 32
  - ☒ C. 37
  - ☒ D. 45

**Q.33** Which of the following terms will replace the question mark (?) in the given series to make it logically complete?

BKS36, GPX48, LUC60, QZH72, ?

- Ans**
- ☒ A. VEM84
  - ☒ B. MVE88
  - ☒ C. VEM88
  - ☒ D. MVE84

- Q.34** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



How many such students are there who are also teachers but NOT from India?

- Ans** ☒ A. 10  
☒ B. 12  
☒ C. 20  
☒ D. 60

- Q.35** Which of the following numbers will replace the question mark (?) in the given series?

87, 76, 67, 60, 55, ?

- Ans** ☒ A. 50  
☒ B. 51  
☒ C. 52  
☒ D. 53

- Q.36** Three statements are given, followed by four conclusions numbered I, II, III and IV. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

Statements:

1. All pictures are drawings.
2. No drawing is caricature.
3. All figures are caricatures.

Conclusions:

- I. Some figures are pictures.
- II. No caricature is picture.
- III. No picture is figure.
- IV. Some caricatures are pictures.

- Ans** ☒ A. Only conclusions I follows  
☒ B. Only conclusions II and III follow  
☒ C. Only conclusions I and IV follow  
☒ D. Only conclusion IV follows

- Q.37** Read the given statement and arguments carefully and select the appropriate answer from the given options.

Statement:

Unemployment among youth has emerged as the biggest challenge in post-COVID-19 times.

Arguments:

- I. Many small-scale industries stopped working during the COVID period.
- II. People do not want to work in small scale industries.

- Ans** ☒ A. I weakens while II strengthens the statement.  
☒ B. II weakens while I strengthens the statement.  
☒ C. Both I and II weaken the statement.  
☒ D. Both I and II strengthen the statement.

**Note:** For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.



**Q.38** Study the following number arrangement and answer the question given below. All numbers given below are 2 digit numbers.

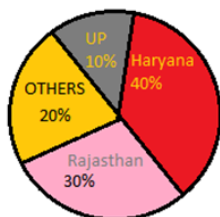
23 35 76 87 45 28 49 98 56 34 37 48 78 75 64 89 73

What will be the product of numbers that is third from the left end and fifth from the right end in the above series?

- Ans**
- ☒ A. 6525
  - ☒ B. 2880
  - ☒ C. 5928
  - ☒ D. 4586

**Q.39** Study the given pie chart and answer the question that follows.

The pie-chart shows the number of tourists visiting from different states. The total tourist traffic is 20 lakh.



Find the difference between the number of tourists visiting from Haryana and Rajasthan.

- Ans**
- ☒ A. 3 lakh
  - ☒ B. 4 lakh
  - ☒ C. 2 lakh
  - ☒ D. 5 lakh

**Q.40** Three statements are given, followed by two conclusions numbered I and II. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

Statements:

1. Some apricots are peaches.
2. Some kiwis are apricots.
3. All apricots are sweet-limes.

Conclusions:

- I. Some sweet-limes are kiwis.
- II. No peach is sweet-lime.

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Either conclusion I or II follow
  - ☒ D. Both conclusions I and II follow

**Q.41** J, L, N, P, R, T, V and W are sitting around a square table facing the centre of the table (but not necessarily in the same order). Some of them are sitting at the corners while some are sitting at the exact centre of the sides. W is on the immediate left of J but not an immediate neighbour of P or R. T is on the immediate right of L. N has R and T as his immediate neighbours, V is immediate neighbour of R. Who is sitting to the immediate left of P?

- Ans**
- ☒ A. J
  - ☒ B. L
  - ☒ C. R
  - ☒ D. V

**Q.42** If the digits 6 and 5 are replaced with 3 and 9, respectively, in the number 265367856, what will be the sum of the 1<sup>st</sup> and the 5<sup>th</sup> digits (when counted from the left) in the new number thus formed?

- Ans**
- ☐ A. 8
  - ☒ B. 5
  - ☐ C. 13
  - ☐ D. 17

**Q.43** Read the given statements and conclusions carefully and decide which of the given conclusions logically follows the statements.

**Statements:**

1.  $D \geq S$
2.  $X < W$
3.  $S = J$
4.  $W > Y$
5.  $X > D$
6.  $J \geq E$

**Conclusions:**

- I.  $D < Y$
- II.  $D = E$
- III.  $E = S$
- IV.  $W > J$

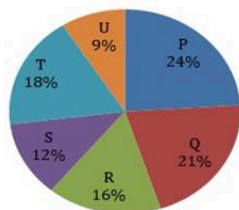
- Ans**
- ☐ A. Only conclusion I follows
  - ☐ B. Only conclusion II follows
  - ☒ C. Only conclusion IV follows
  - ☐ D. Only conclusion III follows

**Q.44** Six friends M, N, O, P, Q and R are seated around a round table facing the centre. P is an immediate neighbour of both N and R. Q is an immediate neighbour of both M and O. N is not seated at either side of O. Where is M seated?

- Ans**
- ☐ A. Beside O
  - ☒ B. Beside N
  - ☐ C. Beside P
  - ☐ D. Beside R

- Q.45** The given pie chart shows the number of students in six different Houses- P, Q, R, S, T and U of VV International School. Study the chart and answer the question.

Total number of students = 2400



Find the ratio of students in House S to students in House T.

- Ans**
- ☒ A. 1 : 2
  - ☒ B. 3 : 4
  - ☒ C. 2 : 3
  - ☒ D. 4 : 7

- Q.46** Study the given number series and answer the question that follows.

(Left) 9 6 7 6 8 2 5 7 3 2 5 8 6 2 7 5 4 9 2 4 7 3 8 5 (Right)

How many such even numbers are there each of which is immediately preceded by an odd number and also immediately followed by an odd number?

- Ans**
- ☒ A. 4
  - ☒ B. 8
  - ☒ C. 6
  - ☒ D. 2

- Q.47** All 24 students of a class are standing in a straight row facing north. Neha is 8<sup>th</sup> from the right end, while Abhishek is 20<sup>th</sup> from the left end. How many students are standing between Neha and Abhishek?

- Ans**
- ☒ A. 2
  - ☒ B. 4
  - ☒ C. 3
  - ☒ D. 1

- Q.48** A group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/<br>symbol | 4 | % | 5 | 8 | @ | \$ | 5 | 4 | ^ | + | # | 3 | 7 | 9 |
|-------------------|---|---|---|---|---|----|---|---|---|---|---|---|---|---|
| Code<br>Letter    | G | O | H | P | T | M  | A | B | L | N | F | S | Q | R |

Conditions:

- (i) If the first element is a symbol and the last element is a number, the codes for these two (the first and the last elements) are to be interchanged.
- (ii) If the first element is an odd number and the last element is an even number, the first and last elements are to be coded as ©.
- (iii) If both the second and third elements are perfect squares, the third element is to be coded as the code for the second element.

What will be the code for 5 @ \$ ^ 8 ?

- Ans**
- ☒ A. HTMLP
  - ☒ B. HTML©
  - ☒ C. ©TMLP
  - ☒ D. ©TML©

**Q.49** A certain number of persons are standing in a straight row facing North. X is standing to the immediate left of W but immediate right of R. Z is standing to the immediate left of R. There is only one person to the left of P. Q is standing to the immediate left of Y. The person standing at the extreme right end is the only person to the right of Y. Only four persons are standing between P and Q. If no other person is standing in the row, what is the total number of persons standing?

- Ans**
- ☒ A. Seven
  - ☒ B. Eight
  - ☒ C. Nine
  - ☒ D. Ten

**Q.50** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

8 : 32 :: 18 : 162 :: 16 : ?

- Ans**
- ☒ A. 118
  - ☒ B. 130
  - ☒ C. 128
  - ☒ D. 120

**Q.51** Amongst six cousins, P, Q, R, S, T and U, each are of a different age. P's age is more than that of only one cousin. Q's age is more than that of S and P but not more than that of R. S's age is immediately more than P's age. R is younger than U. T is the youngest. Who is the oldest among all the cousins?

- Ans**
- ☒ A. Q
  - ☒ B. U
  - ☒ C. S
  - ☒ D. T

**Q.52** A group of numbers/symbols is coded using letters as per the table given below and the conditions that follow. The correct combination of codes following the conditions is your answer.

| Number/<br>symbol | 6 | % | 8 | 9 | @ | \$ | 5 | 4 | ^ | + | # | 3 | 7 | 9 |
|-------------------|---|---|---|---|---|----|---|---|---|---|---|---|---|---|
| Code<br>Letter    | G | O | H | Q | T | M  | A | B | L | M | F | S | Q | R |

Conditions:

- (i) If the first element is a symbol and the last element is a number, the codes for these two (the first and the last elements) are to be interchanged.
- (ii) If the first element is an odd number and the last element is an even number, the first and last elements are to be coded as ©.
- (iii) If both the second and third elements are perfect squares, the third element is to be coded as the code for the second element.

What will be the code for 3 @ 4 # 4 ?

- Ans**
- ☒ A. STBF©
  - ☒ B. SFTF©
  - ☒ C. ©TFBC
  - ☒ D. ©TBF©

**Q.53** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

72 : 90 :: 48 : 60 :: 24 : ?

- Ans**
- ☒ A. 40
  - ☒ B. 24
  - ☒ C. 30
  - ☒ D. 32

**Q.54** If 2 is added to each odd digit and 2 is subtracted from each even digit in the number 5374816. What will be the product of the digits which are second from the left and second from the right in the new number thus formed?

- Ans**
- ☐ A. 20
  - ☐ B. 3
  - ☐ C. 28
  - ☒ D. 15

**Q.55** Jyoti starts from the mall and drives 4 km towards West. She then takes a left turn, drives 8 km, turns left and drives 24 km. She then takes a left turn and drives 6 km. She then turns left, drives 6 km and reaches her home. Which direction is the mall with reference to her home?

- Ans**
- ☐ A. North
  - ☒ B. North- West
  - ☐ C. South- east
  - ☐ D. South - West

Section : General Science

**Q.56** In preparation of NaOH by electrolytic method, which solution is used?

- Ans**
- ☐ A. Lime water
  - ☒ B. Brine
  - ☐ C. Bromine water
  - ☐ D. Chlorine water

**Q.57** What is good way to get relief from leg muscle cramps after intense activity?

- Ans**
- ☐ A. Rubbing legs with an ice-pack
  - ☐ B. Applying a pain reliever ointment
  - ☒ C. Gentle massage with warm pads
  - ☐ D. Drinking warm sweet milk or tea

**Q.58** On increasing the potential difference applied across a conductor at constant temperature, \_\_\_\_\_

- Ans**
- ☐ A. current decreases
  - ☒ B. current increases
  - ☐ C. current remains constant
  - ☐ D. current becomes zero

**Q.59** Garhwal was the birthplace of the \_\_\_\_\_.

- Ans**
- ☐ A. Bishnoi Movement
  - ☐ B. Narmada Bachao Andolan
  - ☐ C. Jungle Bachao Andolan
  - ☒ D. Chipko Movement

**Q.60** Which of the following is the most environment-friendly method of disposing of organic wastes?

- Ans**
- ☐ A. Landfills
  - ☐ B. Incineration
  - ☒ C. Composting
  - ☐ D. Development of value-added products

Q.61 In a balanced chemical equation, the reactant is always written \_\_\_\_\_ the arrow.

- Ans
- ☐ A. above
  - ☒ B. on the left-hand side of
  - ☐ C. on the right-hand side of
  - ☐ D. below

Q.62 An object must be placed \_\_\_\_\_ to obtain a real and inverted image of the same size as that of the object after reflection.

- Ans
- ☐ A. at infinity from a concave mirror
  - ☐ B. between P and F of a convex mirror
  - ☐ C. at C of a convex mirror
  - ☒ D. at C of a concave mirror

Q.63 Which of the following reactions is NOT a combination reaction?

- Ans
- ☐ A.  $\text{H}_2 + \text{O}_2 \rightarrow \text{H}_2\text{O}$
  - ☐ B.  $\text{NH}_3 + \text{HCl} \rightarrow \text{NH}_4\text{Cl}$
  - ☒ C.  $\text{HI} \rightarrow \text{H}_2 + \text{I}_2$
  - ☐ D.  $\text{C} + \text{O}_2 \rightarrow \text{CO}_2$

Q.64 Electromagnetic induction is the phenomenon wherein:

- Ans
- ☒ A. a moving magnet induces an EMF in the closed loop of a conductor
  - ☐ B. a moving closed loop of a conductor induces an EMF in the closed loop of another conductor
  - ☐ C. a moving magnet exerts force on the closed loop of a conductor
  - ☐ D. a moving coil carrying current induces force on the magnet

Q.65 Where is the ozone hole located?

- Ans
- ☐ A. Over the Equator
  - ☐ B. Over the North and South Poles
  - ☐ C. Over industrialised Europe
  - ☒ D. Over Antarctica

Q.66 A rainbow is observed due to refraction of the sunlight through rain drops. This implies that:

- Ans
- ☐ A. sunlight is monochromatic
  - ☒ B. sunlight is polychromatic
  - ☐ C. refractive index of rain drop is 1
  - ☐ D. rain drops are not spherical in shape

Q.67 In humans, the sex of the offspring is determined by the \_\_\_\_\_.

- Ans
- ☐ A. maternal chromosome
  - ☒ B. paternal chromosome
  - ☐ C. both maternal and paternal chromosomes
  - ☐ D. autosomes

**Q.68** Which of the following statements is correct with respect to Newlands law of octaves?

**Ans** ☒ A. Newlands' law of octaves worked well with lighter elements only.

☐ B.

John Newlands, an English scientist arranged the then known elements in the order of increasing atomic sizes.

☐ C. Newlands' law of octaves worked well with heavier elements only.

☐ D. In Newlands' octaves, the properties of fluorine and sodium were found to be the same.

**Q.69** Which of the following industries does NOT use washing soda?

**Ans** ☐ A. Soap

☐ B. Glass

☒ C. Cosmetic

☐ D. Paper

**Q.70** We can obtain an image that is real and of equal size when an object is placed \_\_\_\_\_ of a \_\_\_\_\_ mirror.

**Ans** ☐ A. at F, convex

☒ B. at C, concave

☐ C. at F, concave

☐ D. between P and F, concave

**Q.71** Which of the following compounds does NOT belong to the same homologous series?

**Ans** ☐ A.  $C_3H_6$

☐ B.  $C_4H_8$

☐ C.  $C_5H_{10}$

☒ D.  $C_6H_{11}$

**Q.72** An electric generator is a device which converts:

**Ans** ☐ A. mechanical energy into light energy

☐ B. light energy into mechanical energy

☒ C. mechanical energy into electrical energy

☐ D. electrical energy into mechanical energy

**Q.73** What are the group numbers of halogens and carbon family, respectively, in the modern periodic table?

**Ans** ☐ A. Group 18 and Group 14

☐ B. Group 16 and Group 14

☐ C. Group 16 and Group 17

☒ D. Group 17 and Group 14



**Q.74** Parenchyma tissue is the most common simple permanent tissue in plants. Why is it known as Chlorenchyma and Aerenchyma in some plants?

**Ans** Chlorenchyma — Has chlorophyll for photosynthesis (leaves)

✓ **A.**

Aerenchyma — Has air spaces (aquatic plants) and helps them to float

Chlorenchyma — supports the plant

✗ **B.**

Aerenchyma — Has chlorophyll for photosynthesis (leaves)

Chlorenchyma — Has air spaces (aquatic plants) and helps them to float

✗ **C.**

Aerenchyma — has chlorophyll for photosynthesis

Chlorenchyma — Has air spaces (aquatic plants) and helps them to float

✗ **D.**

Aerenchyma — provides mechanical support

**Q.75** Which of the following is an INCORRECT relation between V, I and R?

**Ans** ✗ **A.**  $R = \frac{V}{I}$

✓ **B.**  $V = \frac{R}{I}$

✗ **C.**  $V = IR$

✗ **D.**  $I = \frac{V}{R}$

**Q.76** Which of the following carry/carries digested and absorbed fat from the intestine?

**Ans** ✗ **A.** Plasma

✓ **B.** Lymph

✗ **C.** Platelets

✗ **D.** Veins

**Q.77** In electrical geyser \_\_\_\_\_ energy is converted to \_\_\_\_\_.

**Ans** ✗ **A.** Electrical, magnetic

✗ **B.** Mechanical, electrical

✓ **C.** Electrical, heat

✗ **D.** Electrical, light

**Q.78** Which of the following statements correctly describes water transport in plants?

**Ans** ✓ **A.**

The process in which loss of water takes place in the form of water vapour through stomata is called transpiration.

✗ **B.** The process of water loss from stomata requires energy in the form of ATP.

✗ **C.**

The process by which water is pulled from the xylem cells of the roots into leaves is called translocation.

✗ **D.**

The process which is the main driving force of water into the xylem during the day is root pressure.



**Q.79** Which of the following coloured precipitates is formed when lead (II) nitrate and potassium iodide are mixed together?

- Ans**
- ☒ A. Yellow
  - ☐ B. Violet
  - ☐ C. Green
  - ☐ D. Black

**Q.80** An object is placed on the principal axis of a convex lens, at a point beyond  $2F_1$ . Its image formed is \_\_\_\_\_.

- Ans**
- ☒ A. real and diminished
  - ☐ B. virtual and diminished
  - ☐ C. real and enlarged
  - ☐ D. virtual and enlarged

Section : **General Awareness and Current Affairs**

**Q.81** The \_\_\_\_\_ Constitutional Amendment Act of 1992 was responsible for adding Part IX to the Constitution, 'The Panchayats'.

- Ans**
- ☐ A. 7th
  - ☒ B. 73rd
  - ☐ C. 74th
  - ☐ D. 83rd

**Q.82** The Finance Commission is a constitutionally mandated body, set up under Article \_\_\_\_\_ of the Constitution of India.

- Ans**
- ☐ A. 273
  - ☐ B. 276
  - ☐ C. 288
  - ☒ D. 280

**Q.83** Where was the final match of Indian Premier League (IPL) 2022 played?

- Ans**
- ☐ A. Green Park Stadium, Kanpur
  - ☐ B. Wankhede Stadium, Mumbai
  - ☒ C. Narendra Modi Stadium, Ahmedabad
  - ☐ D. M Chinnaswamy Stadium, Bengaluru

**Q.84** Which of the following features of the Constitution of India is borrowed from the Constitution of the United Kingdom?

- Ans**
- ☐ A. Concurrent list
  - ☐ B. Directive principles of state policy
  - ☒ C. Single citizenship
  - ☐ D. Fundamental duties

**Q.85** Who among the following Indian cueists won his eighth title at the 19th Asian 100 UP Billiards Championship 2022?

- Ans**
- ☐ A. Dhruv Sitwala
  - ☒ B. Pankaj Advani
  - ☐ C. Wilson Jones
  - ☐ D. Alok Kumar

**Q.86** As per the Ministry of Mines, as of 2021, 44% of the country's primary gold ore reserves is in \_\_\_\_\_.

- Ans**
- ☐ A. Rajasthan
  - ☐ B. Karnataka
  - ☐ C. Jharkhand
  - ☒ D. Bihar

**Q.87** Shri Lal Bahadur Shastri National Sanskrit University is located in:

- Ans**
- ☒ A. New Delhi
  - ☐ B. Jaipur
  - ☐ C. Pune
  - ☐ D. Lucknow

**Q.88** In which of following states of India is the cultural festival 'LOSAR' celebrated?

- Ans**
- ☐ A. Nagaland
  - ☒ B. Arunachal Pradesh
  - ☐ C. Goa
  - ☐ D. Karnataka

**Q.89** On 7 March 2022, the Ministry of Women and Child Development (MoWCD), in partnership with the Ministry of Education and UNICEF, launched a landmark campaign to bring back out of school adolescent girls in India to the formal education and/or skilling system. What is the name of this campaign?

- Ans**
- ☐ A. Kanya Pathshala Utsav
  - ☐ B. Kanya Pravesh Utsav
  - ☒ C. Kanya Shiksha Pravesh Utsav
  - ☐ D. Kanya Shikhsan Utsav

**Q.90** In which of the following states are the Palitana temples, a Jain pilgrimage site, located?

- Ans**
- ☐ A. Jharkhand
  - ☒ B. Gujarat
  - ☐ C. Rajasthan
  - ☐ D. Karnataka

**Q.91** The 'Lohit' is a tributary of which river from following?

- Ans**
- ☐ A. Narmada
  - ☐ B. Cauvery
  - ☒ C. Brahmaputra
  - ☐ D. Indus

**Q.92** As of August 2022, what is the prescribed maximum age of the subscriber under Atal Pension Yojana (APY) when the minimum prescribed age is 18 years?

- Ans**
- ☐ A. 35 years
  - ☒ B. 40 years
  - ☐ C. 55 years
  - ☐ D. 60 years

**Q.93** From which of the following countries India has purchased S-400 Missile System?

- Ans**
- ☒ A. Russia
  - ☐ B. Israel
  - ☐ C. America
  - ☐ D. Canada

**Q.94** Which of the following is the correct period for which the Annual Budget 2021-22 of the Indian Government was announced?

- Ans**
- ☐ A. 31 March - 1 April 2021-22
  - ☐ B. 1 July - 30 June 2021-22
  - ☐ C. 1 November - 31 October 2021-22
  - ☒ D. 1 April - 31 March 2021-22

**Q.95** What do you call an economic contraction (recession) followed by an expansion?

- Ans**
- ☐ A. Balance of payment
  - ☐ B. Adaptive Expectations
  - ☐ C. Production function
  - ☒ D. Business Cycle

**Q.96** The Norman Borlaug National Excellence Award is given for excellence in which research field?

- Ans**
- ☒ A. Agricultural Sciences
  - ☐ B. Energy Sciences
  - ☐ C. Chemical Sciences
  - ☐ D. Physical Sciences

**Q.97** Which of the following industries has developed the most on the banks of the Hooghly river?

- Ans**
- ☐ A. Sugar Industry
  - ☐ B. Dairy Industry
  - ☐ C. Iron-ore Industry
  - ☒ D. Jute Industry

**Q.98** The largest peninsular river in India is:

- Ans**
- ☐ A. Krishna
  - ☒ B. Godavari
  - ☐ C. Cauvery
  - ☐ D. Narmada

Q.99

The historic place 'Chauri Chaura' is situated in which state?

Ans

 A. Himachal Pradesh

 B. Andhra Pradesh

 C. Uttar Pradesh

 D. Kerala

Q.100

The Banking Regulation Act, 1949 is a law that regulates banking firms in India. This Act was amended by the Banking Regulation (Amendment) Act of which year?

Ans

 A. 2018

 B. 2016

 C. 2020

 D. 2014



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 15/09/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** A boy goes to school at a speed of 3 km/h. He returns at a speed of 5 km/h. He takes a total of 4 hours for both going to school and returning. The distance (in km) between his home and school is:

- Ans**
- ☒ A. 7.2
  - ☒ B. 7.3
  - ☒ C. 7.4
  - ☒ D. 7.5

**Q.2** If  $6 : 18 :: 18 : y$ , find the value of y.

- Ans**
- ☒ A. 108
  - ☒ B. 36
  - ☒ C. 54
  - ☒ D. 72

**Q.3** Find the circumference (in m) of the largest circle that can be inscribed in a rectangle whose dimensions are given as 12 m and 7 m.

Take  $\pi = \frac{22}{7}$

- Ans**
- ☒ A. 37
  - ☒ B. 22
  - ☒ C. 19
  - ☒ D. 11

**Q.4** A man sells two articles for ₹20,000 each. He gets a profit of 15% on one article and loses 15% on the other article. What is his overall profit or loss (to the nearest integer) in this transaction?

- Ans**
- ☒ A. ₹921 profit
  - ☒ B. ₹921 loss
  - ☒ C. ₹1,021 profit
  - ☒ D. ₹1,021 loss

**Q.5** Two pipes can fill a tank in 25 hours and 35 hours, respectively. The time (in hours) required to fill the tank when both pipes are opened simultaneously is:

**Ans**

✓ A.  $\frac{175}{12}$

✗ B.  $\frac{165}{12}$

✗ C.  $\frac{175}{14}$

✗ D.  $\frac{165}{14}$

**Q.6** During the first year, the population of a town increased by 10% and in the second year it diminished by 10%. At the end of the second year its population was 4,73,220. The population at the beginning of the first year was:

**Ans**

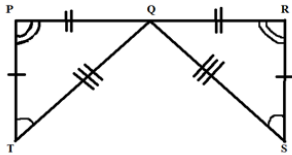
✗ A. 4,78,800

✗ B. 4,78,780

✓ C. 4,78,000

✗ D. 4,78,880

**Q.7** As per the figure given below,  $\Delta QRS \cong$  \_\_\_\_\_. [Note: Diagram is not drawn to scale or measurements indicated.]



**Ans**

✓ A.  $\Delta QPT$

✗ B.  $\Delta PTQ$

✗ C.  $\Delta TPQ$

✗ D.  $\Delta QTP$

**Q.8** Evaluate  $9.46\overline{7} - 2.46\overline{7} + 4.46\overline{7}$ .

**Ans**

✗ A.  $\frac{10321}{1100}$

✗ B.  $\frac{10521}{900}$

✗ C.  $\frac{10521}{1100}$

✓ D.  $\frac{10321}{900}$

**Q.9** Two right-angled triangles are congruent when which of the following conditions is true?

**Ans** ☒ A. When only their hypotenuses are equal

☒ B.

When only one of the sides of one of these triangles is equal in length to the corresponding side of the other triangle

☒ C.

When their hypotenuses are equal and one of the sides of one of these triangles is equal in length to the corresponding side of the other triangle

☒ D. When one more angle is equal

**Q.10** There are 50 students (boys and girls only) in a class. The number of boys is 10 more than the number of girls. The number of boys in the class is:

**Ans** ☒ A. 15

☒ B. 20

☒ C. 25

☒ D. 30

**Q.11** The HCF of 450, 1500 and 1650 is:

**Ans** ☒ A. 50

☒ B. 100

☒ C. 150

☒ D. 200

**Q.12** The quadratic equation  $3x^2 - 4\sqrt{3}x + 4 = 0$  has:

**Ans** ☒ A. two distinct real roots

☒ B. two equal real roots

☒ C. no real roots

☒ D. two imaginary roots

**Q.13** The area of a square plot is  $2916 \text{ m}^2$ . The length of each side of the plot (in m) is

**Ans** ☒ A. 44

☒ B. 54

☒ C. 58

☒ D. 64

**Q.14** Write the expanded form of  $(3a + 4b + 5c)^2$ .

**Ans** ☒ A.  $9a^2 + 16b^2 + 25c^2 + 24ab + 40bc + 30ac$

☒ B.  $9a^2 + 16b^2 + 25c^2 + 24ab + 40bc + 40ac$

☒ C.  $9a^2 + 16b^2 + 25c^2 + 24ab + 40bc + 50ac$

☒ D.  $9a^2 + 16b^2 + 25c^2 + 24ab + 40bc + 60ac$

**Q.15** The greatest number which divides 1876, 12503, and 6877 leaving remainders 1, 3, and 2, respectively, is:

**Ans** ☒ A. 625

☒ B. 675

☒ C. 555

☒ D. 655

**Q.16** The weights (in kg) of 9 members of a school cricket team are 50, 63, x, 62, 64, 48, 51, 55, 48. If the mean weight is 56 kg, then the value of x is \_\_\_\_\_.

- Ans**
- ☒ A. 64
  - ☒ B. 48
  - ☒ C. 63
  - ☒ D. 57

**Q.17** A bronze article having a marked price of ₹1,000 is sold during a festive season sale after three successive discounts of 20% and 30% and 10%. What will be the amount (in ₹) to be paid by a customer if she buys the article during the festival season?

- Ans**
- ☒ A. 496
  - ☒ B. 508
  - ☒ C. 504
  - ☒ D. 564

**Q.18** A cricket club bought 12 bats and 18 balls for ₹2,100. After a few days, the cost of the same types of 8 bats and 22 balls purchased at the same rates was ₹1,900. The cost of a bat is:

- Ans**
- ☒ A. ₹50
  - ☒ B. ₹100
  - ☒ C. ₹150
  - ☒ D. ₹200

**Q.19** The positive square root of  $\left(\frac{2+\sqrt{3}}{2-\sqrt{3}} + \frac{2-\sqrt{3}}{2+\sqrt{3}} + 11\right)$  is \_\_\_\_\_.

- Ans**
- ☒ A.  $2\sqrt{3}$
  - ☒ B.  $2 + \sqrt{3}$
  - ☒ C. 5
  - ☒ D.  $5 - \sqrt{3}$

**Q.20** Find the value of  $\frac{\cos^2 12^\circ + \cos^2 23^\circ}{2\sin^2 78^\circ + 2\sin^2 67^\circ}$ .

- Ans**
- ☒ A. 0
  - ☒ B. 1
  - ☒ C.  $\frac{1}{2}$
  - ☒ D. 2

**Q.21** If the length of the longest diagonal of a closed cube is  $10\sqrt{3}$  cm, then its total surface area (in  $\text{cm}^2$ ) is \_\_\_\_\_.

- Ans**
- ☒ A. 300
  - ☒ B. 600
  - ☒ C. 900
  - ☒ D.  $100\sqrt{3}$

**Q.22** Four years ago, Rajesh was three times as old as Naresh. Four years hence he will be twice as old as Naresh will then be. The present age of Rajesh (in years) is:

- Ans**
- ☒ A. 28
  - ☒ B. 32
  - ☒ C. 33
  - ☒ D. 35



**Q.23** How many years will it take for a certain sum to get doubled at the rate of  $6\frac{1}{4}\%$  simple interest per annum?

- Ans**
- ☒ A. 6.25
  - ☒ B. 16
  - ☒ C. 4
  - ☒ D. 8.4

**Q.24** The arithmetic mean of 2.5, 6.5, 4.5, 16.5, 3.5 and 2.5 is:

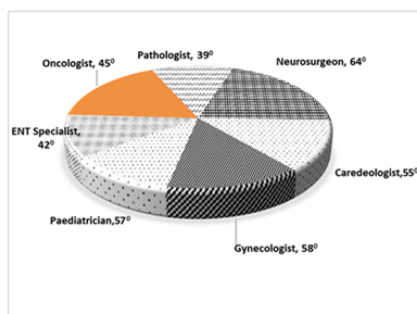
- Ans**
- ☒ A. 6
  - ☒ B. 7.25
  - ☒ C. 8.25
  - ☒ D. 5.75

**Q.25** The quadratic equation  $x^2 + 7x - 60$  has:

- Ans**
- ☒ A. two equal roots
  - ☒ B. two real and unequal roots
  - ☒ C. no real roots
  - ☒ D. two equal imaginary roots

**Section : General Intelligence and Reasoning**

**Q.26** The following pie chart shows the different specialists in ABC hospital during the year 2021-2022. Study the pie-chart and answer the question.



If the total number of all these specialists was 60, then how many ENT specialists were there in the hospital?

- Ans**
- ☒ A. 5
  - ☒ B. 7
  - ☒ C. 10
  - ☒ D. 12

**Q.27** Six persons are sitting around a circular table facing the centre. Alok sits to the immediate right of Sonu. Ladoo sits third to the left of Alok. Soni sits third to the right of Sonu. Dimple is an immediate neighbour of both Ladoo and Sonu. Sushma is not an immediate neighbour of Ladoo. Who sits second to the right of Sushma?

- Ans**
- ☒ A. Ladoo
  - ☒ B. Dimple
  - ☒ C. Alok
  - ☒ D. Sonu

**Q.28** This question is based on the five, three-digit numbers given below.

(Left) 986 432 631 387 267 (Right)

(Example- 123 – First digit = 1, second digit = 2 and third digit = 3)

NOTE - All operations to be done from left to right.

What will be the resultant if the second digit of the third greatest number is added to the third digit of the smallest number?

**Ans** ☒ A. 12

☒ B. 11

☒ C. 10

☒ D. 9

**Q.29** Select the option that is related to the fifth letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster and the fourth letter-cluster is related to the third letter-cluster.

MODERN : RONMED :: GERMAN : AENGMR :: JUNIOR : ?

**Ans** ☒ A. OURJNI

☒ B. OURJIN

☒ C. OUJRIN

☒ D. ORUJIN

**Q.30** A certain number of persons are sitting in a row, facing North. Hriday is sitting to the immediate right of Vijay. There are only three persons sitting between Gaurav and Vijay. Vijay is sitting exactly second to the left of Imran, who is sitting at the extreme right end. Kiara and David are immediate neighbours of Lalita. There is only one person to the left of Gaurav. If no other person is sitting in the row, what is the total number of persons seated?

**Ans** ☒ A. Six

☒ B. Seven

☒ C. Eight

☒ D. Nine

**Q.31** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

All potatoes are tomatoes.

All tomatoes are onions.

All onions are books.

Conclusions:

(I) Some books are potatoes.

(II) Some onions are tomatoes.

**Ans** ☒ A. Only conclusion I follows

☒ B. Only conclusion II follows

☒ C. Neither conclusion I nor II follow

☒ D. Both conclusions I and II follow

**Q.32** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

Some chairs are tables.

Some tables are pens.

All pens are inks.

Conclusions:

(I) Some chairs are pens.

(II) Some tables are inks.

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Neither conclusion I nor II follow
  - ☒ D. Both conclusions I and II follow

**Q.33** Refer to the following letter, symbol series and answer the question.

R # A \$ G H K % T B M & N Y + X B / L Q @ D

If the second symbol and third letter from the left end of series are combined with the fifth and six terms from the right end of the series, then what letter symbol combination will be formed?

- Ans**
- ☒ A. \$ # B X
  - ☒ B. # \$ L B
  - ☒ C. # A / B
  - ☒ D. \$ G / B

**Q.34** Each of the digits in the number 354982 is arranged in ascending order from left to right. The position of how many digits will remain unchanged as compared to that in the original number?

- Ans**
- ☒ A. One
  - ☒ B. Two
  - ☒ C. Three
  - ☒ D. None

**Q.35** Seven boxes are kept one over the other but not necessarily in the same order. S is fifth from the top. Only two boxes are kept between S and V. R is kept just below V. Only two boxes are kept between P and T. P is placed in one of the positions above T. Only one box is kept between S and Q. Which box is kept fourth from the bottom?

- Ans**
- ☒ A. S
  - ☒ B. T
  - ☒ C. R
  - ☒ D. U

**Q.36** U, V, W, X, Y and Z are sitting in a row facing towards North (but not necessarily in the same order). Z is sitting second to the right of V and immediate left of Y. Only one person is sitting between U and V. W is not the immediate neighbor of U. Who is sitting at second position from the right end?

- Ans**
- ☒ A. Z
  - ☒ B. Y
  - ☒ C. U
  - ☒ D. X

**Q.37** What will come in the place of '?' in the following equation, if '+' and '-' are interchanged and also '×' and '÷' are interchanged?

$$45 \times 15 \div 40 - 30 + 5 = ?$$

- Ans**
- ☒ A. 126
  - ☒ B. 125
  - ☒ C. 145
  - ☒ D. 146

**Q.38** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

$$14 : 20 :: 26 : 38 :: 18 : ?$$

- Ans**
- ☒ A. 24
  - ☒ B. 30
  - ☒ C. 26
  - ☒ D. 28

**Q.39** In a code language, 'weather is cool' is written as 'nu vu du', 'temperature cool now' is written as 'hu du ru' and 'temperature is high' is written as 'tu vu ru'. What is the code for the word 'high' in that language?

- Ans**
- ☒ A. tu
  - ☒ B. vu
  - ☒ C. ru
  - ☒ D. du

**Q.40** All 20 students of a class are standing in a straight row facing north. Shilpa is 7<sup>th</sup> from the right end, while Nikhil is 18<sup>th</sup> from the left end. How many students are standing between Shilpa and Nikhil?

- Ans**
- ☒ A. 3
  - ☒ B. 2
  - ☒ C. 1
  - ☒ D. 4

**Q.41** In this question, a statement is followed by two conclusions. Which of the two conclusions is/are true with respect to the statement?

Statement:  $N < L > J < K > I = H \leq G$

Conclusions:

I.  $J = G$

II.  $K > H$

- Ans**
- ☒ A. Only conclusion I is true
  - ☒ B. Only conclusion II is true
  - ☒ C. Both conclusions I and II are true
  - ☒ D. Neither conclusion I nor II is true

**Q.42** Kavya went 1 km straight from her friend's home, then turned left and moved 3 km straight. She again turned left and travelled 4 km, from there she turned left and moved 1 km. If she was moving in the west direction at last, then in which direction she initially moved from her friend's home?

- Ans**
- ☒ A. South
  - ☒ B. West
  - ☒ C. North
  - ☒ D. East

**Q.43** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

Some notebooks are pencils.

All pencils are bags.

All bags are bottles.

Conclusions:

(I) All pencils are bottles.

(II) Some bags are notebooks.

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Neither conclusion I nor II follow
  - ☒ D. Both conclusions I and II follow

**Q.44** Which of the following numbers will replace the question mark (?) in the given series?  
3, 7, 6, 14, 12, 28, 24, ?

- Ans**
- ☒ A. 51
  - ☒ B. 54
  - ☒ C. 56
  - ☒ D. 60

**Q.45** This question is based on the five, three-digit numbers given below.

(Left) 734 462 397 354 881 (Right)

(Example: 697 – first digit = 6, second digit = 9, third digit = 7)

NOTE: All operations to be done from left to right.

If all the numbers are arranged in ascending order, the position of how many numbers will remain unchanged?

- Ans**
- ☒ A. 0
  - ☒ B. 1
  - ☒ C. 2
  - ☒ D. 3

**Q.46** In this question, a statement is followed by four conclusions. Find out which conclusion is true based on the given statement.

Statement:

$H \geq E > S \leq T = P > Q$

Conclusions:

1.  $Q = T$

2.  $S < H$

3.  $S > P$

4.  $E > T$

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.47** Select the combination of letters and numbers that when sequentially placed from left to right in the same sequence in the blanks of the given series, will complete the series.

D \_ H 10 L \_ P 18 \_

- Ans**
- ☒ A. F N 20
  - ☒ B. 6 14 T
  - ☒ C. 7 12 S
  - ☒ D. 8 S 20

**Q.48** Which of the following numbers will replace the question mark (?) in the given series?  
17, 30, 47, 66, 89, ?

- Ans**
- ☒ A. 117
  - ☒ B. 118
  - ☒ C. 119
  - ☒ D. 116

**Q.49** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

6 : 64 :: 11 : 169 :: 8 : ?

- Ans**
- ☒ A. 81
  - ☒ B. 100
  - ☒ C. 70
  - ☒ D. 72

**Q.50** Shyam starts from Point A and drives 15 km towards the north. He then takes a right turn, drives 5 km, turns right and drives 20 km. He then takes a right turn and drives 10 km. He takes a final right turn, drives 5 km and stops at Point P. How far and towards which direction should he drive in order to reach Point A from Point P in a straight line? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 4 km towards the east
  - ☒ B. 5 km towards the west
  - ☒ C. 5 km towards the east
  - ☒ D. 7 km towards the west

**Q.51** The following table shows the sales of different brands of mobiles of a shop during the years 2018-2020. Study the table and answer the question.

| Year | Brand<br>(in thousands) |     |     |
|------|-------------------------|-----|-----|
|      | A                       | S   | M   |
| 2018 | 175                     | 388 | 112 |
| 2019 | 312                     | 401 | 146 |
| 2020 | 202                     | 255 | 126 |

What is the percentage decrease in the sales of brand S from the year 2019 to 2020?

- Ans**
- ☒ A. 36.40%
  - ☒ B. 57.25 %
  - ☒ C. 53.62%
  - ☒ D. 38.32%

**Q.52** This question is based on the five, three-digit numbers given below:

(Left) 485 746 379 137 254 (Right)

(Example: 697 – First digit = 6, second digit = 9 and third digit = 7)

(NOTE - All operations to be done from left to right.)

If all the numbers of the given series are arranged in ascending order, the position of which of the following numbers will remain unchanged?

- Ans**
- ☒ A. 137
  - ☒ B. 254
  - ☒ C. 379
  - ☒ D. 746

**Q.53** Read the given statement and the arguments carefully and select the appropriate answer from the given options.

**Statement:**

“If waste management capabilities of Hospital X are dealt with, we will definitely win the ‘excellence in service’ award for year 22-23.” One of the board of directors from Hospital X.

**Arguments:**

- I. In four separate incidents in the year 22-23, 15 patients lost their lives and 46 were injured due to various incidents such as fire breakout in ICU, lack of oxygen etc.
- II. Hospital A located in the nearby city has won ‘excellence in service’ award for a record five times.

- Ans**
- ☒ A. I weakens while II strengthens the statement.
  - ☒ B. II weakens while I strengthens the statement.
  - ☒ C. I weakens while II is a neutral argument
  - ☒ D. II weakens while I is a neutral argument

**Q.54** In a certain code language, ‘KHADI’ is written as ‘OJGNQ’ and ‘DRINK’ is written as ‘QTOXJ’. How will ‘INLET’ be written in that language?

- Ans**
- ☒ A. YKRTQ
  - ☒ B. ZK RTP
  - ☒ C. ZK RTO
  - ☒ D. ZL RTO

**Q.55** What approximate value should come in place of the question mark (?) in the following equation?

$$14.95 \times 27.05 \div 2.99 - 35.98 + 12.10 = ?$$

- Ans**
- ☒ A. 112
  - ☒ B. 111
  - ☒ C. 110
  - ☒ D. 109

#### Section : General Science

**Q.56** Electric energy consumed in one second is:

- Ans**
- ☒ A. work
  - ☒ B. current
  - ☒ C. power
  - ☒ D. potential energy

Q.57 Which of the following properties remain(s) the same in a homologous series?

- Ans
- ☐ A. Molecular mass
  - ☐ B. Boiling points
  - ☒ C. Chemical properties
  - ☐ D. Melting points

Q.58 White AgCl turns grey in presence of:

- Ans
- ☐ A. O<sub>2</sub>
  - ☒ B. sunlight
  - ☐ C. Water
  - ☐ D. CO<sub>2</sub>

Q.59 If m, v and u, respectively, represent magnification, image distance and object distance, then the correct relation between m, v and u for a lens will be:

- Ans
- ☐ A.  $m = u + v$
  - ☐ B.  $m = v \times u$
  - ☒ C.  $m = \frac{v}{u}$
  - ☐ D.  $m = \frac{u}{v}$

Q.60 Chlorophyll pigment is present in which of the following components of a cell?

- Ans
- ☒ A. Chloroplasts
  - ☐ B. Ribosomes
  - ☐ C. Mitochondria
  - ☐ D. Lysosomes

Q.61 The heating element of a bulb is made up of:

- Ans
- ☐ A. silicon
  - ☒ B. tungsten
  - ☐ C. copper
  - ☐ D. mercury

Q.62 Which of the following elements does NOT belong to period 3 of the Modern Periodic Table?

- Ans
- ☐ A. Al
  - ☐ B. Ar
  - ☐ C. S
  - ☒ D. Ge

Q.63 Effective resistance of the series combination of three resistors each with resistance 2Ω is:

- Ans
- ☐ A. 2 Ω
  - ☐ B. 0.66 Ω
  - ☐ C. 1.5 Ω
  - ☒ D. 6 Ω



- Q.64** A solenoid carrying constant current can be used as a:
- Ans** ☒ A. source of a constant magnetic field  
☐ B. source of a non-uniform magnetic field  
☐ C. source of a light  
☐ D. source of a mechanical energy
- Q.65** Which element is NOT included in Group 2 of the Modern Periodic Table?
- Ans** ☐ A. Be  
☒ B. Na  
☐ C. Mg  
☐ D. Ca
- Q.66** Baking powder is a mixture of:
- Ans** ☒ A. baking soda + mild edible acid  
☐ B. baking soda + strong acid  
☐ C. baking soda + weak base  
☐ D. baking soda + strong base
- Q.67** Which of the following tissues is found below the skin and between the internal organs?
- Ans** ☐ A. Muscular tissue  
☒ B. Adipose tissue  
☐ C. Nervous tissue  
☐ D. Epithelial tissue
- Q.68** Working principle of an electric motor is
- Ans** ☒ A. A coil carrying conductor experiences force in the region of non-uniform magnetic field  
☐ B. Electromagnetic induction  
☐ C. A coil carrying current experiences force in the region of gravitational field  
☐ D. A coil carrying current experiences force in the region of electric field
- Q.69** What is the environmental loss if many trees are cut in a forest to get wood?
- Ans** ☐ A. It will provide open space for other trees to grow.  
☐ B. It will give livelihood to many poor people.  
☒ C. It will lead to soil erosion and degradation.  
☐ D. It will let in more sunlight to let smaller plants to grow.
- Q.70** For a spherical mirror, the distance between the pole and the centre of the curvature is:
- Ans** ☐ A. equal to the focal length  
☒ B. twice the distance between pole and F  
☐ C. equal to the distance between c and F  
☐ D. half of the radius of curvature

Q.71 The colour of  $\text{CuCl}_2$  solution is:

- Ans
- ☐ A. blue-red
  - ☐ B. yellow-green
  - ☒ C. blue-green
  - ☐ D. red-green

Q.72 Which of the following elements can form both a double bond and a single bond with a carbon atom?

- Ans
- ☐ A. F
  - ☐ B. Cl
  - ☐ C. Br
  - ☒ D. O

Q.73 Which of the following can cause cramps in our muscles?

- Ans
- ☐ A. Lack of  $\text{CO}_2$
  - ☒ B. Lack of  $\text{O}_2$
  - ☐ C. Excess of  $\text{O}_2$
  - ☐ D. Excess of  $\text{CO}_2$

Q.74 The height of the image of an object below principal axis of a spherical mirror \_\_\_\_\_.

- Ans
- ☐ A. is positive
  - ☒ B. is negative
  - ☐ C. depends on position of object
  - ☐ D. depends on position of image

Q.75 An object is placed on the principal axis of a lens of power 2.0 D, at a distance of 10 cm. The image formed is \_\_\_\_\_.

- Ans
- ☐ A. real and erect
  - ☒ B. virtual and erect
  - ☐ C. real and inverted
  - ☐ D. virtual and inverted

Q.76 Acid rain has pH value less than:

- Ans
- ☐ A. 7.6
  - ☐ B. 6.6
  - ☐ C. 8.6
  - ☒ D. 5.6

Q.77 Glucose is represented by which of the following formulae?

- Ans
- ☐ A.  $\text{C}_2\text{H}_5\text{OH}$
  - ☒ B.  $\text{C}_6\text{H}_{12}\text{O}_6$
  - ☐ C.  $\text{CH}_3\text{COOH}$
  - ☐ D.  $\text{C}_6\text{H}_{14}\text{O}_8$

- Q.78** What is a 'bawri'?
- Ans** ☒ A. A narrow bore tube-well  
☒ B. A traditional way of collecting water  
☒ C. An underground tank to store water  
☒ D. A canal providing water to agricultural land
- Q.79** Joint forest management is an example of which of the following?
- Ans** ☒ A. Economic equality  
☒ B. Political equality  
☒ C. Participatory approach  
☒ D. Single man dominance
- Q.80** Formal health education is important for women for various reasons listed below. Which of the following is an INCORRECT option with regard to formal health education in women?
- Ans** ☒ A. Helps to reduce child and maternal deaths  
☒ B. Provides knowledge about sexually transmitted diseases  
☒ C. Provides information about nutritional needs of children  
☒ D. Empowers them to decide about child bearing

Section : General Awareness and Current Affairs

- Q.81** The Government of India has approved the Centrally Sponsored Scheme 'Pradhan Mantri Poshan Shakti Nirman (PM POSHAN)' for providing one hot cooked meal in Government and Government - aided Schools from 2021-22 to \_\_\_\_\_
- Ans** ☒ A. 2025-26  
☒ B. 2023-24  
☒ C. 2026-27  
☒ D. 2024-25
- Q.82** Which of the following Ministries of India, has created 'Women Safety Division' to address issues of women safety comprehensively?
- Ans** ☒ A. Ministry of Home Affairs  
☒ B. Ministry of Women and Child Development  
☒ C. Ministry of Labour and Employment  
☒ D. Ministry of Law and Justice
- Q.83** Which of the following states was ranked first in Category I of e-Panchayat Puraskar 2021?
- Ans** ☒ A. Rajasthan  
☒ B. Himachal Pradesh  
☒ C. Uttar Pradesh  
☒ D. Haryana

**Q.84** As per a news report of February 2022, \_\_\_\_\_ developed a biodegradable nanoparticle to protect crops from fungal and bacterial infections.

- Ans**
- ☒ A. IIT Kharagpur
  - ☒ B. IIT Kanpur
  - ☒ C. IIT Roorkee
  - ☒ D. IIT Guwahati

**Q.85** Which of the following states has the oldest operating oil refinery in India since 1901?

- Ans**
- ☒ A. West Bengal
  - ☒ B. Mumbai
  - ☒ C. Madhya Pradesh
  - ☒ D. Assam

**Q.86** Consumers lose satisfaction in a product the more they consume it, this is known as \_\_\_\_\_.

- Ans**
- ☒ A. maximum utilisation
  - ☒ B. decreasing marginal utility
  - ☒ C. non-satiation
  - ☒ D. increasing marginal utility

**Q.87** Who among the following was a renowned Indian Statistician, and was instrumental in formulating India's strategy for Industrialisation in the Second Five Year Plan?

- Ans**
- ☒ A. Jagdish Natwarlal Bhagwati
  - ☒ B. Prof. VKRV Rao
  - ☒ C. VR Gadgil
  - ☒ D. Prasant Chandra Mahalanobis

**Q.88** In which state is the first Graphene Innovation Centre of the India set up?

- Ans**
- ☒ A. Kerala
  - ☒ B. Telangana
  - ☒ C. Karnataka
  - ☒ D. Gujarat

**Q.89** The river Tapi rises in the \_\_\_\_\_.

- Ans**
- ☒ A. Aravali range
  - ☒ B. Nilgiri hills
  - ☒ C. Satpura range
  - ☒ D. Himalayan range

**Q.90** Which one of the following is the official language of Goa?

- Ans**
- ☒ A. Konkani
  - ☒ B. Kokborok
  - ☒ C. Khamti
  - ☒ D. Tamang

Q.91

In which of the following states is the concentration of Buddhism the largest as per 2011 Census data?

Ans

☐ A. Andhra Pradesh

☒ B. Maharashtra

☐ C. Goa

☐ D. Uttarakhand

Q.92

If the saving function is  $S = -30 + 0.3Y$ , what will be the value of MPC (marginal propensity to consume)?

Ans

☐ A. 0

☐ B. 0.3

☒ C. 0.7

☐ D. 0.9

Q.93

Which of the following states has the largest coal reserves of India?

Ans

☒ A. Jharkhand

☐ B. Odisha

☐ C. Chhattisgarh

☐ D. West Bengal

Q.94

The feature of Quasi Federal Government system in the Constitution of India is borrowed from the constitution of which country?

Ans

☒ A. Canada

☐ B. South Africa

☐ C. The UK

☐ D. The US

Q.95

In which of the following years was Shaktikanta Das appointed as the Reserve Bank of India's Governor?

Ans

☐ A. 2017

☒ B. 2018

☐ C. 2019

☐ D. 2020

Q.96

Who among the following was conferred the Dhyan Chand Award for life time achievement in sports for the year 2021 in the chess discipline?

Ans

☒ A. Abhijeet Kunte

☐ B. Radhakrishnan Nair

☐ C. Pritam Siwach

☐ D. Sandhya Gurung

**Q.97** Who among the following founded the Satyashodhak Samaj?

- Ans**
- ☐ A. Narayana Guru
  - ☒ B. Jyotirao Phule
  - ☐ C. Ishwarchandra Vidyasagar
  - ☐ D. Swami Dayanand Saraswati

**Q.98** The Jewish festival of lights is called:

- Ans**
- ☒ A. Hanukkah
  - ☐ B. Hornbill
  - ☐ C. Nauroj
  - ☐ D. Anthurium

**Q.99** Priyanka Nutakki is related to which of the following sports events?

- Ans**
- ☒ A. Chess
  - ☐ B. Badminton
  - ☐ C. Hockey
  - ☐ D. Wrestling

**Q.100** The Supreme Court and High Courts have power to issue writs in the nature of habeas corpus, quo warranto, mandamus, certiorari, prohibition, etc., under \_\_\_\_\_.

- Ans**
- ☐ A. Articles 42 and 26, respectively
  - ☐ B. Articles 226 and 32, respectively
  - ☒ C. Articles 32 and 226, respectively
  - ☐ D. Articles 26 and 42, respectively



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 15/09/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** If  $4 \sin^2 \theta = 1$  and  $\theta$  is an acute angle, then the value of  $\cos^2 \theta + \tan^2 \theta =$  \_\_\_\_\_.

Ans ☒ A. 1

☒ B.  $\frac{1}{4}$

☒ C.  $\frac{13}{12}$

☒ D.  $\frac{5}{13}$

**Q.2** Which of the following is NOT necessarily a property of a rhombus?

Ans ☒ A. All sides are equal.

☒ B. Opposite sides are parallel.

☒ C. Diagonals are perpendicular bisectors.

☒ D. Diagonals are equal.

**Q.3** The value of  $\sqrt{1225} + \sqrt{6.25} + \sqrt{12.25} - 8$  is \_\_\_\_\_.

Ans ☒ A. 0.16

☒ B. 50

☒ C. 0.75

☒ D. 33

**Q.4** The equation  $(x + 1)^2 - 2(x + 1) = 0$  has:

Ans ☒ A. two real roots

☒ B. no real roots

☒ C. one real root

☒ D. two equal roots



**Q.5** Two parallel lines  $l$  and  $m$  are intersected by a transversal  $p$ . The quadrilateral formed by the bisectors of the interior angles thus obtained is necessarily a:

- Ans**
- ☐ A. rhombus
  - ☐ B. square
  - ☐ C. parallelogram, but not a rectangle
  - ☒ D. rectangle

**Q.6** An article whose marked price is ₹ 800 is sold at a profit of 50% when there are successive discounts of 20%, 10%, and 5% offered by the shopkeeper. The selling price (rounded to the nearest rupee) when the article is sold at a profit of 60%, with the same cost price, is:

- Ans**
- ☐ A. ₹684
  - ☒ B. ₹584
  - ☐ C. ₹504
  - ☐ D. ₹604

**Q.7** The value of  $[(0.413) \div (0.00413)] - 74.27 - 25.72$  is \_\_\_\_\_.

- Ans**
- ☐ A. 0
  - ☐ B. 1
  - ☐ C. 0.1
  - ☒ D. 0.01

**Q.8** The value of  $\left(\frac{y^{b+c}}{y^{2a}}\right)\left(\frac{y^{c+a}}{y^{2b}}\right)\left(\frac{y^{a+b}}{y^{2c}}\right)$  is \_\_\_\_\_.

- Ans**
- ☐ A.  $y^{\frac{ab}{c}}$
  - ☐ B.  $y^{abc}$
  - ☐ C. 0
  - ☒ D. 1

**Q.9** 3 men or 4 women can do a job in 15 days. 3 men work for 9 days and leave. The number of women required to complete the remaining work in 12 days is:

- Ans**
- ☐ A. 1
  - ☒ B. 2
  - ☐ C. 3
  - ☐ D. 4

**Q.10** The roots of the equation  $2x^2 - 3x - 20 = 0$  are:

- Ans**
- ☐ A. 4,  $5/2$
  - ☐ B. -4,  $5/2$
  - ☐ C. -4,  $-5/2$
  - ☒ D. 4,  $-5/2$



**Q.11** A man buys a second-hand car for ₹3,30,000 and spends ₹40,000 on its repairs. What should be its selling price if he wants to earn a 15% profit?

- Ans**
- ☐ A. ₹4,35,500
  - ☐ B. ₹4,27,000
  - ☒ C. ₹4,25,500
  - ☐ D. ₹4,30,000

**Q.12** The total surface area (in  $\text{cm}^2$ ) of a closed cube, the length of each of whose sides is 8 cm, is \_\_\_\_\_.

- Ans**
- ☐ A. 512
  - ☐ B. 256
  - ☒ C. 384
  - ☐ D. 402

**Q.13** If interest is ₹3,000, the rate of interest is 6% per annum simple interest, and time period is 4 years, then the principal sum is \_\_\_\_\_.

- Ans**
- ☐ A. ₹18,000
  - ☐ B. ₹17,500
  - ☒ C. ₹12,500
  - ☐ D. ₹13,500

**Q.14** If 5, 15, 20, and y are in proportion, then the value of y is:

- Ans**
- ☐ A. 40
  - ☐ B. 50
  - ☒ C. 60
  - ☐ D. 80

**Q.15** Simplify  $25 - [7 + 7 \text{ of } (33 - 4 \times 23)]$ .

- Ans**
- ☐ A. -395
  - ☒ B. 431
  - ☐ C. -4651
  - ☐ D. -9313

**Q.16** A, B and C can complete a piece of work in 48, 12 and 24 days, respectively. Working together, they will complete the work in \_\_\_\_\_ days.

- Ans**
- ☐ A.  $\frac{51}{7}$
  - ☐ B. 7
  - ☒ C.  $\frac{48}{7}$
  - ☐ D.  $\frac{47}{7}$

**Q.17** The correct empirical relationship between the mean, the median, and the mode of a set of data is given by:

- Ans**
- ☒ A.  $\text{Mean} - \text{Mode} = 3 \times (\text{Mean} - \text{Median})$
  - ☐ B.  $\text{Mean} - \text{Mode} = 4 \times (\text{Mean} - \text{Median})$
  - ☐ C.  $\text{Mean} - \text{Mode} = 2 \times (\text{Mean} - \text{Median})$
  - ☐ D.  $\text{Mean} - \text{Mode} = 1 \times (\text{Mean} - \text{Median})$

**Q.18** The numbers obtained when 200 is increased by 5% and decreased by 15% are respectively:

- Ans**
- ☒ A. 180 and 170
  - ☒ B. 210 and 170
  - ☒ C. 215 and 150
  - ☒ D. 210 and 175

**Q.19** At present, the ratio of the ages of Amit and Sumit is 4 : 3. After 6 years, Amit's age will be 50 years. What is the age of Sumit at present?

- Ans**
- ☒ A. 37 years
  - ☒ B. 24 years
  - ☒ C. 33 years
  - ☒ D. 44 years

**Q.20** The present ages of Kamal and Keerthi are in the ratio 3 : 5. After 9 years, the ratio of their ages will become 3 : 4. The present age of Keerthi is \_\_\_\_\_.

- Ans**
- ☒ A. 17 years
  - ☒ B. 15 years
  - ☒ C. 19 years
  - ☒ D. 12 years

**Q.21** Which of the following numbers is divisible by 11?

- Ans**
- ☒ A. 8245964
  - ☒ B. 9246864
  - ☒ C. 7247564
  - ☒ D. 9248164

**Q.22** The base and the corresponding height of a parallelogram are 10 cm and 6 cm, respectively. The area of the parallelogram (in  $\text{cm}^2$ ) is:

- Ans**
- ☒ A. 30
  - ☒ B. 45
  - ☒ C. 60
  - ☒ D. 75

**Q.23** The average age of a class of 50 boys is 12.9 years. It increases to 13 years when one new boy joins the class. The age (in years) of the new boy is \_\_\_\_\_.

- Ans**
- ☒ A. 15
  - ☒ B. 16
  - ☒ C. 18
  - ☒ D. 19

**Q.24** The average of the first 35 natural numbers is \_\_\_\_\_.

- Ans**
- ☒ A. 17
  - ☒ B. 17.5
  - ☒ C. 18
  - ☒ D. 18.5

**Q.25** (6, y) is a pair of co-prime numbers where y is a natural number not exceeding 20. How many possible values of y are there?

- Ans**
- ☐ A. 5
  - ☐ B. 6
  - ☒ C. 7
  - ☐ D. 8

Section : **General Intelligence and Reasoning**

**Q.26** Each of the digits in the number 43162857 is arranged in descending order from left to right. What will be the difference of the digits which are second from the left and second from the right in the new number thus formed?

- Ans**
- ☐ A. 6
  - ☒ B. 5
  - ☐ C. 7
  - ☐ D. 3

**Q.27** Select the option that is related to the seventh number in the same way as the second number is related to the first number, the fourth number is related to the third number and the sixth number is related to the fifth number.

7 : 2 :: 26 : 3 :: 63 : 4 :: 124 : ?

- Ans**
- ☐ A. 7
  - ☐ B. 6
  - ☐ C. 4
  - ☒ D. 5

**Q.28** Kavita moves 2 km Northwards from her office, then she turned 270 degree clockwise and moved 3 km straight and then she turned left and moved 2 km straight to reach her home. In which direction is she with respect to the starting point?

- Ans**
- ☐ A. East
  - ☐ B. North-East
  - ☒ C. West
  - ☐ D. South

**Q.29** Which of the following letter-number clusters will replace the question mark (?) in the given series to make it logically complete?

X4KT, W8PO, V12UJ, U16ZE, ?

- Ans**
- ☐ A. T16EZ
  - ☐ B. U20EA
  - ☒ C. T20EZ
  - ☐ D. U16EZ

**Q.30** Select the number from among the given options that can replace the question mark (?) in the following series.

4, 5, 13, 40, ?, 229, 445, 788, 1300

- Ans**
- ☐ A. 102
  - ☒ B. 104
  - ☐ C. 106
  - ☐ D. 110

**Q.31** This question is based on the five, three-digit numbers given below:  
(Left) 158 518 182 305 510 (Right)  
What will be the resultant if the third digit of the second smallest number is added to the first digit of the largest number?

- Ans**
- ✓ A. 7
  - ✗ B. 10
  - ✗ C. 8
  - ✗ D. 6

**Q.32** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

Some towels are soaps.

All soaps are shampoos.

All shampoos are brushes.

Conclusions:

(I) All soaps are brushes.

(II) Some brushes are shampoos.

- Ans**
- ✗ A. Only conclusion I follows
  - ✗ B. Only conclusion II follows
  - ✗ C. Neither conclusion I nor II follow
  - ✓ D. Both conclusions I and II follow

**Q.33** Refer to the following number series and answer the question.

2 3 5 6 5 7 9 2 4 8 6 5 8 4 8 4 8 3 3 7 8 3

How many such odd numbers are there each of which is immediately preceded by an even number and also immediately followed by an even number?

- Ans**
- ✓ A. One
  - ✗ B. Two
  - ✗ C. Four
  - ✗ D. None

**Q.34** Which of the following options is the closest approximate value which will come in place of question mark(?) in the following equation?

$17.99 - 16.02 + 19.89 \times 8.19 = ?$

- Ans**
- ✓ A. 162
  - ✗ B. 122
  - ✗ C. 42
  - ✗ D. 330

- Q.35** The following table shows the sales volume of three top selling products - A, B and C - of NOM Ltd. over the years 2016-2020. Study the table and answer the question.

| Year | Quantity<br>(in lakhs) |     |     |
|------|------------------------|-----|-----|
|      | A                      | B   | C   |
| 2016 | 342                    | 357 | 370 |
| 2017 | 284                    | 374 | 400 |
| 2018 | 315                    | 386 | 315 |
| 2019 | 298                    | 343 | 416 |
| 2020 | 252                    | 322 | 290 |

What is the approximate average number of product C (in lakhs) sold during the years 2016-2020?

- Ans**  **A. 358**  
 **B. 390**  
 **C. 447**  
 **D. 500**

- Q.36** Refer to the following letter, number, symbol series and answer the question.

C @ B N M K J % F K L I & S E W \* P O S E A

How many such symbols are there in the above series which are immediately preceded and followed by a vowel?

- Ans**  **A. Zero**  
 **B. One**  
 **C. Two**  
 **D. Three**

- Q.37** Which of the following options is the closest approximate value which will come in place of question mark(?) in the following equation?

$$14.96 + 10.96 + 13.16 - 12.89 \times 2.04 = ?$$

- Ans**  **A. 13**  
 **B. 17**  
 **C. 15**  
 **D. 19**

**Q.38** Three statements are given, followed by four conclusions numbered I, II, III and IV. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements

Statements:

1. All cars are scooters.
2. All scooters are trucks.
3. No helicopter is truck.

Conclusions:

- I. No truck is scooter.
- II. All cars are trucks.
- III. Some trucks are scooters.
- IV. No car is helicopter.

**Ans** ☒ A. Only either conclusions I or IV follow and III follow  
☒ B. Only either conclusions I or IV follow  
☒ C. Only conclusions II, III and IV follow  
☒ D. All the conclusions follow

**Q.39** In a certain code language, 'DOCTOR' is written as 'SPUDPE' and 'NURSE' is written as 'FTSVO'. How will 'WOUND' be written in the same code language?

**Ans** ☒ A. EPVOY  
☒ B. CMTNV  
☒ C. OVPOX  
☒ D. EOVPX

**Q.40** Amongst six friends, G, K, M, P, R, and V, each has a different height. R is shorter than K but taller than V, who is taller than G. P is taller than M but shorter than G. Who is the shortest of all six friends?

**Ans** ☒ A. P  
☒ B. M  
☒ C. V  
☒ D. G

**Q.41** Which of the following numbers will replace the question mark (?) in the given series?  
5, 11, 7, 12, 10, 14, 14, 17, 19, ?

**Ans** ☒ A. 20  
☒ B. 21  
☒ C. 22  
☒ D. 23

**Q.42** Avadh starts from Point F and drives 5 km towards the west. He then takes a right turn, drives 5 km, turns right and drives 5 km. Then he takes a final left turn, drives 2 km and stops at Point D. How far and towards which direction should he drive in order to reach Point F from Point D? (All turns are 90 degree turns only)

**Ans** ☒ A. 7 km towards the south  
☒ B. 2 km towards the east  
☒ C. 7 km towards the east  
☒ D. 2 km towards the west

**Q.43** Five friends Priyanka, Mrinalini, Gitanjali, Arnav and Shivalika travelled in different months of the same year viz. January, July, August, September and December. Gitanjali was the first one to travel in the year. Mrinalini travelled in the month immediately after Priyanka. Arnav travelled in the month immediately before Shivalika who was the last one to travel in the year. Who travelled in the month of August?

- Ans**
- ☐ A. Arnav
  - ☐ B. Gitanjali
  - ☒ C. Mrinalini
  - ☐ D. Priyanka

**Q.44** Eight friends, A, B, C, D, E, F, G and H are sitting around a square table facing the centre of the table. Some of them are sitting at the corners while some are sitting at the exact centre of the sides. B is sitting to the immediate right of H who is sitting immediately right of E. C and D are immediate neighbors of A. C and F are immediate neighbors of G. E is immediate neighbour of F and H. If C, D, F and H are sitting at the corners of the table not necessarily in the same order, who is sitting to the immediate left of E?

- Ans**
- ☐ A. H
  - ☐ B. D
  - ☐ C. C
  - ☒ D. F

**Q.45** Select the option that is related to the seventh number in the same way as the second number is related to the first number, the fourth number is related to the third number and the sixth number is related to the fifth number.

20 : 5 :: 56 : 8 :: 12 : 4 :: 42 : ?

- Ans**
- ☐ A. 6
  - ☐ B. 21
  - ☒ C. 7
  - ☐ D. 10

**Q.46** In a certain code language, 'DAGGLE' is written as 'GAJGOE' and 'MARKET' is written as 'PAUKHT'. How will 'ACTION' be written in that language?

- Ans**
- ☐ A. ECWISN
  - ☒ B. DCWIRN
  - ☐ C. ECWIRN
  - ☐ D. DCWISN

**Q.47** Seven people, J, K, L, M, N, O and P, live on different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it is numbered 2 and so on till the topmost floor which is numbered 7. J lives on an odd numbered floor but not on floor number 5. Three people live between K and L, and L lives on the lowermost floor. O lives exactly between K and N. N lives on the topmost floor. P lives immediately above J. Who lives on the second floor?

- Ans**
- ☐ A. J
  - ☒ B. M
  - ☐ C. P
  - ☐ D. O

**Q.48** A shopkeeper has five deliveries of different varieties of dry fruits— cashew nuts, almonds, pistachios, walnuts, and pine nuts— each delivery planned on a different date, viz- 1st, 6th, 12th, 20th and 30th of July 2022. The delivery of pine nuts is planned exactly after the delivery of almonds, which is planned exactly after the delivery of pistachios. The delivery of cashew nuts is planned exactly between the deliveries of pine nuts and walnuts. If the delivery of walnuts is the last delivery planned, on which date is the delivery of almonds planned?

- Ans**
- ☒ A. 6th July
  - ☐ B. 12th July
  - ☐ C. 20th July
  - ☐ D. 1st July

**Q.49** Select the correct conclusion that can be drawn from the given statements.

**Statements:**

1.  $A \leq G < D \geq M$

2.  $R > H \geq M$

**Ans** ☒ A.  $R \geq D$

☒ B.  $D > A$

☒ C.  $H \leq G$

☒ D.  $R \geq A$

**Q.50** Five persons are sitting around a circular table facing the centre. Robin is an immediate neighbour of both Sudhakar and Rudra. Rajesh is sitting second to the left of Robin. Rudra is sitting second to the right of Sudhakar. Ramesh is an immediate neighbour of both Rajesh and Rudra. Who is an immediate neighbour of both Ramesh and Robin?

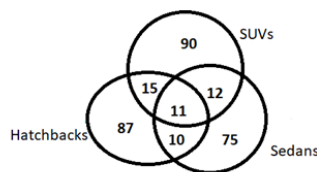
**Ans** ☒ A. Rudra

☒ B. Rajesh

☒ C. Sudhakar

☒ D. Cannot be determined

**Q.51** Study the given diagram carefully and answer the question. The number in different sections indicates the number of employees of ABC company owning different types of cars. Total number of employees = 300.



What is the percentage of employees who have both Hatchbacks and Sedans?

**Ans** ☒ A. 7.0 %

☒ B. 3.66%

☒ C. 18.78%

☒ D. 2.0 %

**Q.52** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

ALM: EPQ

NSO: RWS

**Ans** ☒ A. OSD: PCV

☒ B. FPG: JTK

☒ C. SLT: RVM

☒ D. FVD: GOS

**Q.53** Refer to the following letter, number, symbol series and answer the question.

(Left) F 1 % 5 & 2 L H 8 4 # T \* G 2 7 F 8 C 2 Y \$ M 6 F (Right).

How many such numbers are there which are immediately preceded by a letter and also immediately followed by a number?

**Ans** ☒ A. 1

☒ B. 2

☒ C. 3

☒ D. 4



**Q.54** Read the given statement and the arguments carefully and select the appropriate answer from the given options.

**Statement:**

Schools should encourage self-discipline among children of all ages.

**Arguments:**

- I. Children till the age of 7 years are not mature enough to understand the concept of discipline
- II. Discipline lasts longer and more effective when instilled by oneself than by others from outside.

**Ans** ☒ A. I weakens while II strengthens the statement.

☒ B. II weakens while I strengthens the statement.

☒ C. Both I and II weaken the statement.

☒ D. Both I and II strengthen the statement.

**Q.55** Which two signs should be interchanged to make the following equation mathematically correct?

$$69 - 23 + 15 \div 11 \times 12 = -114$$

**Ans** ☒ A. - and +

☒ B. - and  $\div$

☒ C.  $\times$  and -

☒ D. + and  $\div$

Section : General Science

**Q.56** What type of carbohydrate is formed after photosynthesis?

**Ans** ☒ A. Glycogen

☒ B. Fructose

☒ C. Glucose

☒ D. Mannose

**Q.57** The focal length of a spherical mirror is the distance between:

**Ans** ☒ A. infinity and C

☒ B. C and pole

☒ C. F and pole

☒ D. infinity and F

**Q.58** The loss of water in the form of vapour from the aerial parts of the plant is known as:

**Ans** ☒ A. evaporation

☒ B. transpiration

☒ C. translocation

☒ D. transportation

**Q.59** If a constant current of 2 A is maintained in a conductor of resistance 100  $\Omega$ , then the potential difference across the conductor is:

**Ans** ☒ A. 200 V

☒ B. 50 V

☒ C. 0.02 V

☒ D. 20 V

**Q.60** Why is the breathing rate of aquatic organisms much faster than the terrestrial ones?

- Ans**
- ☒ A. Because of less  $\text{CO}_2$  in water
  - ☒ B. Because water is polluted
  - ☒ C. Because of less  $\text{O}_2$  in water
  - ☒ D. Because of more  $\text{O}_2$  in water

**Q.61** Which property does NOT show gradation with increasing molecular mass in any homologous series of carbon compounds?

- Ans**
- ☒ A. Combustion
  - ☒ B. Melting point
  - ☒ C. Boiling point
  - ☒ D. Solubility in a particular solvent

**Q.62** Calcium sulphate hemihydrates is the chemical name for:

- Ans**
- ☒ A. gypsum
  - ☒ B. plaster of Paris
  - ☒ C. washing soda
  - ☒ D. baking powder

**Q.63** Magnetic field lines around a straight conductor carrying a current will always be:

- Ans**
- ☒ A. parallel to the direction of current
  - ☒ B. parallel to the length of the conductor
  - ☒ C. perpendicular to the direction of current
  - ☒ D. intersecting each other

**Q.64** A convex lens forms a sharp image of a distant object on a screen placed at 20 cm from the lens. The power of the lens is nearly equal to:

- Ans**
- ☒ A. 5 D
  - ☒ B. -5 D
  - ☒ C. 0.05 D
  - ☒ D. -0.05 D

**Q.65** One of the contrasting pairs of characters studied by Mendel was \_\_\_\_\_.

- Ans**
- ☒ A. purple and white flowers
  - ☒ B. yellow and purple flowers
  - ☒ C. white and yellow flowers
  - ☒ D. blue and white flowers

Q.66 In which of the following is cartilage NOT present?

- Ans ☒ A. Larynx  
☒ B. Kidney  
☒ C. Nose  
☒ D. Ear

Q.67 The total number of elements known at present is:

- Ans ☒ A. 118  
☒ B. 117  
☒ C. 116  
☒ D. 115

Q.68 A 12 cm long object is placed at a distance of 15 cm from a concave lens. Its virtual image of 8 cm is obtained at a distance of \_\_\_\_\_.

- Ans ☒ A. +10 cm  
☒ B. -10 cm  
☒ C. +22.5 cm  
☒ D. -22.5 cm

Q.69 What is the chemical formula of marble?

- Ans ☒ A.  $\text{Ca(OH)}_2$   
☒ B.  $\text{CaSO}_4$   
☒ C.  $\text{CaCO}_3$   
☒ D.  $\text{Ca(HCO}_3)_2$

Q.70 If three wires of tungsten, manganin and hard rubber are identical in dimension then resistance of \_\_\_\_\_.

- Ans ☒ A. Tungsten is highest  
☒ B. Manganin is highest  
☒ C. Hard rubber is least  
☒ D. Tungsten is least

Q.71 Which statement about Mendeleev's Periodic Table is INCORRECT?

- Ans ☒ A. Vertical columns are called 'groups'.  
☒ B. Horizontal rows are called 'periods'.  
☒ C. The properties of elements are the periodic functions of their atomic numbers.  
☒ D. Elements are arranged in the order of their increasing atomic masses.

Q.72 The nature of the image produced by the side mirror of an automobile is:

- Ans ☒ A. real and erect  
☒ B. real and inverted  
☒ C. virtual and erect  
☒ D. virtual and inverted

Q.73 Which of the following is a natural source of lactic acid?

- Ans
- ☐ A. Tomato
  - ☒ B. Sour milk
  - ☐ C. Tamarind
  - ☐ D. Ant sting

Q.74 Select the correct statement about a Balanced Chemical Equation.

- Ans
- ☐ A. The mass may or may not be the same on both the sides of the equation.
  - ☐ B. Volume must be the same on both the sides of the equation
  - ☐ C. Number of reactants and products must be same on both the sides of the equation.
  - ☒ D. The mass must be the same on both the sides of the equation.

Q.75 For a neutralisation reaction, the reactants should be:

- Ans
- ☐ A. base and water
  - ☐ B. acid and water
  - ☒ C. acid and base
  - ☐ D. salt and water

Q.76 Magnetic field lines can NEVER be:

- Ans
- ☐ A. parallel to each other
  - ☒ B. perpendicular to each other
  - ☐ C. uniformly distributed
  - ☐ D. non uniformly distributed

Q.77 Which of the following is an example of greenhouse gas?

- Ans
- ☒ A. Carbon dioxide
  - ☐ B. Carbon monoxide
  - ☐ C. Sulphur dioxide
  - ☐ D. Phosphorus pentoxide

Q.78 Why was the use of 'kulhads' discontinued?

- Ans
- ☒ A. Use of clay resulted in the loss of the fertile top-soil
  - ☐ B. They were very expensive
  - ☐ C. They posed a health risk
  - ☐ D. They hurt the animals

**Q.79** The correct relation for heat produced by electric current is:

**Ans**

☐ A.  $H = \frac{V.I}{T}$

☒ B.  $H = V.I.T$

☐ C.  $H = I^2.R$

☐ D.  $H = \frac{R}{T}$

**Q.80** What will be the percentage of tW gametes formed by a plant with genotype TtWw?

**Ans**

☒ A. 25%

☐ B. 50%

☐ C. 75%

☐ D. 37.5%

Section : General Awareness and Current Affairs

**Q.81** As per the data from the National Statistical Office, as of the year 2021, which Indian state has the lowest female literacy rate?

**Ans**

☐ A. Uttarakhand

☐ B. Himachal Pradesh

☒ C. Rajasthan

☐ D. Gujarat

**Q.82** Which river originates from Gaumukh Glacier, and flows for about 193 km before meeting Alaknanda to form the Ganga River at Devprayag?

**Ans**

☒ A. Bhagirathi River

☐ B. Kosi River

☐ C. Gomati River

☐ D. Ghaghara River

**Q.83** The Swaran Singh Committee recommended inclusion of which of the following features in the Constitution of India?

**Ans**

☒ A. Fundamental duties

☐ B. Fundamental rights

☐ C. Concurrent list

☐ D. Preamble

**Q.84** The Ankeleshwar region of Gujarat is famous for which energy resource from following?

**Ans**

☐ A. Thorium

☐ B. Uranium

☐ C. Coal

☒ D. Petroleum

**Q.85** Who was the Atmiya Sabha's founder?

**Ans**

☐ A. Mul Shankar

☐ B. Narendranath Datta

☒ C. Raja Ram Mohan Roy

☐ D. Gadadhar Chattopadhyaya

**Q.86** In March 2022, which Indian badminton player won the women's singles title at the Swiss Open Super 300 badminton tournament?

- Ans**
- ☒ A. Saina Nehwal
  - ☒ B. Ashmita Chaliha
  - ☒ C. Ashwini Ponnappa
  - ☒ D. PV Sindhu

**Q.87** Who among the following is the Comptroller and Auditor General of India as on 5th September 2022?

- Ans**
- ☒ A. Gaurav Ahluwalia
  - ☒ B. Dinesh Bhatia
  - ☒ C. Girish Chandra Murmu
  - ☒ D. Pratibha Parkar

**Q.88** What is cash reserve ratio?

- Ans**
- ☒ A. The portion that banks must maintain before extending credit to customers
  - ☒ B. The minimum balance to be maintained by a customer in the bank
  - ☒ C.

The minimum amount of deposit that the commercial banks have to hold as reserves with the RBI.

- ☒ D. The portion that banks can invest in the market

**Q.89** Out of the five constraints in life that the Jains need to follow, which of the following means non-acquisition?

- Ans**
- ☒ A. Asteya
  - ☒ B. Brahmacharya
  - ☒ C. Aparigraha
  - ☒ D. Ahimsa

**Q.90** What is the full form of NBFC?

- Ans**
- ☒ A. Non-Banking Financial Company
  - ☒ B. Non-Banking Financial Commission
  - ☒ C. Non-Banking Financial Corporation
  - ☒ D. Non-Banking Financial Commodity

**Q.91** Which among the following Articles of Indian Constitution is related to Gram Sabha?

- Ans**
- ☒ A. Article 242 B
  - ☒ B. Article 243 A
  - ☒ C. Article 244 A
  - ☒ D. Article 245 B

**Q.92** Identify the state of India in which the Bandipur National Park is located?

- Ans**
- ☒ A. Madhya Pradesh
  - ☒ B. Odisha
  - ☒ C. Karnataka
  - ☒ D. Andhra Pradesh



**Q.93** Which of the following festivals of Odisha State commemorates the rich maritime history of Odisha that is celebrated throughout the state?

- Ans**
- ☐ A. Chhath Puja
  - ☐ B. Rath Yatra
  - ☒ C. Bali Yatra
  - ☐ D. Amla Navami

**Q.94** Who was the first Finance Minister of Independent India?

- Ans**
- ☐ A. Liaquat Ali Khan
  - ☒ B. RK Shanmukham Chetty
  - ☐ C. John Mathai
  - ☐ D. CD Deshmukh

**Q.95** In the absence of indirect taxes or subsidies, the total value of the final goods output is distributed among different factors of production – wages to labour, interest to capital, rent to land, etc. Whatever is left over is appropriated by the entrepreneur and is called \_\_\_\_\_.

- Ans**
- ☐ A. Income
  - ☐ B. expense
  - ☒ C. profit
  - ☐ D. saving

**Q.96** Select the correct pair of personalities who are the recipients of the Padma Shri Award 2022 in Science and Engineering.

- Ans**
- ☒ A. Sanghamitra Bandyopadhyay and Subbanna Ayyappan
  - ☐ B. Sumit Antil and JK Bajaj
  - ☐ C. Pramod Bhagat and Sulochana Chavan
  - ☐ D. Dr. Lata Desai and Basanti Devi

**Q.97** Which of the following states bagged the first prize in the 3<sup>rd</sup> National Water Awards presented by then President of India, Shri Ram Nath Kovind in March 2022?

- Ans**
- ☐ A. Rajasthan
  - ☒ B. Uttar Pradesh
  - ☐ C. Tamil Nadu
  - ☐ D. Assam

**Q.98** Which shuttler became the first Indian man to win a silver medal at the BWF (Badminton World Federation) World Championship in the year 2021?

- Ans**
- ☐ A. B Sai Praneeth
  - ☐ B. Lakshya Sen
  - ☐ C. Prakash Padukone
  - ☒ D. Kidambi Srikanth

**Q.99** As of May 2022, how many languages enjoy the 'Classical' status in India?

- Ans**
- ☒ A. Six
  - ☐ B. Seven
  - ☐ C. Eight
  - ☐ D. Nine

**Q.100** Bambai Nazariya', a small café situated in Versova, Andheri West, Mumbai hires only trans/non-binary people as staff and is supported by which one of the following organisations?

**Ans**

- ☐ A. Sahayatharika
- ☒ B. The Humsafar Trust
- ☐ C. Sahodari Foundation
- ☐ D. Samabhavana Society





# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 15/09/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

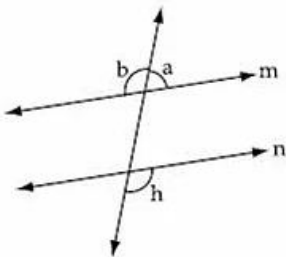
1. Options shown in green color with a tick icon are correct.

## Section : Mathematics

**Q.1** The area of a rectangle is  $225 \text{ cm}^2$ . The length (x) of the rectangle is 4 more than 4 times the breadth (y). The area in terms of a quadratic form (in x) is:

- Ans
- ☒ A.  $x^2 + 4x - 900 = 0$
  - ☒ B.  $x^2 - 4x + 900 = 0$
  - ☒ C.  $x^2 - 4x - 900 = 0$
  - ☒ D.  $x^2 + 4x + 900 = 0$

**Q.2** In the given figure, if  $n \parallel m$  and  $m \angle a : m \angle b = 2 : 3$ , then what is  $m \angle h$ ?



- Ans
- ☒ A.  $90^\circ$
  - ☒ B.  $108^\circ$
  - ☒ C.  $120^\circ$
  - ☒ D.  $72^\circ$

**Q.3** The smallest prime number is:

- Ans
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

Q.4 The positive square root of  $(6 + 2\sqrt{3})(6 - 2\sqrt{3})$  is\_\_\_\_\_.

- Ans
- ☐ A. 24
  - ☐ B. 12
  - ☐ C.  $6\sqrt{2}$
  - ☒ D.  $2\sqrt{6}$

Q.5 The total amount payable after 3 years on a sum of ₹1,000 invested at 10% interest per annum compounded annually is:

- Ans
- ☒ A. ₹1,331
  - ☐ B. ₹1,300
  - ☐ C. ₹1,376
  - ☐ D. ₹1,390

Q.6 Ramesh buys a radio for ₹4,000. He sells it at a profit of 10% to Mohan. Mohan spends ₹500 on it. Then he sells it at a profit of 12% to Ritwik. The cost price of the radio to Ritwik is:

- Ans
- ☐ A. ₹4,900
  - ☐ B. ₹5,088
  - ☐ C. ₹5,288
  - ☒ D. ₹5,488

Q.7 The perimeter of a circle whose radius is 15 cm is:

- Ans
- ☐ A.  $50\pi$  cm
  - ☐ B.  $40\pi$  cm
  - ☒ C.  $30\pi$  cm
  - ☐ D.  $20\pi$  cm

Q.8 If  $361 : y :: y : 121$ , and  $y > 0$ , then the value of y is:

- Ans
- ☐ A. 381
  - ☐ B. 121
  - ☐ C. 247
  - ☒ D. 209

Q.9 Evaluate  $984^2 - 16^2$ .

- Ans
- ☐ A. 967000
  - ☒ B. 968000
  - ☐ C. 969000
  - ☐ D. 966660

Q.10 The sum of two numbers is 20 and their difference is 16. The ratio of the larger number to the smaller number is:

- Ans
- ☐ A. 11: 2
  - ☐ B. 2 : 11
  - ☒ C. 9 : 1
  - ☐ D. 1 : 9

**Q.11** The difference between the compound interest (when interest is compounded annually) and the simple interest if ₹10,000 is deposited at 5% rate of interest per annum for 2 years is:

- Ans**
- ✓ A. ₹25
  - ✗ B. ₹15
  - ✗ C. ₹35
  - ✗ D. ₹50

**Q.12** What is the positive difference between the sum of all prime numbers between 11 and 20 (both included) and the sum of all prime numbers between 30 and 50 (both included)?

- Ans**
- ✗ A. 135
  - ✗ B. 137
  - ✓ C. 139
  - ✗ D. 141

**Q.13** If the mode of a distribution is 27 and its median is 35, then the mean of the distribution is \_\_\_\_\_ (using empirical relation).

- Ans**
- ✗ A. 62
  - ✗ B. 37.5
  - ✓ C. 39
  - ✗ D. 43.5

**Q.14** At what rate of simple interest per annum will a sum of money get doubled in 10 years?

- Ans**
- ✗ A. 20%
  - ✗ B. 15%
  - ✓ C. 10%
  - ✗ D. 8.5%

**Q.15** A and B can do a job in 14 days and 18 days, respectively. A works alone for 6 days and leaves. The number of days required by B to complete the remaining job is:

- Ans**
- ✓ A.  $10\frac{2}{7}$
  - ✗ B.  $10\frac{3}{7}$
  - ✗ C.  $10\frac{4}{7}$
  - ✗ D.  $10\frac{5}{7}$

**Q.16** A shopkeeper sells wheat at ₹20/kg that he purchased at ₹18/kg and he gives only 900 gm of wheat instead of 1 kg while selling. The actual percentage profit of the shopkeeper is:

- Ans**
- ✗ A. 24.45%
  - ✗ B. 22.45%
  - ✓ C. 23.45 %
  - ✗ D. 20.45%

Q.17

Evaluate  $\frac{1}{\frac{4}{5} + \frac{3}{7}} \div \frac{8}{35}$ .

Ans

☐ A.  $3\frac{191}{344}$

☒ B.  $3\frac{193}{344}$

☐ C.  $3\frac{197}{344}$

☐ D.  $3\frac{199}{344}$

Q.18

What is the sum of the measures of the exterior angles of a triangle?

Ans

☐ A.  $90^\circ$

☐ B.  $180^\circ$

☐ C.  $270^\circ$

☒ D.  $360^\circ$

Q.19

Which of the following describes the nature of the roots of the quadratic equation  $3x^2 - 4x + 10 = 0$ ?

Ans

☒ A. No real roots☐ B. Two equal roots☐ C. Two distinct real roots☐ D. One real root and one imaginary root

Q.20

Evaluate  $93^2$ .

Ans

☐ A. 8349

☐ B. 8449

☐ C. 8549

☒ D. 8649

Q.21

The average of 10, 15, 30, 100 is:

Ans

☒ A. 38.75

☐ B. 39.55

☐ C. 39.45

☐ D. 38.65

Q.22

If  $2\tan \theta = 3$ , then the value of  $(\sec \theta + \tan \theta - 1)(\sec \theta - \tan \theta + 1) =$  \_\_\_\_\_.

Ans

☐ A. 2

☐ B.  $\frac{2}{3}$

☒ C. 3

☐ D.  $\frac{1}{3}$

**Q.23** A certain amount of money was divided between x and y in the ratio 4 : 3. If y's share is ₹2,400, the total initial amount is \_\_\_\_\_.

- Ans**
- ☒ A. ₹6,000
  - ☒ B. ₹8,000
  - ☒ C. ₹5,600
  - ☒ D. ₹7,200

**Q.24** The larger of two supplementary angles is  $36^\circ$  more than the smaller. The smaller angle is:

- Ans**
- ☒ A.  $72^\circ$
  - ☒ B.  $108^\circ$
  - ☒ C.  $27^\circ$
  - ☒ D.  $63^\circ$

**Q.25** If we add 1 to the numerator and subtract 1 from the denominator of a given fraction, it becomes 1. It becomes  $\frac{2}{3}$  if 1 is added to the denominator of the given fraction while the numerator is left unchanged. The fraction originally given is:

- Ans**
- ☒ A.  $\frac{1}{8}$
  - ☒ B.  $\frac{3}{8}$
  - ☒ C.  $\frac{5}{8}$
  - ☒ D.  $\frac{6}{8}$

#### Section : General Intelligence and Reasoning

**Q.26** Six boxes, red, green, yellow, pink, blue, and orange, are kept vertically, one over the other (but not necessarily in the same order). The red box is placed at an odd number position when counted from the bottom but it is not in the fifth position. The red box is placed immediately above the yellow box. Only two boxes are placed between the yellow box and the orange box. Only two boxes are placed between the blue box and the pink box and only one box is placed between the blue box and the green box. Which box is placed third from the top?

- Ans**
- ☒ A. Red
  - ☒ B. Blue
  - ☒ C. Green
  - ☒ D. Pink

**Q.27** Select the set in which the numbers are related in the same way as are the numbers of the following sets.  
(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 12 – Operations on 12 such as adding/ subtracting/multiplying etc. to 12 can be performed. Breaking down 12 into 1 and 2 and then performing mathematical operations on 1 and 2 is not allowed)

(10, 300, 10)  
(11, 165, 5)

- Ans**
- ☒ A. (10, 400, 20)
  - ☒ B. (11, 188, 6)
  - ☒ C. (9, 243, 9)
  - ☒ D. (8, 20, 8)

**Q.28** This question is based on the five, three-digit numbers given below.

(Left) 478 775 357 183 246 (Right)

(Example: 697 – first digit = 6, second digit = 9, third digit = 7)

NOTE: All operations to be done from left to right.

What will be the resultant if the third digit of the largest number is added to the second digit of the smallest number?

- Ans** ☒ A. 13  
☐ B. 12  
☐ C. 10  
☐ D. 18

**Q.29** Which of the following numbers will replace the question mark (?) in the given series?

17, 23, 27, 29, ?

- Ans** ☒ A. 29  
☐ B. 30  
☐ C. 31  
☐ D. 25

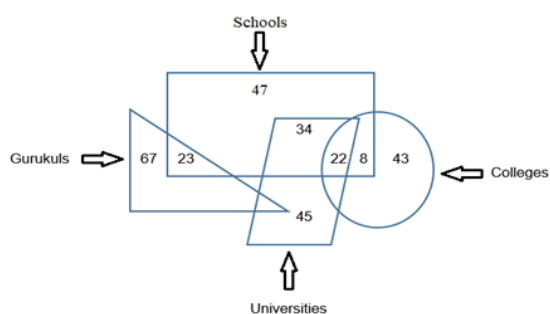
**Q.30** If 11 is subtracted from each of the following numbers and the digits of each number are written in reverse order and then the numbers are arranged in ascending order, the position of how many numbers will NOT change?

167, 876, 567, 187, 873

- Ans** ☒ A. One  
☐ B. Two  
☐ C. Three  
☐ D. Four

**Q.31** Study the given diagram carefully and answer the question that follows.

The numbers in different sections indicate the number of schools/colleges/universities/gurukuls.



How many Schools are Colleges and Universities but NOT Gurukuls?

- Ans** ☐ A. 23  
☐ B. 34  
☒ C. 22  
☐ D. 8

**Q.32** A music school has classes for teaching six different musical instruments - flute, harmonium, guitar, sitar, drum and violin - each on a different day of a week starting from Monday and ending on Saturday of the same week, but not necessarily in the same order. Drum class is scheduled on Monday. Flute class is on Friday. Sitar class is on the day immediately after flute class. Only three classes are scheduled between Guitar and Sitar classes. Only Violin class is scheduled between Flute and Harmonium classes. On which day is Harmonium class scheduled?

- Ans**
- ☒ A. Tuesday
  - ☒ B. Monday
  - ☒ C. Thursday
  - ☒ D. Wednesday

**Q.33** Sumit starts from Point F and drives 5 km towards the east. He then takes a left turn, drives 10 km, turns left and drives 8 km. He then takes a left turn and drives 3 km. He takes a final left turn, drives 3 km and stops at Point G. How far and towards which direction should he drive in order to reach Point F from Point G? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 7 km towards the south
  - ☒ B. 8 km towards the east
  - ☒ C. 7 km towards the east
  - ☒ D. 5 km towards the west

**Q.34** Read the given statement(s) and conclusions carefully and decide which of the conclusions logically follow(s) from the statement(s).

Statement:

$B \leq L \leq U = A > D > E$

Conclusions:

I.  $B < D$

II.  $A \geq B$

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Either conclusion I or II follows
  - ☒ D. Neither conclusion I nor II follows

**Q.35** Amongst six friends A, B, C, D, E and F, each has a different height. A is taller than only two other friends. C is shorter than only one friend. E is shorter than A but taller than B. F is shorter than D. Who is the tallest among all the friends?

- Ans**
- ☒ A. D
  - ☒ B. F
  - ☒ C. E
  - ☒ D. C

**Q.36** If '+' means '-', '-' means '×', '×' means '+', '+' means '+', what will come in place of the question mark (?) in the following equation?

$$21 + 7 - 3 \div 20 \times 5 = ?$$

- Ans**
- ☒ A. 2
  - ☒ B. 4
  - ☒ C. 5
  - ☒ D. 10

**Q.37** Select the combination of letters that when placed in the same sequence in the blanks of the given series will complete the series.

AGPLH, \_\_\_\_\_, KOVPI, PSYRK, UWBTL, ZAEVM

- Ans**
- ☒ A. BISPM
  - ☒ B. FKSNI
  - ☒ C. FKSNI
  - ☒ D. FISPM

**Q.38** In a certain code language, 'YOUTH' is written as 'DUBBQ' and 'AGENT' is written as 'FMLVC'. How will 'CURVE' be written in that language?

- Ans**
- ☒ A. DOIFJ
  - ☒ B. OUDNE
  - ☒ C. HAYDN
  - ☒ D. HAIRN

**Q.39** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the condition is your answer.

| Number/Symbol | 2 | 6 | % | @ | ? | 4 | < | 3 | 7 | = | ! | & | 9 | 8 |
|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code          | K | S | R | T | U | M | W | Y | A | V | C | X | E | B |

Conditions:

- (i) If the first element is a number and the last a symbol, the codes for these two are to be interchanged.
- (ii) If the first element is an even number and the last an odd number, the first and the last elements are to be coded as O.
- (iii) If both the second and third elements are perfect squares, the third element is to be coded as the code for the second element.

How will '3 = 7 4 %' be coded?

- Ans**
- ☒ A. XCRBY
  - ☒ B. RVAMY
  - ☒ C. MVSBY
  - ☒ D. SVYBR

**Q.40** P, Q, R, S, T, X, Y and Z are sitting around a square table facing the centre of the table (but not necessarily in the same order). Some of them are sitting at the corners while some are sitting at the exact centre of the sides. S is the immediate neighbor of Q and X. Y does not have X and P as his immediate neighbours. Z who is to the immediate left of R, has P as immediate neighbours. If S, T, Y and Z are sitting at the exact center of the sides of the table, then who is sitting to the immediate right of X?

- Ans**
- ☒ A. S
  - ☒ B. T
  - ☒ C. Y
  - ☒ D. P

**Q.41** How many such pairs of letters are there in the word CONVERTS (in both forward and backward directions) which have as many letters between them in the word as there are in the English alphabetical order?

- Ans**
- ☒ A. 2
  - ☒ B. 5
  - ☒ C. 3
  - ☒ D. 4



**Q.42** Read the given statement and the arguments carefully and select the appropriate answer from the given options.

Statement:

The impact of social media is very much visible in every sphere of society.

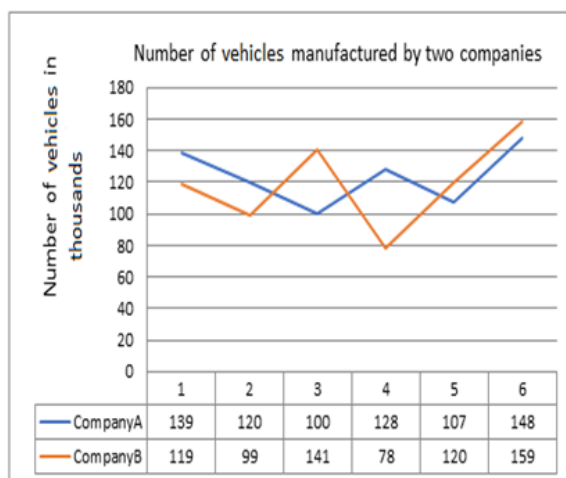
Arguments:

- I. Today, people are connected across different countries through social media.
- II. Different cultures have been explored by people through social media.

- Ans**
- ☒ A. I weakens while II strengthens the statement.
  - ☒ B. II weakens while I strengthens the statement.
  - ☒ C. Both I and II weaken the statement.
  - ☒ D. Both I and II strengthen the statement.

**Q.43** Study the given graph and answer the question that follows.

The numbers 1 to 6 represents the years from 2001 to 2006.



In which year was the difference between the production of two companies maximum?

- Ans**
- ☒ A. 2001
  - ☒ B. 2002
  - ☒ C. 2003
  - ☒ D. 2004

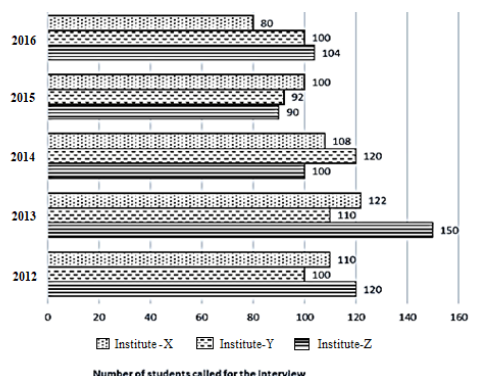
**Q.44** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully and from the given options, select the pair that follows the same logic.

HP : MS

DL : IO

- Ans**
- ☒ A. HT : KY
  - ☒ B. GE : LI
  - ☒ C. GR : KT
  - ☒ D. AL : FO

- Q.45** The bar graph given below shows the number of students who were called for a certain job interview by company A from three different institutes, X, Y and Z, over the years.



In which of the following years was the total number of students called for the interview the highest?

- Ans** ☒ A. 2012  
☒ B. 2013  
☒ C. 2014  
☒ D. 2016

- Q.46** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

Some chains are knives.

All knives are cats.

All cats are rats.

Conclusions:

(I) Some rats are chains.

(II) All rats are knives.

- Ans** ☒ A. Only conclusion I follows  
☒ B. Only conclusion II follows  
☒ C. Neither conclusion I nor II follow  
☒ D. Both conclusions I and II follow

- Q.47** If '×' and '÷' are interchanged, what will be the value of the given expression?

$$13 - 7 + 8 \div 2 \times 10$$

- Ans** ☒ A. 85  
☒ B. 92  
☒ C. 76  
☒ D. 53

- Q.48** Each of six students, A, B, C, D, E and F, have their class monitor duties on six different days of a week starting from Monday and ending on Saturday of the same week, but not necessarily in the same order. A's monitor duties are on the day immediately after C. D's monitor duties are on the day immediately before E, but it is not on Monday. B's monitor duties are on Saturday. F's monitor duties are on Wednesday. Who among the following has monitor duties on Tuesday?

- Ans** ☒ A. B  
☒ B. C  
☒ C. A  
☒ D. E

**Q.49** If Y is to the south of X and Z is to the east of X, then what is the position of Z with respect to Y?

- Ans**
- ☒ A. North
  - ☒ B. North-east
  - ☒ C. North-west
  - ☒ D. South-east

**Q.50** Five persons are sitting around a circular table facing the centre. Aman is an immediate neighbour of both Ansu and Ajit. Akash sits second to the left of Aman. Ansh sits second to the right of Aman. Akash is an immediate neighbour of both Ansu and Ansh. Who is an immediate neighbour of both Ajit and Akash?

- Ans**
- ☒ A. Ansh
  - ☒ B. Ansu
  - ☒ C. Aman
  - ☒ D. Cannot be determined

**Q.51** Three statements are given, followed by four conclusions numbered I, II, III and IV. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

Statements:

1. Some cats are pets.
2. All pets are snakes.
3. Some snakes are cats.

Conclusions:

- I. Some snakes are pets.
- II. All cats are snakes.
- III. All pets are cats.
- IV. No snake is a cat.

- Ans**
- ☒ A. Only conclusions I follows
  - ☒ B. Only conclusions II and III follow
  - ☒ C. Only conclusions I and IV follow
  - ☒ D. Only conclusion IV follows

**Q.52** Which of the following numbers will replace the question mark (?) in the given series?

13, 16, 22, 31, 43, ?

- Ans**
- ☒ A. 52
  - ☒ B. 58
  - ☒ C. 55
  - ☒ D. 48

**Q.53** Select the option that is related to the fifth number in the same way as the fourth number is related to the third number and the second number is related to the first number.

58 : 115 :: 47 : 93 :: 67 : ?

- Ans**
- ☒ A. 124
  - ☒ B. 113
  - ☒ C. 138
  - ☒ D. 133

**Q.54** Refer to the following letter, number, symbol series and answer the question.

(Left) F \$ 3 & 4 P W 8 # T \* A 2 F 5 M 2 6 \$ Y 9 K (Right)

How many such letters are there which are immediately preceded by a letter and also immediately followed by a number?

- Ans**
- ☒ A. 1
  - ☐ B. 2
  - ☐ C. 3
  - ☐ D. 4

**Q.55** Refer to the following letter and symbol series and answer the question.

(Left) Z # U \* Y \$ K W P Q @ G & A % J B L % & H D # V (Right)

Which of the following is the twelfth letter/symbol to the left of the eighteenth letter/symbol from the left end of the given series?

- Ans**
- ☐ A. K
  - ☐ B. L
  - ☒ C. S
  - ☐ D. Y

Section : General Science

**Q.56** Arabari forest is located in \_\_\_\_\_.

- Ans**
- ☒ A. Midnapore
  - ☐ B. Pachmarhi
  - ☐ C. Garhwal
  - ☐ D. Assam

**Q.57** The acid and base which form sodium hydrogen carbonate are:

- Ans**
- ☒ A.  $\text{H}_2\text{CO}_3$  and NaOH
  - ☐ B. HCl and NaOH
  - ☐ C.  $\text{H}_2\text{CO}_3$  and  $\text{Na}_2\text{CO}_3$
  - ☐ D. HCl and NaCl

**Q.58** The women who started the Chipko Andolan in the 1970s wanted to save \_\_\_\_\_.

- Ans**
- ☐ A. an extremely rare resource
  - ☒ B. a renewable resource
  - ☐ C. a non-biodegradable resource
  - ☐ D. an endangered resource

**Q.59** The magnetic field produced by the long solenoid carrying current is:

- Ans**
- ☒ A. uniform inside the solenoid
  - ☐ B. zero inside the solenoid
  - ☐ C. maximum at the ends of the solenoid
  - ☐ D. non-uniform inside the solenoid

**Q.60** When white light is passed through a prism it undergoes dispersion. The angle of deviation is:

- Ans**
- ☒ A. directly proportional to the wavelength
  - ☒ B. inversely proportional to the wavelength
  - ☒ C. independent of the wavelength
  - ☒ D. maximum for red colour

**Q.61** Consider the reaction  $\text{KI (aq)} + \text{PbNO}_3 \text{ (aq)} \rightarrow 2 \text{KNO}_3 \text{ (aq)} + \text{PbI}_2 \text{ (s)}$ .

This is an example of:

- Ans**
- ☒ A. decomposition reaction
  - ☒ B. combination reaction
  - ☒ C. double displacement reaction
  - ☒ D. displacement reaction

**Q.62** What role does transpiration play in the transport of water in plants?

- Ans**
- ☒ A. It exerts a suction force.
  - ☒ B. It exerts a pumping force.
  - ☒ C. It promotes diffusion of water.
  - ☒ D. It promotes growth of roots.

**Q.63** What is the major product when ethanol reacts with potassium dichromate ( $\text{K}_2\text{Cr}_2\text{O}_7$ ) in an acidic medium?

- Ans**
- ☒ A. Ethanoic acid
  - ☒ B. Ethanal
  - ☒ C. Ethyl ethanoate
  - ☒ D. Ethene

**Q.64** An incident ray passes through the focus of a concave mirror. The reflected ray:

- Ans**
- ☒ A. passes through the focus of the mirror
  - ☒ B. is parallel to the principal axis
  - ☒ C. is normal to the mirror
  - ☒ D. passes through the centre of curvature

**Q.65** An electric motor is a device which converts:

- Ans**
- ☒ A. mechanical energy into electrical energy
  - ☒ B. electrical energy into mechanical energy
  - ☒ C. mechanical energy into solar energy
  - ☒ D. solar energy into electrical energy

**Q.66** Electric power consumed by two electric bulbs (each with  $5 \Omega$  resistance) connected in series with a  $3 \text{ V}$  battery is:

- Ans**
- ☒ A.  $0.9 \text{ W}$
  - ☒ B.  $0.3 \text{ W}$
  - ☒ C.  $1 \text{ W}$
  - ☒ D.  $3 \text{ W}$

**Q.67** Which of the following statements is INCORRECT about voluntary muscles?

- Ans**
- ☒ A. These muscles are also called skeletal muscles.
  - ☒ B. They are mostly attached to bones.
  - ☒ C. These muscles show alternate light and dark bands.
  - ☒ D. Cells are long, cylindrical, unbranched and uninucleate.

**Q.68** Out of indigo, green, orange and yellow colours, which colour has the least refractive index?

- Ans**
- ☒ A. Yellow
  - ☒ B. Green
  - ☒ C. Indigo
  - ☒ D. Orange

**Q.69** When parallel beam of light rays are incident on the convex mirror of focal length 1 m, reflected rays:

- Ans**
- ☒ A. appear to diverge from a point at a distance 0.5 m behind the mirror
  - ☒ B. appear to diverge from a point at a distance 1 m behind the mirror
  - ☒ C. converge to a point at a distance 0.5 m from the convex surface
  - ☒ D. converge to a point at a distance 1 m from the convex surface

**Q.70** Which of the following elements is the most metallic in nature?

- Ans**
- ☒ A. Li
  - ☒ B. K
  - ☒ C. Rb
  - ☒ D. Cs

**Q.71** What is meant by non-biodegradable?

- Ans**
- ☒ A. Substances that are broken down by biological processes
  - ☒ B. Substances that are not broken down by chemical processes
  - ☒ C. Substances that are not broken down by biological processes
  - ☒ D. Substances that are broken down by biochemical reactions.

**Q.72** When electrolysis of brine is done, a gas X is formed at the cathode, which gives a pop sound when a burning splinter is brought near it. The gas X is:

- Ans**
- ☒ A.  $H_2$
  - ☒ B.  $Cl_2$
  - ☒ C.  $CO_2$
  - ☒ D.  $O_2$

**Q.73** When 60 KJ heat is produced by a heater in 1 minute and 20 seconds then its power is:

- Ans**
- ☒ A. 7.5 kW
  - ☒ B. 150 W
  - ☒ C. 750 W
  - ☒ D. 1.5 kW

**Q.74** In the Modern Periodic Table, Tellurium (atomic number 52) is surrounded by elements with atomic numbers:

- Ans**
- ☒ A. 35, 51, 54, 85
  - ☒ B. 34, 51, 53, 84
  - ☒ C. 36, 50, 53, 84
  - ☒ D. 33, 50, 53, 83

**Q.75** Which of the following contraceptive methods is useful for controlling both unwanted pregnancies and STDs?

- Ans**
- ☒ A. Copper-T
  - ☒ B. Oral pills
  - ☒ C. Condom
  - ☒ D. Surgical method

**Q.76** Salivary amylase helps in the digestion of \_\_\_\_\_.

- Ans**
- ☒ A. protein
  - ☒ B. starch
  - ☒ C. lipid
  - ☒ D. Cellulose

**Q.77** Which of the following bonds are formed between carbon-carbon atoms of hydrocarbons?

- Ans**
- ☒ A. Coordination covalent bonds
  - ☒ B. Ionic bonds
  - ☒ C. Covalent bonds
  - ☒ D. Hydrogen bonds

**Q.78** The correct relation between P, V, R and I amongst the following is:

- Ans**
- ☒ A.  $P = V^2 IR$
  - ☒ B.  $P = I^2 R$
  - ☒ C.  $P_2 = VI R^2$
  - ☒ D.  $P = V^2 / IR$

**Q.79** Where are waste products stored within a plant cell?

- Ans**
- ☒ A. Vacuoles
  - ☒ B. Mitochondria
  - ☒ C. Lysosomes
  - ☒ D. Golgi bodies

**Q.80** Which of the following reactions releases heat along with the formation of products?

- Ans**
- ☒ A. Exothermic reaction
  - ☒ B. Endothermic reaction
  - ☒ C. Rearrangement reactions
  - ☒ D. Sigma tropic reactions



**Q.81** Each Gram Panchayat is represented by how many sarpanch?

- Ans**
- ✓ A. One
  - ✗ B. Two
  - ✗ C. Three
  - ✗ D. Four

**Q.82** What is the name of the supercomputer designed and installed by Centre for Development of Advanced Computing (C-DAC) at IIT Roorkee, under Phase II of National Supercomputing Mission (NSM) in March 2022?

- Ans**
- ✓ A. PARAM Ganga
  - ✗ B. PARAM Yuva
  - ✗ C. PARAM Yamuna
  - ✗ D. PARAM Bheem

**Q.83** As per a news report in March 2022, scientists at the Centre for Nano and Soft Matter Sciences (CeNS) designed an electrocatalyst system for energy-efficient production of \_\_\_\_\_ with the help of electrolysis of urea.

- Ans**
- ✗ A. nitrogen
  - ✗ B. oxygen
  - ✓ C. hydrogen
  - ✗ D. helium

**Q.84** If consumption function =  $50 + 0.6Y$  and Investment = 20, then find the equilibrium income.

- Ans**
- ✗ A. 200
  - ✓ B. 175
  - ✗ C. 150
  - ✗ D. 165

**Q.85** In which sport did Abhishek Verma win the Arjuna Award 2021?

- Ans**
- ✓ A. Shooting
  - ✗ B. Table Tennis
  - ✗ C. Hockey
  - ✗ D. Golf

**Q.86** Who among the following surpassed Argentine superstar Lionel Messi to become the second-highest active international goal-scorer in June 2021?

- Ans**
- ✗ A. Gurpreet Singh Sandhu
  - ✗ B. Sandesh Jhingan
  - ✗ C. Subrata Pal
  - ✓ D. Sunil Chhetri

**Q.87** The \_\_\_\_\_ scheme of Rajasthan was launched in collaboration with 'IPE Global', which provides the rural girls of the state with scholarship schemes by enrolling them at the secondary level.

- Ans**
- ✗ A. Beti Bachao, Beti Padhao.
  - ✗ B. Yuvika
  - ✗ C. Begum Hazrat Scholarship
  - ✓ D. Udaan



**Q.88** The Council of Ministers (Government of India) are headed by the \_\_\_\_\_.

- Ans**
- ☐ A. President
  - ☐ B. Vice president
  - ☒ C. Prime Minister
  - ☐ D. Speaker of Lok Sabha

**Q.89** Who is believed to be the first person to bring Christianity to India?

- Ans**
- ☐ A. Queen Victoria
  - ☐ B. Queen Elizabeth
  - ☐ C. Vasco Da Gama
  - ☒ D. Saint Thomas

**Q.90** In which of the following Five-Year Plans was removal of poverty and attainment of self-reliance the main objective?

- Ans**
- ☐ A. Second Five-Year Plan
  - ☐ B. Third Five-Year Plan
  - ☐ C. Fourth Five-Year Plan
  - ☒ D. Fifth Five-Year Plan

**Q.91** Where is the Mahatma Gandhi Antarrashtriya Hindi VishwaVidyalaya located?

- Ans**
- ☐ A. Madurai
  - ☐ B. Vijayawada
  - ☒ C. Wardha
  - ☐ D. Thiruvananthapuram

**Q.92** Which of the following animals is present on the insignia of Reserve Bank of India?

- Ans**
- ☒ A. Tiger
  - ☐ B. Elephant
  - ☐ C. Zebra
  - ☐ D. Rhinoceros

**Q.93** Kongsachem Fest, or the Harvest feast, a thanksgiving ritual wherein farmers pray for gods continued blessings, is celebrated in which of the following states?

- Ans**
- ☐ A. Manipur
  - ☐ B. Sikkim
  - ☒ C. Goa
  - ☐ D. Meghalaya

**Q.94** The river island of Majuli is a part of the vast dynamic river system of the \_\_\_\_\_ basin.

- Ans**
- ☐ A. Yamuna
  - ☒ B. Brahmaputra
  - ☐ C. Ganga
  - ☐ D. Godavari

**Q.95** In the history of India, where did the Black Hole incident take place in the year 1756?

- Ans**
- ☐ A. Madras
  - ☐ B. Surat
  - ☐ C. Bombay
  - ☒ D. Calcutta

**Q.96** Cash Grant-in-Aid from foreign countries and international organisations are a part of \_\_\_\_\_.

- Ans**
- ☐ A. capital receipt
  - ☒ B. revenue receipt
  - ☐ C. planned revenue income
  - ☐ D. non-planned revenue receipt

**Q.97** As notified by Government of India in July 2022, Mission Vatsalya, in partnership with states and districts, will execute a 24×7 helpline service for children, as defined under Juvenile Justice Act, \_\_\_\_\_.

- Ans**
- ☐ A. 2010
  - ☐ B. 2013
  - ☒ C. 2015
  - ☐ D. 2017

**Q.98** The strong, gusty, hot, dry winds blowing during the day over the north and northwestern India in summer are known as \_\_\_\_\_.

- Ans**
- ☐ A. Trade winds
  - ☒ B. Loo
  - ☐ C. Mango winds
  - ☐ D. Kaal Baishakhi

**Q.99** The \_\_\_\_\_ is the central stretch of land between Western Ghats and the Arabian Sea in the Western Coast.

- Ans**
- ☐ A. Uttkal Plain
  - ☐ B. Barind Tract
  - ☐ C. Rohilkhand Plain
  - ☒ D. Kannad Plain

**Q.100** Ten Fundamental Duties have been added in Part-IV of the Constitution under \_\_\_\_\_ in the year 1976 through the 42nd Constitutional Amendment.

- Ans**
- ☐ A. Article 36
  - ☐ B. Article 51
  - ☒ C. Article 51A
  - ☐ D. Article 52



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

## सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 16/09/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** Find the value of  $3^{-5} \times 4^{-5} \times 5^{-5}$ .

Ans

☐ A.  $\frac{1}{30^5}$

☐ B.  $\frac{1}{40^5}$

☐ C.  $\frac{1}{50^5}$

☒ D.  $\frac{1}{60^5}$

**Q.2** If two parallel lines are intersected by a transversal, then the internal bisectors of two pairs of interior angles necessarily enclose a \_\_\_\_\_.

Ans

☐ A. square

☐ B. circle

☒ C. rectangle

☐ D. triangle

**Q.3** A diver rowing at the speed of 3 km/h in still water takes double the time going 50 km upstream compared to going 50 km downstream. The speed of the stream is:

Ans

☐ A.  $\frac{4}{3}$  km/h

☒ B. 1 km/h

☐ C.  $\frac{7}{3}$  km/h

☐ D. 3 km/h

**Q.4** 16 men can do a piece of work in 5 days. The number of men required to complete the same work in 20 days is:

Ans

☐ A. 3

☒ B. 4

☐ C. 5

☐ D. 6

**Q.5** The cost price of 42 articles is equal to the selling price of 36 articles. What is the gain or loss made in the transaction?

**Ans**

☒ A.  $16\frac{2}{3}\%$  loss

☒ B.  $14\frac{1}{7}\%$  gain

☒ C.  $16\frac{2}{3}\%$  gain

☒ D.  $14\frac{1}{7}\%$  loss

**Q.6** What will be the total amount payable on a sum of ₹12,500 after two years at the rate of 10% per annum if the interest is compounded annually?

**Ans**

☒ A. ₹25,000

☒ B. ₹15,125

☒ C. ₹18,500

☒ D. ₹17,790

**Q.7** The number of non-square numbers between  $87^2$  and  $88^2$  is:

**Ans**

☒ A. 154

☒ B. 164

☒ C. 174

☒ D. 184

**Q.8** The salary of a person is ₹2,00,000. If he saves an amount of ₹88,000, then the person saves \_\_\_\_\_ of his salary.

**Ans**

☒ A. 44.20%

☒ B. 44.00%

☒ C. 42.74%

☒ D. 42.85%

**Q.9** The sum of all the interior angles of a heptagon is equal to

**Ans**

☒ A.  $540^\circ$

☒ B.  $720^\circ$

☒ C.  $810^\circ$

☒ D.  $900^\circ$

**Q.10** The average weight of 6 persons increases by 2 kg when one of them whose weight is 72 kg is replaced by a new man. The weight of the new man is:

**Ans**

☒ A. 104 kg

☒ B. 94 kg

☒ C. 84 kg

☒ D. 74 kg

**Q.11** A's age is seven times B's age. If the sum of their ages is 48 years, then their ages are:

- Ans**
- ☐ A. 35 and 5
  - ☐ B. 46 and 6
  - ☐ C. 40 and 8
  - ☒ D. 42 and 6

**Q.12** If  $\alpha, \beta$  are the roots of the quadratic equation  $x^2 - 11x + 18 = 0$ , then the value of  $\alpha^2 + \beta^2$  is:

- Ans**
- ☐ A. 105
  - ☐ B. 95
  - ☒ C. 85
  - ☐ D. 75

**Q.13** Two plates and three spoons cost is ₹86. The cost of four plates and a spoon is ₹112. The difference between the cost of a plate and that of a spoon is \_\_\_\_\_.

- Ans**
- ☐ A. ₹26
  - ☐ B. ₹18
  - ☒ C. ₹13
  - ☐ D. ₹16

**Q.14** Naresh deposited a sum of ₹10,000 at 10% rate of interest per annum, compounded annually. The total amount received by Naresh after 2 years is:

- Ans**
- ☐ A. ₹12,200
  - ☒ B. ₹12,100
  - ☐ C. ₹12,010
  - ☐ D. ₹12,000

**Q.15** If  $5^{n+2} = 3125$ , then  $n =$  \_\_\_\_\_.

- Ans**
- ☐ A. 5
  - ☐ B. 4
  - ☐ C. 2
  - ☒ D. 3

**Q.16** The average of the numbers 15, 17, 20, 25, 32 and 35 is:

- Ans**
- ☐ A. 18
  - ☐ B. 28
  - ☒ C. 24
  - ☐ D. 14

**Q.17** A vendor sells 10 pens for ₹7. He earns a profit of 40%. The cost price of one pen is:

- Ans**
- ☐ A. ₹0.60
  - ☐ B. ₹0.56
  - ☐ C. ₹0.45
  - ☒ D. ₹0.50

**Q.18** The HCF and the LCM of two numbers are 44 and 264, respectively. If one of the numbers is  $\frac{3}{2}$  times of the other, what is the smaller number?

- Ans**
- ☐ A. 44
  - ☒ B. 88
  - ☐ C. 132
  - ☐ D. 176

**Q.19** The value of  $\frac{\sqrt{1296}}{\sqrt{121}} \times \frac{15}{(216)^{1/3}} \times \frac{11}{\sqrt{225}}$  is \_\_\_\_\_.

- Ans**
- ☐ A. 11
  - ☐ B. 15
  - ☒ C. 6
  - ☐ D. 36

**Q.20** If ₹1,368 is divided into two parts in the ratio of 5 : 3, then the amount (in ₹) in the greater part is \_\_\_\_\_.

- Ans**
- ☐ A. 268.80
  - ☐ B. 444.72
  - ☒ C. 855.00
  - ☐ D. 585.00

**Q.21**  $\sec^2 \theta + (\operatorname{cosec}^2 \theta - 1) - (1 + \tan^2 \theta) - \cot^2 \theta =$  \_\_\_\_\_.

- Ans**
- ☐ A.  $\cot^2 \theta$
  - ☐ B.  $\sec^2 \theta$
  - ☒ C. 0
  - ☐ D. 1

**Q.22** The total surface area (in  $\text{m}^2$ ) of a cube, each of whose edges measures 4 m, is:

- Ans**
- ☐ A. 64
  - ☐ B. 72
  - ☒ C. 96
  - ☐ D. 108

**Q.23** If the three sides of a triangle are in the ratio 7 : 5 : 4 and its perimeter 48 m, then the area of triangle is:

- Ans**
- ☐ A.  $37\sqrt{6} \text{ m}^2$
  - ☐ B.  $39\sqrt{6} \text{ m}^2$
  - ☒ C.  $36\sqrt{6} \text{ m}^2$
  - ☐ D.  $34 \text{ m}^2$

**Q.24** Evaluate  $95 \times 103$ .

- Ans**
- ☒ A. 9785
  - ☐ B. 9685
  - ☐ C. 9755
  - ☐ D. 9655

**Q.25** If the sum of the LCM and the HCF of two numbers is 1050 and if their HCF is 630 less than their LCM, then the product of those two numbers is \_\_\_\_\_.

- Ans**
- ☒ A. 661500
  - ☒ B. 176400
  - ☒ C. 630000
  - ☒ D. 10500

Section : General Intelligence and Reasoning

**Q.26** Seven businessmen, G, H, I, J, K, L and M, travelled in the same month on different dates 4<sup>th</sup>, 8<sup>th</sup>, 11<sup>th</sup>, 14<sup>th</sup>, 17<sup>th</sup>, 22<sup>nd</sup> and 28<sup>th</sup> (but not necessarily in the same order). L travelled the last. K travelled just after I but before J. K travelled on the 11<sup>th</sup>. Only two people travelled between K and M. Exactly one person travelled between G and K, and K travelled after G. On which date did M travel?

- Ans**
- ☒ A. 17<sup>th</sup>
  - ☒ B. 22<sup>nd</sup>
  - ☒ C. 4<sup>th</sup>
  - ☒ D. 28<sup>th</sup>

**Q.27** Read the given statement and the arguments carefully and select the appropriate answer from the given options.

Statement:

All zoos should be banned except for endangered species of animals.

Arguments:

- I. Animals are not for human entertainment but for coexistence with humans.
- II. Endangered species need our concern to maintain an ecological balance.

- Ans**
- ☒ A. I weakens while II strengthens the statement.
  - ☒ B. II weakens while I strengthens the statement.
  - ☒ C. Both I and II weaken the statement.
  - ☒ D. Both I and II strengthen the statement.

**Q.28** What will come in the place of '?' in the following equation, if '+' and '-' are interchanged and also '×' and '÷' are interchanged?

$$4 \div 4 - 45 \times 5 + 12 = ?$$

- Ans**
- ☒ A. 15
  - ☒ B. 28
  - ☒ C. 13
  - ☒ D. 35

- Q.29** The percentages of people qualifying the driving test to get a license in different years is shown in the following graph. Study the graph and answer the question.



In the years 1996 and 1997 together, 45,000 people qualified the driving test. If in the year 1996, a total of 25,000 people took the driving test, then how many people took the test in the year 1997?

- Ans**
- ☒ A. 30,000
  - ☒ B. 45,000
  - ☒ C. 60,000
  - ☒ D. 70,000

- Q.30** Amongst six friends P, Q, R, S, T and U, each has a different height. R is taller than only two other friends. T is shorter than only one friend. Q is shorter than R but taller than P. S is shorter than U. Who is the second tallest among all the friends?

- Ans**
- ☒ A. U
  - ☒ B. T
  - ☒ C. S
  - ☒ D. R

- Q.31** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/symbol | * | 2 | @ | 5 | ^ | + | 7 | # | % | 9 |
|---------------|---|---|---|---|---|---|---|---|---|---|
| Letter code   | J | P | A | F | D | N | R | K | M | Z |

Conditions:

(i) If the first element is a symbol and the last, a number, the codes for these two (the first and the last elements) are to be interchanged.

(ii) If the first element is an odd number and the last, an even number, the first and last elements are to be coded as S.

Which of the following will be the code for 75#2 ?

- Ans**
- ☒ A. RFKS
  - ☒ B. SFMS
  - ☒ C. \$FKS
  - ☒ D. RFKP

- Q.32** If '+' means '-', '-' means '×', '×' means '+', '+' means '+', what will come in place of the question mark (?) in the following equation?

$$76 + 5 - 6 \times 3 + 4 = ?$$

- Ans**
- ☒ A. 70
  - ☒ B. 71
  - ☒ C. 72
  - ☒ D. 68



**Q.33** In this question, a statement is followed by four conclusions. Find out which conclusion is true based on the given statement.

**Statement:**

$$I \geq R > U \leq T > Q \geq O$$

**Conclusions:**

1.  $I > U$
2.  $O > T$
3.  $R > T$
4.  $U < Q$

**Ans** ☒ A. 1  
☐ B. 2  
☐ C. 3  
☐ D. 4

**Q.34** Which of the following numbers will replace the question mark (?) in the given series?  
9, 13, 22, 38, 63, ?

**Ans** ☐ A. 63  
☒ B. 99  
☐ C. 72  
☐ D. 100

**Q.35** Akshay starts from the restaurant and travels 2 km southwards and then turns right and travels 4 km. He then turns left and travels 10km, then he turns left and travel 4km to reach his home. What is the shortest distance between the restaurant and home and what is restaurant's direction with respect to the home?

**Ans** ☒ A. 12 km, North  
☐ B. 12 km, South  
☐ C. 8 km, North  
☐ D. 8 km, South

**Q.36** Study the following table and answer the question.

| Name of the Student | Marks   |       |          |
|---------------------|---------|-------|----------|
|                     | English | Maths | Computer |
| Arav                | 74      | 82    | 72       |
| Toshita             | 71      | 92    | 49       |
| Pranay              | 59      | 65    | 66       |
| Vibhor              | 81      | 78    | 82       |

By what percentage is the total marks of Arav in the three subjects more than the total marks of Pranay in the three subjects?

**Ans** ☐ A. 24%  
☒ B. 20%  
☐ C. 23%  
☐ D. 27%

**Q.37** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(76, 171, 95)

(28, 63, 35)

**Ans** ☒ A. (60, 105, 70)

☒ B. (52, 117, 65)

☒ C. (44, 88, 55)

☒ D. (24, 48, 30)

**Q.38** Three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

Statements:

1. All statements are books.
2. Some books are copies.
3. No copy is a thesaurus.

Conclusions:

- I. Some thesauruses are copies.
- II. No statement is a thesaurus.
- III. Some books are statements.

**Ans** ☒ A. Only conclusions I and II follow

☒ B. Only conclusions II and III follow

☒ C. Only conclusion I follows

☒ D. Only conclusions III follows

**Q.39** Three statements are given, followed by four conclusions numbered I, II, III and IV. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements

Statements:

1. Some pants are coats.
2. All coats are red.
3. All red are shirts.

Conclusions:

- I. All pants are shirts.
- II. All coats are shirts.
- III. Some red are coats.
- IV. Some shirts are pants.

**Ans** ☒ A. Only conclusions I, II and III follow

☒ B. Only conclusions II, III and IV follow

☒ C. Only conclusions I, III and IV follow

☒ D. All the conclusions follow

**Q.40** Five persons are sitting in a straight row facing the north. Ram is sitting at the extreme left end and Sita is sitting at the extreme right end of the row. Kamal sits exactly in the middle of the row. Ravi is sitting exactly third to the left of Sita. Ritu is sitting exactly third to the right of Ram. Who is the immediate neighbour of Sita?

- Ans**
- ☒ A. Kamal
  - ☒ B. Ram
  - ☒ C. Ravi
  - ☒ D. Ritu

**Q.41** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.  
 $18 : 36 :: 42 : 51 :: 25 : ?$

- Ans**
- ☒ A. 41
  - ☒ B. 43
  - ☒ C. 45
  - ☒ D. 48

**Q.42** If '+' means '-', '-' means '×', '×' means '+' and '÷' means '+', what will come in place of the question mark (?) in the following equation?

$$88 \times 22 - 15 \div 40 + 19 = ?$$

- Ans**
- ☒ A. 81
  - ☒ B. 91
  - ☒ C. 101
  - ☒ D. 201

**Q.43** This question is based on the five, three-digit numbers given below.

(Left) 653 831 933 476 715 (Right)

(Example: 697 – first digit = 6, second digit = 9, third digit = 7)

NOTE: All operations to be done from left to right.

If 2 is added to the third digit of every number, in how many numbers will the third digit be exactly divided by the second digit of that number?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.44** Select the option that represents the letters that, when placed from left to right in the same sequence in the blanks below, will complete the letter series.

\_ \_ b a d c \_ \_ d \_ b a d c b \_

- Ans**
- ☒ A. dcbaac
  - ☒ B. dcbaca
  - ☒ C. cdabca
  - ☒ D. dbcaca

**Q.45** Radhika moves 30 metres in West direction. Then she turns to her right and moves 10 metres and then she turns to her left and moves 30 metres. In which direction is she now from the starting point?

- Ans**
- ☒ A. East
  - ☒ B. North- East
  - ☒ C. North-West
  - ☒ D. South

- Q.46** In this question, a group of letters is coded using symbols as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Letters | D | C | U | Q | I | A | R  | E |
|---------|---|---|---|---|---|---|----|---|
| Codes   | @ | > | ^ | % | = | # | \$ | + |

Conditions:

- If the first letter of the word is a vowel and last letter is a consonant, then both these letters will be coded as '\*'.  
ii. If the second letter of the word is a vowel and the fifth letter is a consonant, then both these letters will be coded as '&'.  
What will be the code for the word 'ACQUIRED'?

- Ans**
- ☒ A. # > % ^ = \$ + @
- ☒ B. \* > % ^ = \$ + \*
- ☒ C. \* > % ^ = \$ + @
- ☒ D. \* > % = ^ \$ + \*

- Q.47** Six friends C, D, E, F, G and H are sitting in a row facing north. F is 2<sup>nd</sup> to the left of E, who is 2<sup>nd</sup> to the left of G. D is 2<sup>nd</sup> to the right of H, who is an immediate neighbour of E and G. Where is C seated?

- Ans**
- ☒ A. Between E and F
- ☒ B. Between H and D
- ☒ C. At the left end
- ☒ D. At the right end

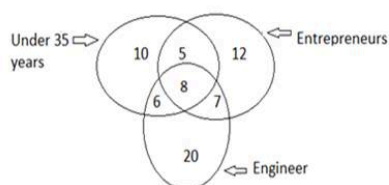
- Q.48** Which of the following numbers will replace the question mark (?) in the given series?  
22, 34, 48, 64, 82, ?

- Ans**
- ☒ A. 98
- ☒ B. 100
- ☒ C. 101
- ☒ D. 102

- Q.49** A certain number of people are sitting in a row, facing North. P is an immediate neighbour of both V and T, while R is an immediate neighbour of both T and Q. V is at the extreme right end. There are only two people on the left of Q. If no other person is sitting in the row, what is the total number of persons seated?

- Ans**
- ☒ A. Eight
- ☒ B. Nine
- ☒ C. Six
- ☒ D. Seven

- Q.50** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



How many person under 35 years of age are Engineers but NOT Entrepreneurs?

- Ans**
- ☒ A. 5
- ☒ B. 6
- ☒ C. 7
- ☒ D. 8

**Q.51** This question is based on the following 3-letter words.

AIN, ONK, AST, EJO

If in each of the words, each letter is changed to the next letter in the English alphabetical order, how many words thus formed will have no vowel ?

- Ans**
- ☐ A. 2
  - ☐ B. 3
  - ☐ C. 4
  - ☒ D. 1

**Q.52** Refer to the following letter, number, symbol series and answer the question that follows.

(Left) A D 4 F @ T 5 H \$ B R @ V T 6 # 7 H 6 D 8 \$ % & G \$ 3 C F (Right)

If all the symbols are dropped from the series, which of the following will be ninth to the left of the fifth from the right?

- Ans**
- ☐ A. H
  - ☒ B. B
  - ☐ C. R
  - ☐ D. V

**Q.53** The position of how many letters will remain unchanged if each of the letters in the word ARGUMENT is arranged in alphabetical order?

- Ans**
- ☐ A. One
  - ☒ B. Two
  - ☐ C. Three
  - ☐ D. None

**Q.54** U, V, W, X, Y and Z live on different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it is numbered 2, and so on till the topmost floor is numbered 6. Z lives on the floor immediately above Y. Only one person lives between U and V. W lives immediately above Z and immediately below V. Who lives on the second floor?

- Ans**
- ☐ A. U
  - ☐ B. V
  - ☐ C. W
  - ☒ D. Z

**Q.55** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

MCD : PZG

LKG : OHJ

- Ans**
- ☐ A. QDH : TGK
  - ☐ B. NYB : QVY
  - ☒ C. TJQ : WGT
  - ☐ D. PBX : SEA

#### Section : General Science

**Q.56** What is the suffix in the name Propanoic Acid?

- Ans**
- ☐ A. Prop
  - ☐ B. Propane
  - ☒ C. oic acid
  - ☐ D. ane

**Q.57** In which year was Mendeleev's Periodic Table published in a German journal?

- Ans**
- ✓ A. 1872
  - ✗ B. 1852
  - ✗ C. 1892
  - ✗ D. 1862

**Q.58** In an electric circuit, if power, voltage and resistance are represented by P, V and R, respectively, then the correct relation between them is:

- Ans**
- ✗ A.  $P = V^2 R$
  - ✗ B.  $P = VR^2$
  - ✓ C.  $P = \frac{V^2}{R}$
  - ✗ D.  $P = \frac{V^2}{R^2}$

**Q.59** Why is carbon monoxide an air pollutant?

- Ans**
- ✗ A. Because it can kills RBCs
  - ✓ B. Because it reduces oxygen carrying capacity of blood
  - ✗ C. Because it is present in vehicle exhaust
  - ✗ D. Because it is converted into carbon dioxide

**Q.60** Which of the following compounds is formed when lead nitrate is mixed with potassium iodide?

- Ans**
- ✗ A. Lead oxide
  - ✓ B. Lead iodide
  - ✗ C. Lead nitride
  - ✗ D. Lead carbide

**Q.61** When a beam of light of wave lengths 4500 Å, 5400 Å, and 6000 Å respectively are passed through a prism then the angle of deviation is:

- Ans**
- ✓ A. more in light of 4500 Å
  - ✗ B. equal in all
  - ✗ C. more in light of 6000 Å
  - ✗ D. more in light of 5400 Å

**Q.62** When magnetic lines of forces are more crowded in the region of magnetic field, this indicates the presence of:

- Ans**
- ✓ A. strong magnetic field
  - ✗ B. weak magnetic field
  - ✗ C. magnetic north pole alone
  - ✗ D. magnetic south pole alone

**Q.63** When an object is kept at the centre of curvature of a concave mirror, the image will be formed at:

- Ans**
- ✗ A. infinity
  - ✗ B. the principal focus
  - ✓ C. the centre of curvature
  - ✗ D. the position behind the mirror

**Q.64** Which of the following types of epithelial tissues form a lining of lung alveoli?

- Ans**
- ☒ A. Squamous
  - ☐ B. Cuboidal
  - ☐ C. Columnar
  - ☐ D. Ciliated columnar

**Q.65** In a house, a refrigerator set rated as 350 W is operated for 8 hours/day, a TV set rated as 150 W is operated for 5 hours/day, and an electric heater rated as 1500 W is operated for 30 minutes/day. If the energy cost per unit is ₹5.00, then the total expenditure of that house for 10 days for the TV set, refrigerator and electric heater will be:

- Ans**
- ☒ A. ₹215 /-
  - ☐ B. ₹220/-
  - ☐ C. ₹225/-
  - ☐ D. ₹230/-

**Q.66** How many elements are present in the 7th period of the Modern Periodic table?

- Ans**
- ☐ A. 2
  - ☐ B. 8
  - ☒ C. 32
  - ☐ D. 18

**Q.67** What is the full form of UNEP

- Ans**
- ☐ A. United Nations Empowerment Programme
  - ☐ B. United Nations Educational Programme
  - ☒ C. United Nations Environment Programme
  - ☐ D. United Nations Environmental Protection

**Q.68** Complete the given homologous series of alcohols by choosing the correct option.

$\text{CH}_3\text{OH}$ ,  $\text{C}_2\text{H}_5\text{OH}$ , \_\_\_\_\_,  $\text{C}_4\text{H}_9\text{OH}$

- Ans**
- ☐ A.  $\text{C}_3\text{H}_6\text{OH}$
  - ☒ B.  $\text{C}_3\text{H}_7\text{OH}$
  - ☐ C.  $\text{C}_5\text{H}_{10}\text{OH}$
  - ☐ D.  $\text{C}_5\text{H}_{12}\text{OH}$

**Q.69** The rules of inheritance of traits in human beings are related to certain facts mentioned below. All of them are correct except one. Select the INCORRECT option.

- Ans**
- ☐ A. Both mother and father contribute equal amount of genetic material to the child
  - ☐ B. Each trait can be influenced by paternal and maternal DNA
  - ☐ C. For each trait, there would be two versions in each child
  - ☒ D. For each trait, there would be a single version in each child



**Q.70** What happens when quick lime reacts vigorously with water?

- Ans**
- ☐ A. Displacement reaction
  - ☐ B. Dissociation reaction
  - ☐ C. Double displacement reaction
  - ☒ D. Exothermic reaction

**Q.71** reflected ray passes through principal focus when incident ray:

- Ans**
- ☐ A. is passing through C of convex mirror
  - ☒ B. is parallel to principal axis of concave mirror
  - ☐ C. is parallel to principal axis of convex mirror
  - ☐ D. is incident at the pole of plane mirror

**Q.72** In which season would sugar stored in root or stem tissue be transported to the buds which need energy to grow in plants?

- Ans**
- ☐ A. Winter
  - ☒ B. Spring
  - ☐ C. Summer
  - ☐ D. Monsoon

**Q.73** Which of the following is similar to the plasma of blood but is colourless and contains less protein?

- Ans**
- ☐ A. RBC
  - ☐ B. WBC
  - ☒ C. Lymph
  - ☐ D. Platelets

**Q.74** The refractive index of fluid A is 1.47. This means:

- Ans**
- ☐ A. the speed of light in fluid A is increased 1.47 times than the speed of light in water
  - ☒ B. the speed of light in fluid A is reduced by 1.47 times than the speed of light in vacuum
  - ☐ C. the speed of light in fluid A is 1.47 times greater than the speed of light in water
  - ☐ D. the speed of light in fluid A is 1.47 times greater than the speed of light in air

**Q.75** Which of the following is related to the Chipko Andolan Movement?

- Ans**
- ☐ A. Water
  - ☒ B. Forest
  - ☐ C. Pollution
  - ☐ D. Coal

**Q.76** Consider the below statements and identify the correct answer.

Statement-I: The metals high up in the reactivity series are not reactive.

Statement-II: The metals high up in the reactivity series can be obtained from their compounds by heating with carbon.

- Ans**
- ☐ A. Both the statements are true.
  - ☒ B. Both the statements are false.
  - ☐ C. Statement-I is true, and Statement-II is false.
  - ☐ D. Statement-II is true, and Statement-I is false.



**Q.77** When zinc granules react with dilute sulphuric acid, a colourless gas is produced which burns with a:

- Ans**
- ☐ A. yellow flame
  - ☐ B. green flame
  - ☒ C. pop sound
  - ☐ D. reddish flame

**Q.78** Consider two wires of the same material, but the ratio of their cross-sectional areas is 1 : 10 and the ratio of their lengths is 2 : 5. If the same 10 V battery is connected across these two wires separately, what will be the ratio of the current flow in these two wires?

- Ans**
- ☒ A. 1 : 4
  - ☐ B. 4 : 1
  - ☐ C. 1 : 25
  - ☐ D. 25 : 1

**Q.79** Where can a tall tree store its waste products?

- Ans**
- ☐ A. In the bark tissue
  - ☒ B. In old xylem (heartwood)
  - ☐ C. In old roots
  - ☐ D. In intercellular spaces

**Q.80** A bulb draws 36 W when connected to a 12- V supply. If it is connected to a 6V supply then power consumed will be:

- Ans**
- ☐ A. 12W
  - ☐ B. 24 W
  - ☒ C. 9W
  - ☐ D. 6W

#### Section : General Awareness and Current Affairs

**Q.81** In the year 2021, the Indian men's hockey team defeated which country to win the bronze medal in Tokyo Olympics?

- Ans**
- ☐ A. Pakistan
  - ☒ B. Germany
  - ☐ C. Belgium
  - ☐ D. Australia

**Q.82** Which of the following Acts was aimed to provide for the extension of the provisions of Part IX of the Constitution relating to the Panchayats to the Scheduled Areas?

- Ans**
- ☒ A. PESA Act 1996
  - ☐ B. DESA Act 1996
  - ☐ C. MESA Act 1996
  - ☐ D. NESA Act 1996

**Q.83** In 2022 scientists from which campus of Indian Institute of Science Education and Research (IISER) have successfully extracted more than 95 per cent of uranium from natural seawater during an experiment?

- Ans**
- ☒ A. Pune
  - ☐ B. Mohali
  - ☐ C. Bhopal
  - ☐ D. Tirupati

**Q.84** Who was awarded the 2021 DST-ICTP-IMU Ramanujan Prize for Young Mathematicians from developing countries for her outstanding work in affine algebraic geometry and commutative algebra?

- Ans**
- ☐ A. Ramdorai Sujatha
  - ☐ B. Amalendu Krishna
  - ☐ C. Ritabrata Munshi
  - ☒ D. Neena Gupta

**Q.85** By which year does the National Education Policy 2020 aim for a 100% Gross Enrolment Ratio (GER) in school education?

- Ans**
- ☐ A. 2023
  - ☐ B. 2025
  - ☐ C. 2027
  - ☒ D. 2030

**Q.86** Who among the following became the first Indian woman sailor to qualify for the Olympics in April 2021?

- Ans**
- ☒ A. Nethra Kumanan
  - ☐ B. Varsha Gautham
  - ☐ C. Aishwarya Nedunchezhiyan
  - ☐ D. Sweta Shervegar

**Q.87** Which of the following Five-Year Plans was based on the Mahalanobis model?

- Ans**
- ☐ A. First Five-Year Plan
  - ☒ B. Second Five-Year Plan
  - ☐ C. Third Five-Year Plan
  - ☐ D. Fourth Five-Year Plan

**Q.88** Which of the following is India's coldest inhabited place?

- Ans**
- ☐ A. Shimla
  - ☒ B. Drass
  - ☐ C. Jammu
  - ☐ D. Mount Abu

**Q.89** Who among the following is considered as the first Tirthankara of Jainism?

- Ans**
- ☐ A. Vardhaman Mahavira
  - ☐ B. Parshvanath
  - ☐ C. Neminath
  - ☒ D. Rishabhanatha

**Q.90** As per the Railway Budget of India 2022-23, the Finance Minister announced the production of 400 new Vande Bharat trains in three years and \_\_\_\_\_ km of the rail network will be brought under 'Kavach'.

- Ans**
- ☒ A. 2000
  - ☐ B. 3000
  - ☐ C. 3500
  - ☐ D. 4000

**Q.91** Who was the Chairman of the Drafting Committee which had the task to prepare the draft of the Constitution?

- Ans**
- ✓ A. Dr. BR Ambedkar
  - ✗ B. N Goipalswami
  - ✗ C. Alladi Krishnaswami Ayyas
  - ✗ D. Saijio Mola Saadulla

**Q.92** Which was the first microfinance institution in the country to win a bank license in 2014 by RBI?

- Ans**
- ✗ A. Madura Micro Finance Ltd
  - ✗ B. Annapurna Financial Services Pvt Ltd
  - ✓ C. Bandhan Financial Services Pvt Ltd
  - ✗ D. BSS Microfinance Bangalore Pvt Ltd

**Q.93** As of the year 2021, which of the following states/union territories produces the largest quantity of apples?

- Ans**
- ✓ A. Jammu & Kashmir
  - ✗ B. Himachal Pradesh
  - ✗ C. Uttarakhand
  - ✗ D. Ladakh

**Q.94** The concept of judicial review in Constitution of India has been taken from the Constitution of which country?

- Ans**
- ✓ A. United states of America
  - ✗ B. United Kingdom
  - ✗ C. New Zealand
  - ✗ D. Australia

**Q.95** In December 2021 to improve the leadership skills of grassroot women political leaders, which of the following organisations launched a pan-India capacity building programme called 'She is a Changemaker' for women representatives at all levels?

- Ans**
- ✓ A. National Commission for Women
  - ✗ B. National Commission for Minorities
  - ✗ C. National Commission for Backward Classes
  - ✗ D. National Human Rights Commission

**Q.96** The *Swaminarayan Sampraday* was established by Bhagwan *Swaminarayan* over 200 years ago in the present day state of \_\_\_\_\_.

- Ans**
- ✗ A. Rajasthan
  - ✗ B. Madhya Pradesh
  - ✓ C. Gujarat
  - ✗ D. Himachal Pradesh

**Q.97** Where in India is the Sree Sankaracharya University of Sanskrit situated?

- Ans**
- ✗ A. Assam
  - ✓ B. Kerala
  - ✗ C. Maharashtra
  - ✗ D. West Bengal

**Q.98** As per National Statistics office , the work population ratio (WPR) in India is at \_\_\_\_\_ for July 2020 - June 2021.

- Ans**
- ✓ **A. 39.8%**
  - ✗ **B. 49.1%**
  - ✗ **C. 35.6%**
  - ✗ **D. 45.7%**

**Q.99** The \_\_\_\_\_ range is bounded by the Satpura range on the south and the Aravalis on the northwest.

- Ans**
- ✗ **A. Kailash**
  - ✗ **B. Shivalik**
  - ✓ **C. Vindhyan**
  - ✗ **D. Gir**

**Q.100** Gurpurab is one of the holiest festivals of Sikhism, celebrated to commemorate the birth anniversary of:

- Ans**
- ✗ **A. Guru Amar Das**
  - ✗ **B. Guru Gobind Singh**
  - ✓ **C. Guru Nanak Dev**
  - ✗ **D. Guru Tegh Bahadur**



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 16/09/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** Ravi's salary was first reduced by 50% and subsequently raised by 50%. How much lower was his final salary compared to his initial salary?

- Ans**
- ☒ A. 21%
  - ☒ B. 24%
  - ☒ C. 25%
  - ☒ D. 32%

**Q.2** The area (in  $\text{cm}^2$ ) of an equilateral triangle of side 3 cm is:

- Ans**
- ☒ A.  $\frac{\sqrt{243}}{4}$
  - ☒ B.  $\frac{\sqrt{243}}{2}$
  - ☒ C.  $\frac{\sqrt{243}}{6}$
  - ☒ D.  $\frac{\sqrt{243}}{3}$

**Q.3** Find the value of  $\left(\frac{1}{2}\right)^{-2} + \left(\frac{1}{3}\right)^{-2} + \left(\frac{1}{4}\right)^{-2}$ .

- Ans**
- ☒ A. 25
  - ☒ B. 29
  - ☒ C. 21
  - ☒ D. 13

**Q.4** The sum of the digits of a two-digit number is 12. The number obtained by interchanging its digits exceeds the given number by 18. The number is:

- Ans**
- ☒ A. 27
  - ☒ B. 57
  - ☒ C. 67
  - ☒ D. 76

**Q.5** The volumes of two spheres are in the ratio of 27 : 8. The ratio of the surface areas of these spheres, in the order in which they are mentioned here, is \_\_\_\_\_.

- Ans**
- ☐ A. 2 : 3
  - ☐ B. 3 : 2
  - ☐ C. 4 : 9
  - ☒ D. 9 : 4

**Q.6** The ratio of the lengths of two corresponding sides of two similar triangles is 2 : 1. The ratio of the areas of these two triangles, in the order mentioned, is:

- Ans**
- ☐ A. 2 : 1
  - ☐ B.  $2\sqrt{2} : 1$
  - ☐ C. 3 : 1
  - ☒ D. 4 : 1

**Q.7** Five years from now, father's age will be three times the age of his son. Five years ago, father was seven times as old as his son. Their present ages are:

- Ans**
- ☒ A. 40 and 10
  - ☐ B. 30 and 5
  - ☐ C. 40 and 5
  - ☐ D. 30 and 10

**Q.8** The value of  $\sin x + \frac{\cos x}{\tan(90^\circ - x)}$  is \_\_\_\_\_.

- Ans**
- ☐ A.  $2\operatorname{cosec}x$
  - ☐ B.  $\tan x$
  - ☐ C.  $\cot x$
  - ☒ D.  $2\sin x$

**Q.9** Two trains having lengths of 200 m and 300 m are running at speeds of 100 km/h and 120 km/h, respectively, in the same direction. The time taken (in minutes) by the faster train, coming from behind, to completely cross the other train is:

- Ans**
- ☐ A. 0.5
  - ☐ B. 1
  - ☒ C. 1.5
  - ☐ D. 2

**Q.10** The smallest natural number which is divisible by 8, 12, 28 and 36 is:

- Ans**
- ☐ A. 168
  - ☒ B. 504
  - ☐ C. 252
  - ☐ D. 336

**Q.11** If the volume of a solid right circular cylinder is  $198 \text{ m}^3$  and the radius of its base is 3 m, then its height (in m) is \_\_\_\_\_. Take  $\pi = \frac{22}{7}$ .

- Ans**
- ☐ A. 6
  - ☐ B. 27
  - ☒ C. 7
  - ☐ D. 9

**Q.12** If  $25 - (x^2 - 9) = (81)^{1/2}$ , then the positive value of  $x =$  \_\_\_\_\_.

- Ans**
- ☐ A. 2.5
  - ☐ B. 2
  - ☒ C. 5
  - ☐ D. 4.7

**Q.13** A farmer planted an identical number of saplings of each of three types of trees in a garden. All saplings of one type were planted in the form of a single rectangle, with no rectangle having saplings of more than one type of tree, and no sapling of any type remaining unplanted. Once planted, there were 70 rows in the rectangle of saplings of Tree A, 28 rows in the rectangle of saplings of Tree B, and 42 rows in the rectangle of saplings of Tree C. Find the minimum number of saplings of each type that was planted in the garden by the farmer.

- Ans**
- ☐ A. 70
  - ☐ B. 210
  - ☒ C. 420
  - ☐ D. 140

**Q.14** A vendor claims to sell wheat at a loss of 20%. But he cheats by using weights that weigh 40% less than what is mentioned on them. What is his profit percentage (rounded off to 2 decimal places)?

- Ans**
- ☐ A. 16.67%
  - ☒ B. 33.33%
  - ☐ C. 34.33%
  - ☐ D. 35.33%

**Q.15** Find the median from the following data.

| Age in years    | 15-25 | 25-35 | 35-45 | 45-55 | 55-65 | 65-75 | 75-85 |
|-----------------|-------|-------|-------|-------|-------|-------|-------|
| No. of patients | 12    | 18    | 20    | 25    | 30    | 20    | 15    |

- Ans**
- ☐ A. 51
  - ☒ B. 53
  - ☐ C. 55
  - ☐ D. 57

**Q.16** A shopkeeper purchased 70 kg of onions for ₹560 and sold the whole lot at the rate of ₹10 per kg. What will be his gain percentage?

- Ans**
- ☐ A. 17.5%
  - ☐ B. 28%
  - ☒ C. 25%
  - ☐ D. 20%

Q.17

Find the value of  $\left[\left(\frac{5}{8}\right)^{-7} \times \left(\frac{8}{5}\right)^{-4} \times \left(\frac{1}{4}\right)^{-3}\right]^{-3}$ 

Ans

✓ A.  $\left(\frac{5}{32}\right)^9$

✗ B.  $\left(\frac{5}{4}\right)^9$

✗ C.  $\left(\frac{32}{5}\right)^9$

✗ D.  $\left(\frac{5}{4}\right)^7$

Q.18

Manish deposited a certain sum of money at 5% rate of interest per annum, compounded annually. At the end of 3 years, Manish received a total amount of ₹92,610. What was the sum of money deposited by Manish?

Ans

✗ A. ₹82,610

✓ B. ₹80,000

✗ C. ₹80,530

✗ D. ₹79,460

Q.19

Simplify  $(4pq + 3q)^2 - (4pq - 3q)^2$ .

Ans

✗ A.  $48p^2q^2$

✓ B.  $48pq^2$

✗ C.  $24pq^2$

✗ D.  $24p^2q^2$

Q.20

A man deposits ₹8,000 at 10% rate of simple interest per annum. The total amount he will get at the end of 2 years is:

Ans

✗ A. ₹9,760

✗ B. ₹9,200

✗ C. ₹9,800

✓ D. ₹9,600

Q.21

If 35% of  $x = 40\%$  of  $y$ , then  $x : y$  is \_\_\_\_\_.

Ans

✗ A. 7 : 8

✓ B. 8 : 7

✗ C. 8 : 9

✗ D. 9 : 8

Q.22

Mahesh withdrew ₹2,000 from a bank. He received a total of 32 notes of ₹50 and ₹100 denominations. The number of ₹50 notes received by him was:

Ans

✗ A. 8

✗ B. 16

✓ C. 24

✗ D. 32



**Q.23** The average weight of 32 parcels was recorded as 96 kg. If the weight of one more parcel is included, the average is increased by 2 kg. The weight of the new parcel is:

- Ans**
- ☒ A. 192 kg
  - ☒ B. 182 kg
  - ☒ C. 172 kg
  - ☒ D. 162 kg

**Q.24** If  $\alpha, \beta$  are the roots of the quadratic equation  $2x^2 - 3x - 35 = 0$ , then the value of  $\alpha^3 + \beta^3$  is:

- Ans**
- ☒ A.  $\frac{957}{8}$
  - ☒ B.  $\frac{857}{8}$
  - ☒ C.  $\frac{757}{8}$
  - ☒ D.  $\frac{657}{8}$

**Q.25** Ramu is younger than Sunil by 8 years. If their present ages are in the ratio of 7 : 9, then how old is Ramu?

- Ans**
- ☒ A. 56 years
  - ☒ B. 72 years
  - ☒ C. 36 years
  - ☒ D. 28 years

#### Section : General Intelligence and Reasoning

**Q.26** Refer to the following number, symbol series and answer the question.

(Left) & % 7 4 @ 6 # & 2 # % 5 \* (Right)

How many such symbols are there that are immediately preceded by a number and also immediately followed a number?

- Ans**
- ☒ A. One
  - ☒ B. Two
  - ☒ C. None
  - ☒ D. Three

**Q.27** Which two numbers should be interchanged to make the following equation correct?

$$12 + 7 - (8 \div 4 - 5) \times 11 = 54$$

- Ans**
- ☒ A. 5 and 12
  - ☒ B. 8 and 7
  - ☒ C. 8 and 11
  - ☒ D. 12 and 11

**Q.28** ZR 18 is related to UW 11 in a certain way. In the same way, YM 24 is related to TR 17. To which of the following is KJ 35 related following the same logic?

- Ans**
- ☒ A. FO 28
  - ☒ B. FP 27
  - ☒ C. GO 28
  - ☒ D. GP 27

**Q.29** A certain number of persons are sitting in a row, facing North. G is sixth to the right of D.

G is an immediate neighbour of both H and E. C is to the immediate right to E. If no other person is sitting in the row, what is the total number of persons seated?

- Ans**
- ☒ A. Eight
  - ☒ B. Nine
  - ☒ C. Ten
  - ☒ D. Eleven

**Q.30** Six people, S, T, V, W, X and Y are sitting in a straight line, facing North (but not necessarily in the same order). Only two people sit to the right of S. Only two people sit between W and S. V sits at one of the extreme ends. Y sits to the immediate left of V. T is not an immediate neighbour of S. Who is sitting at the extreme left end?

- Ans**
- ☒ A. S
  - ☒ B. T
  - ☒ C. W
  - ☒ D. X

**Q.31** Two statement are given below, followed by four conclusions given in the options. Find out which conclusion is true based on the given statements.

Statement:  $M > N > O = P$ ,  $Q < C = D < O$

- Ans**
- ☒ A.  $C > M$
  - ☒ B.  $N < D$
  - ☒ C.  $P = Q$
  - ☒ D.  $Q < M$

**Q.32** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding/deleting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(14, 336, 8)

(12, 324, 9)

- Ans**
- ☒ A. (18, 378, 7)
  - ☒ B. (18, 368, 7)
  - ☒ C. (18, 478, 7)
  - ☒ D. (18, 398, 7)

**Q.33** Which of the following term will replace the question mark (?) in the given series to make it logically complete?

QDA19, UHE38, YLI57, CPM76, ?

- Ans**
- ☒ A. HTQ97
  - ☒ B. HTQ95
  - ☒ C. GTQ95
  - ☒ D. GTQ97

**Q.34** Study the following table and answer the question given below.

| Name of the Company | Sale (in lakhs) |      |      |
|---------------------|-----------------|------|------|
|                     | 1999            | 2000 | 2001 |
| ACG                 | 32              | 43   | 35   |
| TYD                 | 61              | 52   | 29   |
| POD                 | 54              | 25   | 36   |
| BKN                 | 19              | 38   | 52   |

Which company has the highest total sale value over the three years. What is the difference between the value of the highest combined sales and the lowest combined sales registered by any company from 1999 to 2001.

- Ans**
- ☐ A. TYD, ₹27,00,000
- ☐ B. BKN, ₹27,00,000
- ☒ C. TYD, ₹33,00,000
- ☐ D. BKN, ₹33,00,000

**Q.35** Seven boxes X, Y, Z, A, B, C and D are kept one over the other but not necessarily in the same order. A is kept third from the bottom. Only one box is kept between A and X. Only three boxes are kept between B and D. B is kept at one of the positions above D. Y is kept immediately below Z. How many boxes are kept between C and A?

- Ans**
- ☒ A. Three
- ☐ B. Four
- ☐ C. Two
- ☐ D. One

**Q.36** In this question, a group of letters is coded using symbols as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Letters | G | T | Y | H | O | R | P  | I | C |
|---------|---|---|---|---|---|---|----|---|---|
| Codes   | @ | > | ^ | % | = | # | \$ | + | < |

Conditions:

1. If both the first and the last letters of the word are vowels, then both these letters will be coded as '&'.  
&
2. If both the first and the last letters of the word are consonants, then both these letters will be coded as '\*'.  
&

What will be the code for the word 'COPYRIGHT'?

- Ans**
- ☐ A. < = \$ ^ # + @ % >
- ☒ B. \* = \$ ^ # + @ % \*
- ☐ C. < = \$ ^ # + @ % \*
- ☐ D. = \$ ^ # + @ % >

**Q.37** Read the given statement and the arguments carefully and select the appropriate answer from the given options.

Statement:

Real education is an awakening of the mind.

Arguments:

- I. Academic achievement is the only indicator of real education.
- II. Human values reflect real education.

- Ans**
- ☒ A. I weakens while II strengthens the statement.
- ☐ B. II weakens while I strengthens the statement.
- ☐ C. Both I and II weaken the statement.
- ☐ D. Both I and II strengthen the statement.

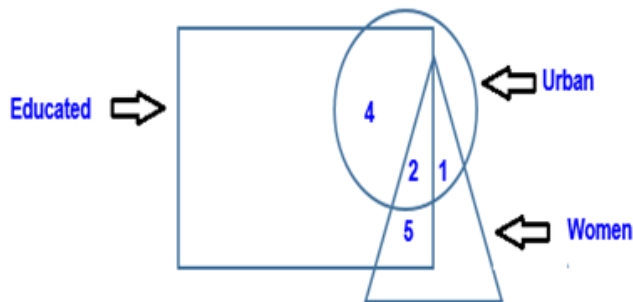
**Q.38** Which of the following numbers will replace the question mark (?) in the given series?

49, 60, 82, 115, 159, ?

- Ans**
- ☒ A. 187
  - ☒ B. 214
  - ☒ C. 225
  - ☒ D. 199

**Q.39** Study the given diagram carefully and answer the question that follows.

The numbers in different sections indicate the number of people.



How many Women are Educated but NOT Urban?

- Ans**
- ☒ A. 5
  - ☒ B. 7
  - ☒ C. 2
  - ☒ D. 4

**Q.40** Refer to the following letter series and answer the question.

(Left) R E S I C X Z H G U K E W A T E Y M Q D F (Right)

How many such consonants are there in the series each of which is immediately preceded by a vowel and also immediately followed by a vowel?

- Ans**
- ☒ A. One
  - ☒ B. Four
  - ☒ C. Three
  - ☒ D. Two

**Q.41** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

Some pens are staplers.  
Some staplers are erasers.  
Some erasers are notebooks.

Conclusions:

(I) Some notebooks are pens.  
(II) Some erasers are pens.

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Neither conclusion I nor II follows
  - ☒ D. Both conclusions I and II follow

**Q.42** Each vowel in the word CRICKET is changed to the letter following it in the English alphabetical order and each consonant is changed to the letter preceding it in the English alphabetical order. If each letter thus formed is arranged in alphabetical order, which letter will be fifth from the right?

- Ans**
- ☒ A. J
  - ☒ B. B
  - ☒ C. F
  - ☒ D. Q

**Q.43** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/symbol | * | 2 | @ | 5 | ^ | + | 7 | # | % | 9 |
|---------------|---|---|---|---|---|---|---|---|---|---|
| Letter code   | J | P | A | F | D | N | R | K | M | Z |

Conditions:

- i. If the first element is a symbol and the last, a number, the codes for these two (the first and the last elements) are to be interchanged.
- ii. If the first element is an odd number and the last, an even number, the first and last elements are to be coded as S.  
Which of the following will be the code for \*9 @+2 ?

- Ans**
- ☒ A. JZNP
  - ☒ B. JZANP
  - ☒ C. PZANJ
  - ☒ D. PZANP

**Q.44** Which of the following numbers will replace the question mark (?) in the given series?

8, 9, 64, 25, 216, ?

- Ans**
- ☒ A. 81
  - ☒ B. 125
  - ☒ C. 72
  - ☒ D. 49

**Q.45** Among four stalls, P, Q, R and S, S is 40 m to the north of R, P is 60 m to the east of R, and Q is 50 m to the south of R. How far and in which direction is Q with reference to S?

- Ans**
- ☒ A. 90m, South
  - ☒ B. 90m, North
  - ☒ C. 110m, South
  - ☒ D. 100m, North

**Q.46** Study the following table and answer the question.

| Goods        | Profit (in lakhs) |      |      |
|--------------|-------------------|------|------|
|              | 2017              | 2019 | 2021 |
| Refrigerator | 32                | 15   | 43   |
| Fan          | 47                | 26   | 54   |
| Television   | 28                | 32   | 62   |
| Mobile       | 61                | 45   | 47   |

Which goods earned the maximum combined profit in the given three years, and by what percentage is the profit of the highest profitable goods more than the profit of the lowest profitable goods in the year 2019?

- Ans**  **A. Mobile, 200%**  
 **B. Fan, 300%**  
 **C. Mobile, 300%**  
 **D. Fan, 200%**

**Q.47** Which of the following options is the closest approximate value which will come in place of question mark(?) in the following equation?

$$18.96 + 12.96 + 15.16 - 17.89 \times 2.04 + 49.93 \div 5.1 = ?$$

- Ans**  **A. 21**  
 **B. 22**  
 **C. 23**  
 **D. 24**

**Q.48** This question is based on the five, three-digit numbers given below.

(Left) 648 545 317 653 476 (Right)

(Example: 697 – first digit = 6, second digit = 9, third digit = 7)

NOTE: All operations to be done from left to right.

What will be the resultant if the second digit of the largest number is added to the first digit of smallest number?

- Ans**  **A. 9**  
 **B. 8**  
 **C. 7**  
 **D. 11**

**Q.49** Town M is to the south of Town Z. Town C is to the east of Town Z. Town F is to the west of Town C. Town X is to the north of Town C. Town Z is to the west of Town F. What is the position of Town F with respect to Town M?

- Ans**  **A. North- East**  
 **B. West**  
 **C. South-East**  
 **D. North-West**

**Q.50** Six Human Rights conferences are planned in six cities- Mumbai, Delhi, Kolkata, Chennai, Lucknow and Bangalore- between July to December in the same year (but not necessarily in the same order). Each conference was planned in a different month. Only the Delhi conference is planned between the Chennai and Bangalore conferences. The Chennai conference is in October. Only two conferences are planned before the Kolkata's conference. The Mumbai conference is immediately after the Lucknow conference. Which city will have the last conference in the year?

- Ans**  **A. Bangalore**  
 **B. Chennai**  
 **C. Kolkata**  
 **D. Mumbai**

**Q.51** Which of the following options is the closest approximate value which will come in place of question mark(?) in the following equation?

$$11.96 + 4.96 + 12.16 - 11.89 \times 2.04 = ?$$

- Ans**
- ☐ A. 7
  - ☐ B. 9
  - ☒ C. 5
  - ☐ D. 13

**Q.52** Three statement are given below, followed by four conclusions given in the options. Find out which conclusion is true based on the given statements.

Statement:  $U < V > W = X$ ,  $T < W$ ,  $S > V$

- Ans**
- ☐ A.  $V = T$
  - ☐ B.  $X > S$
  - ☒ C.  $S > T$
  - ☐ D.  $W > U$

**Q.53** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

1. Some bracelets are rings.
2. Some bangles are bracelets.
3. All watches are bracelets.

Conclusions:

- I-Some rings are bracelets.
- II-Some bracelets are watches.

- Ans**
- ☐ A. Only conclusion I follows.
  - ☐ B. Only conclusion II follows.
  - ☒ C. Both conclusions I and II follow.
  - ☐ D. Neither conclusion I nor II follows.

**Q.54** Select the option that is related to the fifth number in the same way as the second number is related to the first number, the fourth number is related to the third number.

$$15 : 2 :: 255 : 4 :: 624 : ?$$

- Ans**
- ☐ A. 8
  - ☐ B. 9
  - ☐ C. 3
  - ☒ D. 5

**Q.55** K, L, M, N, O and Q are sitting in a straight line facing North (but not necessarily in the same order). Only three students are sitting between Q and N. M has K and L as his immediate neighbours. K is second to the right of O. L is second to the right of K. N is to the immediate right of L. Q is to the immediate right of O. Who among the following has K and O as his immediate neighbours?

- Ans**
- ☐ A. N
  - ☐ B. M
  - ☐ C. L
  - ☒ D. Q

**Q.56** Which of the following materials CANNOT be used to make a spherical lens?

- Ans**
- ☐ A. Clear glass
  - ☐ B. Cellophane
  - ☒ C. Wood
  - ☐ D. Water

**Q.57** Which of the following options DO NOT fit in the 3 R's of waste management?

- Ans**
- ☐ A. Reduce
  - ☒ B. Refuse
  - ☐ C. Reuse
  - ☐ D. Recycle

**Q.58** Which of the following gases is evolved when zinc granules are added to hydrochloric acid?

- Ans**
- ☐ A.  $\text{Cl}_2$
  - ☐ B.  $\text{O}_2$
  - ☐ C.  $\text{OCl}_2$
  - ☒ D.  $\text{H}_2$

**Q.59** In which of the following compounds are ions NOT found?

- Ans**
- ☒ A.  $\text{CH}_4$
  - ☐ B.  $\text{NaCl}$
  - ☐ C.  $\text{KBr}$
  - ☐ D.  $\text{NaBr}$

**Q.60** In a house, a TV set rated as 150 W is operated for 4 hours, and a 1500 W electric heater is operated for 25 minutes. The energy consumption values per day for the TV set and the electric heater are:

- Ans**
- ☐ A. 625 W h and 600 W h, respectively
  - ☒ B. 600 W h and 625 W h, respectively
  - ☐ C. 525 W h and 500 W h, respectively
  - ☐ D. 500 W h and 525 W h, respectively

**Q.61** Which of the following statements is INCORRECT about photosynthesis?

- Ans**
- ☐ A. Photosynthesis is about Absorption of light energy by chlorophyll.
  - ☐ B. Photosynthesis is about conversion of light energy to chemical energy
  - ☐ C. Photosynthesis includes splitting of water molecules into hydrogen and oxygen
  - ☒ D. Photosynthesis involves oxidation of carbon dioxide to carbohydrates

**Q.62** Which of the following belongs to the homologous series of alkenes?

- Ans**
- ☐ A.  $\text{C}_6\text{H}_{14}$
  - ☐ B.  $\text{C}_{10}\text{H}_{18}$
  - ☐ C.  $\text{C}_{10}\text{H}_{22}$
  - ☒ D.  $\text{C}_{10}\text{H}_{20}$



**Q.63** Which of the following statements is INCORRECT with respect to coal and petroleum?

- Ans**
- ☒ A. These are unlimited resources on Earth.
  - ☐ B. They have been formed by degradation of living organisms over millions of years.
  - ☐ C. They cause environmental pollution.
  - ☐ D. Their use leads to global warming.

**Q.64** An object is placed in front of a concave lens at a distance  $d$ . An erect image of the object is formed at  $d/3$ . If the focal length of the lens is 15 cm, then  $d$  is equal to:

- Ans**
- ☐ A. 15 cm
  - ☐ B. 20 cm
  - ☐ C. 25 cm
  - ☒ D. 30 cm

**Q.65** If the resistivity of nichrome wire is  $110 \times 10^{-8} \Omega \text{ m}$ , its length is 5.5 m and its resistance is  $22 \Omega$ , then the area of cross section is:

- Ans**
- ☐ A.  $275 \times 10^{-7} \text{ m}^2$
  - ☒ B.  $2.75 \times 10^{-7} \text{ m}^2$
  - ☐ C.  $3.4 \times 10^{-8} \text{ m}^2$
  - ☐ D.  $34 \times 10^{-4} \text{ m}^2$

**Q.66** Through which organ is air taken into the body of human beings?

- Ans**
- ☒ A. Nostrils
  - ☐ B. Wind pipe
  - ☐ C. Alveoli
  - ☐ D. Bronchi

**Q.67** Which tissue forms the walls of the renal tubules?

- Ans**
- ☐ A. Nervous tissue
  - ☐ B. Muscular tissue
  - ☐ C. Connective tissue
  - ☒ D. Epithelial tissue

**Q.68** Which of the following is required for the breakdown of glucose in human cells to provide energy?

- Ans**
- ☐ A. Carbon dioxide
  - ☒ B. Oxygen
  - ☐ C. Nitrogen
  - ☐ D. Hydrogen

**Q.69** A beam of light parallel to the principal axis of a convex mirror will:

- Ans**
- ☐ A. converge at F
  - ☒ B. appear to converge at F
  - ☐ C. diverge from pole
  - ☐ D. appear to diverge from F

**Q.70** The distance between the pole and the centre of curvature of a given concave mirror of focal length 0.5 m is:

- Ans**
- ☒ A. 0.5 m
  - ☒ B. 0.25 m
  - ☒ C. 1.0 m
  - ☒ D. 0.75 m

**Q.71** Which of the following methods prevents or reduces wind erosion of soil in open areas?

- Ans**
- ☒ A. Using trees or large shrubs as fences for a garden
  - ☒ B. Using pots to grow vegetables at home
  - ☒ C. Following crop rotation in agriculture
  - ☒ D. Covering up open areas with tiles or cement

**Q.72** Electrovalent compounds show conduction of electricity in:

- Ans**
- ☒ A. solid state
  - ☒ B. molten state
  - ☒ C. kerosene
  - ☒ D. petrol

**Q.73** Calculate the current in a wire if 1200 C of charge passes through it in 10 minutes.

- Ans**
- ☒ A. 4 A
  - ☒ B. 2 A
  - ☒ C. 1.5 A
  - ☒ D. 3 A

**Q.74** Which element does NOT belong to group number 11 in the Modern Periodic Table?

- Ans**
- ☒ A. Cu
  - ☒ B. Ag
  - ☒ C. Au
  - ☒ D. Hg

**Q.75** Which of the following decreasing orders is correct for reactivity of metals?

- Ans**
- ☒ A.  $\text{Ca} > \text{Al} > \text{Cu} > \text{Hg}$
  - ☒ B.  $\text{Al} > \text{Cu} > \text{Hg} > \text{Ca}$
  - ☒ C.  $\text{Al} > \text{Ca} > \text{Cu} > \text{Hg}$
  - ☒ D.  $\text{Al} > \text{Cu} > \text{Ca} > \text{Hg}$

**Q.76** What will happen if the ozone layer becomes thinner?

- Ans**
- ☒ A. Cases of skin cancer will increase
  - ☒ B. Temperature of Earth will increase
  - ☒ C. Amount of surface ozone will increase
  - ☒ D. The ozone hole will close by redistribution

**Q.77** Why do many types of trees shed old leaves?

- Ans**
- ☒ A. Because the cells die due to old age of the tree
  - ☒ B. Because the cells become packed with waste materials
  - ☒ C. Because a tree can support only a certain number of leaves
  - ☒ D. Because old leaves are broken off due to strong winds

**Q.78** In the early days, classification of elements was attempted according to their:

- Ans**
- ☒ A. natural occurrence
  - ☒ B. synthesis in a laboratory
  - ☒ C. abundance
  - ☒ D. properties

**Q.79** In an electric circuit, where 5 lamps are connected in series, if the power, voltage, current and resistance are represented by P, V, I and R, respectively, then which of the following relations holds true?

- Ans**
- ☒ A.  $P = I^2 R$
  - ☒ B.  $P = V^2 \times R$
  - ☒ C.  $P = \frac{V}{R^2}$
  - ☒ D.  $P = IR^2$

**Q.80** A straight conductor carrying current is kept along the axis of a closed circular loop of a conductor. If we change the direction of the current continuously in the straight conductor:

- Ans**
- ☒ A. induced current in the loop is constant
  - ☒ B. induced current in the loop is zero
  - ☒ C. induced current in the loop is negative
  - ☒ D. induced current in the loop is not constant

Section : General Awareness and Current Affairs

**Q.81** \_\_\_\_\_ district is the smallest district in Tamil Nadu in terms of area (1672/Sq.Km).

- Ans**
- ☒ A. Coimbatore
  - ☒ B. Madurai
  - ☒ C. Kanniyakumari
  - ☒ D. Vellore

**Q.82** Padma Shri 2022 awardee Vandana Kataria plays which of the following sports?

- Ans**
- ☒ A. Hockey
  - ☒ B. Cricket
  - ☒ C. Badminton
  - ☒ D. Wrestling

**Q.83**

In February 2022, which Maharatna Company of the Government of India was awarded India's most trusted Public Sector Company award?

**Ans**

- ☐ A. Bharat Heavy Electricals Limited
- ☒ B. Coal India Limited
- ☐ C. GAIL India
- ☐ D. Hindustan Petroleum Corporation Limited

**Q.84**

The Ganga Plain extends between Ghaggar and Teesta rivers, of which about 79% area of the basin is in India. How many states and Union Territories does the basin cover?

**Ans**

- ☐ A. 10
- ☒ B. 11
- ☐ C. 12
- ☐ D. 13

**Q.85**

Which Article of the Constitution of India deals with right to education?

**Ans**

- ☐ A. Article 22
- ☒ B. Article 21A
- ☐ C. Article 19
- ☐ D. Article 18

**Q.86**

Which state had fielded a 396-member contingent, the largest at Khelo India Youth Games 2021 and competed in every sport?

**Ans**

- ☐ A. Maharashtra
- ☐ B. Odisha
- ☒ C. Haryana
- ☐ D. Assam

**Q.87**

What percentage of 1.5 lakh post offices is expected to come under the core banking system in year 2022?

**Ans**

- ☐ A. 80%
- ☐ B. 85%
- ☐ C. 90%
- ☒ D. 100%

**Q.88**

How many bytes are there in 1 kilobyte?

**Ans**

- ☐ A. 1036 bytes
- ☒ B. 1024 bytes
- ☐ C. 1064 bytes
- ☐ D. 1012 bytes

**Q.89** Initially, how many languages were included in the 8th Schedule of the Indian Constitution?

- Ans**
- ☐ A. 10
  - ☐ B. 12
  - ☐ C. 13
  - ☒ D. 14

**Q.90** Which Governor General of India devised the policy of Doctrine of Lapse?

- Ans**
- ☐ A. Lord Ripon
  - ☐ B. Lord William Bentinck
  - ☐ C. Lord Canning
  - ☒ D. Lord Dalhousie

**Q.91** What is the main role of the State Finance Commission?

- Ans**
- ☒ A. The distribution and determination of the net proceeds of taxes, tolls and fees between the state and local bodies.
  - ☐ B. To look after the elections of the panchayats and municipalities and also provide fund for that elections.
  - ☐ C. To advise the government on the legal financial matters referred to it by the President.
  - ☐ D. To secure the accountability of the executive to the Parliament in the sphere of financial administration.

**Q.92** In February 2022, Atal Innovation Mission (AIM), NITI Aayog, and the US Agency for International Development (USAID) announced a new partnership under the SAMRIDH initiative. What is the full form of SAMRIDH?

- Ans**
- ☒ A. Sustainable Access to Markets and Resources for Innovative Delivery of Healthcare
  - ☐ B. Sustainable Abilities to Markets and Resources for Innovative Delivery of Healthcare
  - ☐ C. Sustainable Access to Markets and Resources for Innovative Designs of Healthcare
  - ☐ D. Successful Access to Markets and Resources for Innovative Designs of Healthcare

**Q.93** As on August 2022, which of the following schemes provides support for students clearing prelims conducted by UPSC/SSC, State Public Service Commission (PSC), etc.?

- Ans**
- ☐ A. Padho Pradesh
  - ☐ B. Naya Savera
  - ☒ C. Nai Udaan
  - ☐ D. Nai Manzil

**Q.94** Which of the following initiatives of the Ministry of Minority Affairs received the prestigious India International Trade Fair, 2021 Silver Medal for strengthening commitment to 'Vocal for Local' in November of 2021?

- Ans**
- ☒ A. Hunar Haat
  - ☐ B. ATAL Innovation Mission
  - ☐ C. SAMRIDH Scheme
  - ☐ D. ASPIRE

**Q.95** Which of the following was used as a highway for foreign trade between India and Britain, as its opening in 1869 reduced the cost of transportation and made access to the Indian market easier?

- Ans**
- ☐ A. Panama Canal
  - ☒ B. Suez Canal
  - ☐ C. Corinth Canal
  - ☐ D. White Sea- Baltic Sea Canal

**Q.96** What is the term used for a pricing method in which companies group several products together and sell them at a single price?

- Ans**
- ☒ A. Skimming pricing
  - ☒ B. Premium pricing
  - ☒ C. Bundle pricing
  - ☒ D. Competitive pricing

**Q.97** \_\_\_\_\_ is one of the highest motorable roads in the world, and is a mountain pass in the Himalayan peaks that co joins Sikkim and China's Tibet Autonomous Region.

- Ans**
- ☒ A. Auden's Col
  - ☒ B. Baraclacha La
  - ☒ C. Chanshal Pass
  - ☒ D. Nathu La

**Q.98** Which among the following is the oldest and biggest amongst all the four Vedas?

- Ans**
- ☒ A. Samaveda
  - ☒ B. Rig Veda
  - ☒ C. Yajur Veda
  - ☒ D. Atharva Veda

**Q.99** Which Article in the Constitution provides for All States to have a uniform 3 tier Panchayati Raj structure, i.e. the village, intermediate and district levels?

- Ans**
- ☒ A. Article 243
  - ☒ B. Article 243A
  - ☒ C. Article 243B
  - ☒ D. Article 243C

**Q.100** The \_\_\_\_\_ festival is celebrated in West Bengal, Assam and some other states of India and often coincides with the festival of Holi in the month of March.

- Ans**
- ☒ A. Bheldiya
  - ☒ B. Baishagu
  - ☒ C. Rongker
  - ☒ D. Doljatra



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 16/09/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** The sum of the squares of two consecutive odd natural numbers is 74. The sum of the numbers is:

- Ans**
- ☒ A. 18
  - ☒ B. 24
  - ☒ C. 28
  - ☒ D. 12

**Q.2** If the radius of a sphere is halved, then the new volume will become \_\_\_\_\_ the original volume.

- Ans**
- ☒ A.  $\frac{1}{4}$  times
  - ☒ B. 8 times
  - ☒ C. 4 times
  - ☒ D.  $\frac{1}{8}$  times

**Q.3** If the area of a triangle whose base measures 3 cm is  $4 \text{ cm}^2$ , then its corresponding height is:

- Ans**
- ☒ A.  $2\frac{2}{3} \text{ cm}$
  - ☒ B.  $1\frac{2}{3} \text{ cm}$
  - ☒ C.  $3\frac{2}{3} \text{ cm}$
  - ☒ D.  $4\frac{1}{3} \text{ cm}$

**Q.4** A person who spends  $36\frac{2}{3}\%$  of his monthly income is able to save ₹5,700 per month. His monthly expenses are:

- Ans**
- ☒ A. ₹6,300
  - ☒ B. ₹5,300
  - ☒ C. ₹4,300
  - ☒ D. ₹3,300



Q.5 If a square has a side of  $(5x-8)$  cm, then the area of the square (in  $\text{cm}^2$ ) is:

- Ans
- ☐ A.  $25x^2 - 80x - 64$
  - ☒ B.  $25x^2 - 80x + 64$
  - ☐ C.  $25x^2 + 80x - 64$
  - ☐ D.  $25x^2 + 80x + 64$

Q.6 The roots of the quadratic equation  $x^2 + x - 2 = 0$  are:

- Ans
- ☐ A.  $(1, 2)$
  - ☐ B.  $(-1, 2)$
  - ☒ C.  $(1, -2)$
  - ☐ D.  $(-1, -2)$

Q.7 Convert  $\frac{23}{11}$  to its recurring decimal form.

- Ans
- ☒ A.  $2.\overline{09}$
  - ☐ B.  $2.\overline{18}$
  - ☐ C.  $2.\overline{23}$
  - ☐ D.  $2.\overline{32}$

Q.8 Which of the following is the standard representation of quadratic equation

$$(x^2 + 1)(x - 1) = (x^2 - 3)(x + 3)?$$

- Ans
- ☐ A.  $4x^2 - x - 6 = 0$
  - ☐ B.  $4x^2 - 8 = 0$
  - ☐ C.  $x^2 - 3x - 4 = 0$
  - ☒ D.  $4x^2 - 4x - 8 = 0$

Q.9 If  $\left(\frac{25}{9}\right)^{x+1} \left(\frac{81}{625}\right)^{x-1} = \frac{9}{25}$ , then find the value of  $x$ .

- Ans
- ☐ A. 5
  - ☒ B. 4
  - ☐ C. 6
  - ☐ D. 8



Q.10  $\frac{\cos 45^\circ}{\sec 30^\circ + \operatorname{cosec} 30^\circ}$  is equal to:

Ans

☒ A.  $\frac{\sqrt{3}}{2\sqrt{3}(1 + \sqrt{2})}$

☒ B.  $\frac{\sqrt{2}}{2\sqrt{2}(1 + \sqrt{3})}$

☒ C.  $\frac{\sqrt{3}}{\sqrt{2}(1 + \sqrt{3})}$

☒ D.  $\frac{\sqrt{3}}{2\sqrt{2}(1 + \sqrt{3})}$

Q.11 Which of the following is always true?

- a) The bisectors of angles of a parallelogram form a rectangle.
- b) A parallelogram is a trapezium.
- c) Diagonals of a rhombus are equal and bisect each other at right angles.

Ans

☒ A. Only (a)

☒ B. Only (b)

☒ C. Only (a) and (b)

☒ D. All of (a), (b), (c)

**Note:** For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

Q.12 A sum of money was invested at a certain rate of simple interest per annum for a period of 4 years. Had the rate of simple interest per annum been 2% more, the sum invested would have earned a total of ₹640 more as interest in these 4 years. What was the sum (in ₹) invested?

Ans

☒ A. 7,500

☒ B. 8,000

☒ C. 9,000

☒ D. 9,500

Q.13 The sum of the digits of a two-digit number is 15. The number obtained by interchanging the digits exceeds the given number by 9. The number is:

Ans

☒ A. 78

☒ B. 57

☒ C. 98

☒ D. 27

Q.14 The highest common factor of a set of coprime numbers is equal to:

Ans

☒ A. 1

☒ B. 2

☒ C. the lowest among them

☒ D. the highest among them

**Q.15** The distance between two points on a map is 5 cm. The scale of the map is 1 : 400000. The actual distance between the two points (in km) is:

- Ans**
- ☒ A. 20
  - ☐ B. 200
  - ☐ C. 2000
  - ☐ D. 20000

**Q.16** The value of  $(6 - 3) \div [(9 - 6) \div \{ (6 - 4) \div (2 + \frac{8}{13}) \}]$  is:

- Ans**
- ☐ A.  $\frac{5}{17}$
  - ☐ B.  $\frac{1}{17}$
  - ☒ C.  $\frac{13}{17}$
  - ☐ D.  $\frac{26}{17}$

**Q.17** The LCM of two numbers is 588. Which of the following CANNOT be their HCF?

- Ans**
- ☐ A. 21
  - ☐ B. 28
  - ☒ C. 35
  - ☐ D. 49

**Q.18** Study the given table and answer the question that follows.  
The marks obtained in Mathematics by 41 students of Class X are given in the table.

| Number of marks    | 10 – 20 | 20 – 30 | 30 – 40 | 40 – 50 | 50 – 60 |
|--------------------|---------|---------|---------|---------|---------|
| Number of students | 8       | 7       | 6       | 11      | 9       |

What is the arithmetic mean of the marks obtained by these students? [Give your answer correct to 3 decimal places.]

- Ans**
- ☐ A. 38.675
  - ☒ B. 36.463
  - ☐ C. 36.745
  - ☐ D. 35.225

**Q.19** If a man was to sell an article for ₹ 840, he would lose 20%. To gain 25% he should sell it for \_\_\_\_.

- Ans**
- ☐ A. ₹1,200.50
  - ☐ B. ₹1,212.50
  - ☐ C. ₹1,300.50
  - ☒ D. ₹1,312.50

**Q.20** If  $14 : y :: 7 : 8$ , find the value of y.

- Ans**
- ☐ A. 56
  - ☒ B. 16
  - ☐ C. 28
  - ☐ D. 18

**Q.21** If two pipes A and B function simultaneously, an empty tank will be filled in 20 hours. If pipe A, working alone, fills this empty tank 9 hours faster than pipe B can fill it working alone, then how many hours does it take pipe B to fill this empty tank while working alone?

- Ans**
- ☒ A. 36 hours
  - ☒ B. 45 hours
  - ☒ C. 42 hours
  - ☒ D. 39 hours

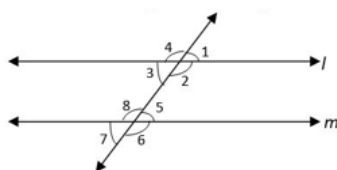
**Q.22** If the mean of a distribution is 8.73 and its median is 11, then the mode of the distribution is \_\_\_\_\_ (using empirical relation).

- Ans**
- ☒ A. 19.73
  - ☒ B. 22
  - ☒ C. 17.46
  - ☒ D. 15.54

**Q.23** A two-digit number  $z$  is exactly six times the sum of its digits and the difference of the number formed by reversing the digits of  $z$  from the original number  $z$  is 9. Then  $z$  is:

- Ans**
- ☒ A. 45
  - ☒ B. 36
  - ☒ C. 42
  - ☒ D. 54

**Q.24** In the given figure, if  $l \parallel m$ , then which of the following relations is not necessarily true?



- Ans**
- ☒ A.  $\angle 2 = \angle 5$
  - ☒ B.  $\angle 1 = \angle 7$
  - ☒ C.  $\angle 8 = \angle 6$
  - ☒ D.  $\angle 1 = \angle 5$

**Q.25** A shopkeeper marks the price of an article 10% more than the cost price. After allowing discount, he earns 5% profit. The discount percentage is:

- Ans**
- ☒ A. 4.54%
  - ☒ B. 5.54%
  - ☒ C. 3%
  - ☒ D. 4%

#### Section : General Intelligence and Reasoning

**Q.26** Each of seven colleagues, A, B, C, D, E, F and G, travelled to USA for sales presentation in the months of April, May, June, July, August, September and October, in the year 2019, but not necessarily in the same order. Each colleague travelled in a different month. Exactly four people travelled after D's trip. C travelled between the trips of E and F. G travelled in the month immediately before A's trip. Exactly two people travelled after C's trip. E travelled in the month immediately before B, who travelled in the month of October. Who travelled in the month of July?

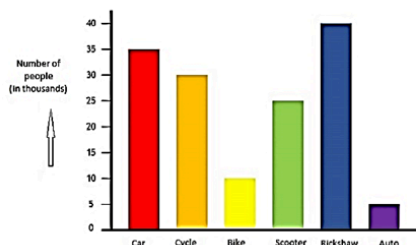
- Ans**
- ☒ A. A
  - ☒ B. F
  - ☒ C. D
  - ☒ D. C

**Q.27** Select the option that is related to the fifth letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster and the fourth letter-cluster is related to the third letter-cluster.

ALMOST : MLATSO :: BEGINS : GEBSNI :: CHIMPS : ?

- Ans**
- ☒ A. IHCPMS
  - ☒ B. IHCSMP
  - ☒ C. IHCSPM
  - ☒ D. IHCPSM

**Q.28** The number of people having six different types of vehicles in a city are shown in the following graph. Study the graph and answer the question.



What is the percentage increase in the people having a car as compared to the people having a scooter?

- Ans**
- ☒ A. 10%
  - ☒ B. 35%
  - ☒ C. 25%
  - ☒ D. 40%

**Q.29** In a code language, 'now you can come' is written as 'wp ae nz rf', 'you are kind' is written as 'ae dz tq', 'kind is virtue' is written as 'tq sf bc'. What is the code for 'kind, you' in that code language?

- Ans**
- ☒ A. nz, tq
  - ☒ B. nz, ae
  - ☒ C. tq, dz
  - ☒ D. tq, ae

**Q.30** Six people, A, B, C, D, E and F, travelled in different years 2010, 2012, 2014, 2016, 2018 and 2020 (but not necessarily in the same order). C travelled in 2018. Only three people travelled between D and A. A travelled after D. Only one person travelled between F and E. F travelled before E. Who travelled in 2014?

- Ans**
- ☒ A. B
  - ☒ B. F
  - ☒ C. E
  - ☒ D. D

**Q.31** If the position of the first and second letters in the word MOTHERLAND were interchanged, also the third and the fourth letters were interchanged, the fifth and sixth letters were interchanged and so on, which of the following would be the sixth letter from the right?

- Ans**
- ☒ A. R
  - ☒ B. T
  - ☒ C. E
  - ☒ D. H

**Q.32** Each of the digits in the number 4275913 is arranged in ascending order from left to right. The position of how many digits will remain unchanged as compared to that in the original number?

- Ans** ☒ A. One  
☒ B. Two  
☒ C. Three  
☒ D. Four

**Q.33** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

Some cats are rats.

All rats are dogs.

All dogs are monkeys.

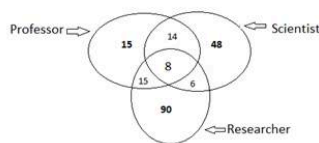
Conclusions:

(I) Some monkeys are cats.

(II) All monkeys are rats.

- Ans** ☒ A. Only conclusion I follows  
☒ B. Only conclusion II follows  
☒ C. Neither conclusion I nor II follows  
☒ D. Both conclusions I and II follow

**Q.34** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



How many people are Researchers and Scientists but Not Professors?

- Ans** ☒ A. 15  
☒ B. 14  
☒ C. 23  
☒ D. 6

**Q.35** Six persons A, B, C, D, E and F are sitting in straight row facing west. D is sitting at the end of the row. B is sitting third to the left of D. A is sitting to the immediate right of B. A is an immediate neighbour of B and C. E is sitting at the first position in the row. F is sitting between A and E. Who is an immediate neighbour of A and F?

- Ans** ☒ A. B  
☒ B. D  
☒ C. E  
☒ D. C

**Q.36** Chitra starts driving from the resort and drives 15 km towards west and then turns left and drives 115km. Then she turns right and drives 25 km. After that, she again turns right and drives 90 km. She finally turns right and drives 40 km to reach her home. How far is resort from her home?

- Ans** ☒ A. 25 km  
☒ B. 30 km  
☒ C. 35 km  
☒ D. 50 km

**Q.37** Which of the following terms will replace the question mark (?) in the given series to make it logically complete?

GLE11, KPI13, OTM17, SXQ19, ?

- Ans**
- ☒ A. WBU27
  - ☒ B. UWB23
  - ☒ C. WBU23
  - ☒ D. UWB27

**Q.38** Refer to the following letter series and answer the question.

A C P D I U V K J Q E V F

How many vowels are immediately preceded by consonants?

- Ans**
- ☒ A. 4
  - ☒ B. 3
  - ☒ C. 2
  - ☒ D. 1

**Q.39** Which of the following numbers will replace the question mark (?) in the given series?

42, 52, 63, 75, 88, ?, 117

- Ans**
- ☒ A. 101
  - ☒ B. 102
  - ☒ C. 103
  - ☒ D. 100

**Q.40** Which of the following options is the closest approximate value which will come in place of question mark(?) in the following equation?

$$27.92 \times 4 + 3.96 \times 5 - 18 \div 2 + 1 = ?$$

- Ans**
- ☒ A. 100
  - ☒ B. 115
  - ☒ C. 124
  - ☒ D. 140

**Q.41** Refer to the letter and symbol series, and answer the question that follows.

(Left) K B # A @ S \* B Q @ R V N % & S (Right)

How many letters are there between the element that is third from the right end and the element that is sixth from the left end of the given series?

- Ans**
- ☒ A. 5
  - ☒ B. 8
  - ☒ C. 6
  - ☒ D. 7

**Q.42** Select the option that is related to the fifth number in the same way as the second number is related to the first number, the fourth number is related to the third number.

$$9 : 728 :: 4 : 63 :: 7 : ?$$

- Ans**
- ☒ A. 342
  - ☒ B. 341
  - ☒ C. 346
  - ☒ D. 315

**Q.43** Select the option that is related to the seventh number in the same way as the second number is related to the first number, the fourth number is related to the third number and the sixth number is related to the fifth number.

3 : 8 :: 7 : 16 :: 4 : 10 :: 8 : ?

**Ans** ☒ A. 16

☒ B. 12

☒ C. 18

☒ D. 22

**Q.44** A statement is given below, followed by four conclusions given in the options. Find out which conclusion is true based on the given statement.

Statement:  $C \geq V < B \geq N > Z > L$

**Ans** ☒ A.  $B > L > V$

☒ B.  $B > Z > L$

☒ C.  $C > B \geq N$

☒ D.  $C \geq V < L$

**Q.45** Refer to the following letter, number, symbol series and answer the question.

(Left) S S 3 & 3 P & 3 D J \* M 2 F A S Y ! 1 Z (Right)

How many such symbols are there which are immediately preceded by a letter and also immediately followed by a number?

**Ans** ☒ A. 0

☒ B. 1

☒ C. 2

☒ D. 3

**Q.46** Three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

Statements:

1. All shampoos are brushes.
2. Some brushes are conditioners.
3. No conditioner is towel.

Conclusions:

- I. Some towels are conditioners.
- II. No shampoo is a towel.
- III. Some brushes are shampoos.

**Ans** ☒ A. Only conclusions I and II follow

☒ B. Only conclusions II and III follow

☒ C. Only conclusion I follows

☒ D. Only conclusions III follows

**Q.47** Which of the following numbers will replace the question mark (?) in the given series?

26, 61, 120, 209, ?, 501

**Ans** ☒ A. 334

☒ B. 298

☒ C. 368

☒ D. 434

**Q.48** J, K, L, M and N live on different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it is numbered 2, and so on till the topmost floor is numbered 5. K and N live on the topmost and bottommost floors, respectively. J lives on the floor immediately above L. M lives on the floor immediately above N. Who lives on the second floor?

- Ans**
- ☒ A. K
  - ☒ B. J
  - ☒ C. M
  - ☒ D. L

**Q.49** Letters are coded as numbers/symbols as per the table given below and the conditions which follow. Refer to the codes and conditions and then select the correct code for SQUARE.

| Letters       | T | P | J | Q | S | U | E | R | H | A |
|---------------|---|---|---|---|---|---|---|---|---|---|
| Number/Symbol | - | 6 | 8 | % | 7 | @ | 3 | 9 | # | 1 |

Conditions:

- (i) If there is more than 1 vowel in the word, the vowels will be coded as 4.
- (ii) If a word has consonants at both ends, both the consonants will be coded as 2.

- Ans**
- ☒ A. 7%4494
  - ☒ B. 7%@193
  - ☒ C. 7%4493
  - ☒ D. 7%9493

**Q.50** Jayant started from a point 'A' and walked 15 meters towards South. He turned left and walked 20 meters. He then turned right and walked 15 meters. He again turned right and walked 20 meters and reached a point 'B'. How far and in which direction is the point 'B' from the point 'A'?

- Ans**
- ☒ A. 15 meters East
  - ☒ B. 15 meters West
  - ☒ C. 30 meters North
  - ☒ D. 30 meters South

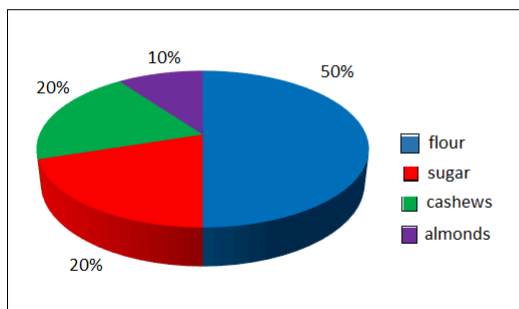
**Q.51** If '+' means '÷', '-' means '+', '×' means '-' and '÷' means '×', then, what will be the value of the following expression?

$$[(48 \times 28) - (5 \div 3)] + (3 - 4)$$

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 4
  - ☒ D. 5



- Q.52** The percentage of all of the ingredients in a recipe is shown in the following pie-chart. Blue represents the flour, red represents the sugar, green represents cashews, and purple represents almonds. Study the pie-chart and answer the question.



If the final mixture of all these ingredients weighs twice of 3,50,000 g, then what is the difference between the weight of flour and almonds?

- Ans**
- ☒ A. 1,40,000 g
  - ☒ B. 1,55,500 g
  - ☒ C. 2,80,000 g
  - ☒ D. 2,93,000 g

- Q.53** Five friends are sitting around a circular table in a club playing cards and facing the center. W is not an immediate neighbour of either X or U. V is not an immediate neighbour of X. U is sitting to the immediate left of X. If Y is sitting between X and W, who will be sitting to immediate right of V?

- Ans**
- ☒ A. X
  - ☒ B. W
  - ☒ C. U
  - ☒ D. Y

- Q.54** Read the statement and the arguments carefully and select the appropriate answer from the given options.

Statement:

Limited and cautious use of plastic material can be a good strategy for its total ban movement.

Arguments:

- I. An instant ban on plastic is very far from reality as people are not ready to use alternatives.
- II. Paper bags can be a good alternative to plastic bags.

- Ans**
- ☒ A. I weakens while II strengthens the statement.
  - ☒ B. II weakens while I strengthens the statement.
  - ☒ C. Both I and II weaken the statement.
  - ☒ D. Both I and II strengthen the statement.

- Q.55** Two statement are given below, followed by four conclusions given in the options. Find out which conclusion is true based on the given statements.

Statement:  $J < P = C$ ,  $T < Q < M = J < A$

- Ans**
- ☒ A.  $C = A$
  - ☒ B.  $T < A$
  - ☒ C.  $A > P$
  - ☒ D.  $P > A$

Section : General Science

**Q.56** Which programme was launched by the Union Government as a flagship programme to fulfil the main objectives of effective abatement of pollution, conservation and rejuvenation of River Ganga?

- Ans**
- ☒ A. Ganga Action Plan
  - ☒ B. Namami Gange Programme
  - ☒ C. Clean the Ganga Programme
  - ☒ D. Water for All

**Q.57** Washing soda is:

- Ans**
- ☒ A. an acidic salt
  - ☒ B. a basic salt
  - ☒ C. a neutral salt
  - ☒ D. a base

**Q.58** When a round, green seeded plant is crossed with a wrinkled, yellow seeded pea plant the F<sub>1</sub> generation results in:

- Ans**
- ☒ A. round and yellow seeds
  - ☒ B. round and green seeds
  - ☒ C. wrinkled and yellow seeds
  - ☒ D. wrinkled and green seeds

**Q.59** The process of fermentation takes place in:

- Ans**
- ☒ A. Amoeba
  - ☒ B. Euglena
  - ☒ C. Paramecium
  - ☒ D. Yeast

**Q.60** Which of the following compounds of a homologous series has the lowest boiling point?

- Ans**
- ☒ A. C<sub>4</sub>H<sub>10</sub>O
  - ☒ B. C<sub>3</sub>H<sub>8</sub>O
  - ☒ C. C<sub>2</sub>H<sub>6</sub>O
  - ☒ D. CH<sub>4</sub>O

**Q.61** In plaster of Paris:

- Ans**
- ☒ A. two formula units of CaSO<sub>4</sub> share half molecule of water
  - ☒ B. one formula unit of CaSO<sub>4</sub> has one molecule of water
  - ☒ C. two formula units of CaSO<sub>4</sub> share two molecule of water
  - ☒ D. two formula units of CaSO<sub>4</sub> share one molecule of water

**Q.62** Which of the following chemical compounds is used in the manufacture of cement?

- Ans**
- ☒ A. Al<sub>2</sub>O<sub>3</sub>
  - ☒ B. Mg(OH)<sub>2</sub>
  - ☒ C. CaO
  - ☒ D. CuO

Q.63 Which of the following solutions may scatter light?

- Ans
- ☐ A. Electrolyte solution
  - ☐ B. Acidic solution
  - ☒ C. Colloidal solution
  - ☐ D. Basic solution

Q.64 Which of the following compounds was used for the preparation of urea by Friedrich Wohler?

- Ans
- ☐ A. Carbon monoxide
  - ☐ B. Methane nitrile
  - ☐ C. Ammonia
  - ☒ D. Ammonium cyanate

Q.65 \_\_\_\_\_ are used in vermicomposting.

- Ans
- ☐ A. Tapeworms
  - ☐ B. Flatworms
  - ☒ C. Earthworms
  - ☐ D. Roundworms

Q.66 How many pairs of sex chromosomes are present in humans?

- Ans
- ☐ A. 2 pairs
  - ☐ B. 4 pairs
  - ☒ C. 1 pair
  - ☐ D. 3 pairs

Q.67 Consider two circuits, A and B, each of which has 12 resistors each of resistance  $R_A$  and  $R_B$ , respectively. In each circuit the resistors are in such a way that the net resistance of each circuit is the minimum. Now a 30 V battery with negligible internal resistance is connected across each circuit separately, and the current drawn by circuit A and circuit B are 10 A and 18 A, respectively. Then  $R_A$  and  $R_B$  will be:

- Ans
- ☐ A.  $R_A = 26 \Omega$  and  $R_B = 20 \Omega$
  - ☐ B.  $R_A = 26 \Omega$  and  $R_B = 25 \Omega$
  - ☐ C.  $R_A = 36 \Omega$  and  $R_B = 15 \Omega$
  - ☒ D.  $R_A = 36 \Omega$  and  $R_B = 20 \Omega$

Q.68 The phenomena that links current induced in a coil and change in magnetic flux is known as:

- Ans
- ☐ A. electromagnetic radiation
  - ☐ B. electromagnetic wave
  - ☒ C. electromagnetic induction
  - ☐ D. electromagnetic wave propagation

Q.69 Which of the following is an insectivorous plant?

- Ans
- ☐ A. Cuscuta
  - ☐ B. Mushroom
  - ☒ C. Pitcher
  - ☐ D. Lichens

**Q.70** What is the main limitation of Mendeleev's periodic table?

- Ans**
- ☐ A. Nobel gases could be placed in a new group without disturbing the existing order.
  - ☒ B. No fixed position can be given to hydrogen in the Periodic Table.
  - ☐ C.
  - ☐ D.

Mendeleev's Periodic Table contains vertical columns called groups and horizontal rows called periods.

☐ D.

Mendeleev selected hydrogen and oxygen as they are very reactive and formed compounds with most elements.

**Q.71** What happens when  $\text{CO}_2$  gas is passed through the lime water?

- Ans**
- ☐ A. There is no change.
  - ☒ B. The solution turns milky.
  - ☐ C. A black precipitate is formed.
  - ☐ D. Green colour appears.

**Q.72** Most ordinary gases do not show dispersion with visible light. This is because the velocities of propagation of waves of different wavelengths of visible light are \_\_\_\_\_.

(Velocity of light in vacuum is  $c$ )

- Ans**
- ☐ A. very much different
  - ☒ B. almost the same as  $c$
  - ☐ C. always much greater than  $c$
  - ☐ D. always much less than  $c$

**Q.73** A reflected ray will follow the same path but in reverse direction when it passes through pole and \_\_\_\_\_.

- Ans**
- ☐ A. focal plane
  - ☐ B. surface of mirror
  - ☐ C. is parallel to the focal plane
  - ☒ D. is perpendicular to the focal plane

**Q.74** The direction of the force acting on a current carrying conductor in the presence of a magnetic field depends on:

- Ans**
- ☐ A. the direction of the current alone
  - ☐ B. the direction of the magnetic field alone
  - ☒ C. the direction of both, the magnetic field and the current
  - ☐ D. neither the direction of the current nor the direction of the magnetic field

**Q.75** Arrange the following element of group 1 in the decreasing order of their atomic radii. Atomic numbers are given in parentheses.

Li (3), K (19), Cs (55), Na (11), Rb (37)

- Ans**
- ☐ A.  $\text{Cs} > \text{Rb} > \text{K} > \text{Li} > \text{Na}$
  - ☒ B.  $\text{Cs} > \text{Rb} > \text{K} > \text{Na} > \text{Li}$
  - ☐ C.  $\text{Cs} > \text{Rb} > \text{Li} > \text{K} > \text{Na}$
  - ☐ D.  $\text{Cs} > \text{Rb} > \text{Na} > \text{K} > \text{Li}$

**Q.76** Three resistors of  $5\ \Omega$  are connected in series, and a battery of  $10\text{ V}$  is connected to the two end of the series combination of resistors. Calculate the current drawn from the battery.

- Ans**
- ☒ A.  $0.57\text{ A}$
  - ☒ B.  $0.67\text{ A}$
  - ☒ C.  $0.77\text{ A}$
  - ☒ D.  $0.87\text{ A}$

**Q.77** The image of a star is obtained at F of a concave mirror when the incident ray is:

- Ans**
- ☒ A. perpendicular to principal axis
  - ☒ B. parallel to principal axis
  - ☒ C. inclined to principal axis
  - ☒ D. along the focal plane

**Q.78** A circuit consists of three resistors,  $R_1$ ,  $R_2$  and  $R_3$ , and they have the values  $5\ \Omega$ ,  $10\ \Omega$  and  $30\ \Omega$ , respectively, which have been connected to a battery of  $10\text{ V}$  (with negligible internal resistance). Each of the resistors is in parallel with each other. The total resistance of the circuit is:

- Ans**
- ☒ A.  $1\ \Omega$
  - ☒ B.  $3\ \Omega$
  - ☒ C.  $5\ \Omega$
  - ☒ D.  $6\ \Omega$

**Q.79** Which of the following tissues helps in tissue repair?

- Ans**
- ☒ A. Areolar
  - ☒ B. Cartilage
  - ☒ C. Ligament
  - ☒ D. Tendon

**Q.80** As per Mendel's experiments with pea plants, tallness was called a 'dominant' trait compared to shortness because \_\_\_\_\_.

- Ans**
- ☒ A. tall plants are larger in size than short plants
  - ☒ B. in all organisms, including peas, tall individuals are more common than short individuals
  - ☒ C. a plant was tall regardless of whether it had one gene (allele) or two genes (alleles) for tallness
  - ☒ D. the symbol for the gene for tallness was 'T', while the symbol for the gene for shortness was 't'

#### Section : General Awareness and Current Affairs

**Q.81** Which state in India will you find the The Cathedral of Mary Help of Christians ?

- Ans**
- ☒ A. Meghalaya
  - ☒ B. Karnataka
  - ☒ C. Bihar
  - ☒ D. West Bengal

**Q.82** Who among the following clocked 2:40:16 to pocket the men's 35 km race walk national record at the Indian Open Race Walking Competition 2022?

- Ans**
- ☒ A. Ram Baboo
  - ☒ B. Juned Khan
  - ☒ C. Chandan Singh
  - ☒ D. Akshdeep Singh

**Q.83** As of July 2022, which state government among the following implemented the Kalyana Lakshmi and Shaadi Mubarak Scheme?

- Ans**
- ☒ A. West Bengal
  - ☒ B. Telangana
  - ☒ C. Gujarat
  - ☒ D. Madhya Pradesh

**Q.84** A Large Area Soft X-ray Spectrometer (CLASS), a payload on-board \_\_\_\_\_ Orbiter, detected a solar proton event which significantly increases the radiation exposure to humans in space, on January 2022.

- Ans**
- ☒ A. Chandrayaan-1
  - ☒ B. Chandrayaan-2
  - ☒ C. Chandrayaan-3
  - ☒ D. Chandrayaan-4 a

**Q.85** \_\_\_\_\_ is the price where the quantity the consumer purchases is equal to the quantity the producers supply.

- Ans**
- ☒ A. Surplus price
  - ☒ B. Equilibrium price
  - ☒ C. Total price
  - ☒ D. Product price

**Q.86** As on July 2022, how many Fundamental Duties are there in the Indian Constitution?

- Ans**
- ☒ A. 11
  - ☒ B. 10
  - ☒ C. 9
  - ☒ D. 12

**Q.87** \_\_\_\_\_ of the Constitution of India deals with Panchayats.

- Ans**
- ☒ A. Part IX
  - ☒ B. Part X
  - ☒ C. Part VIII
  - ☒ D. Part XI

**Q.88** What is the value of money multiplier if the CRR (Cash Reserve Ratio) is 15%?

- Ans**
- ☒ A. 6.67
  - ☒ B. 15
  - ☒ C. 85
  - ☒ D. 1500



**Q.89** Goa Liberation Day is celebrated on which of the following dates?

- Ans**
- ☒ A. 19 December
  - ☐ B. 20 December
  - ☐ C. 21 December
  - ☐ D. 22 December

**Q.90** The oldest mountain range in India is \_\_\_\_\_.

- Ans**
- ☐ A. Dhauladhar Range
  - ☒ B. Aravali Range
  - ☐ C. Nallamala Range
  - ☐ D. Zaskar Range

**Q.91** What is explicit cost?

- Ans**
- ☒ A.  
It is a direct payment made to others in the course of running a business, such as wage, rent and materials.
  - ☐ B.  
It is the opportunity cost equal to what a firm must give up in order to use a factor of production.
  - ☐ C. It represents the loss of profit but does not represent a loss of income.
  - ☐ D. It is the only cost necessary to calculate a profit, as it clearly affects a company's profits.

**Q.92** On 27 July 2022, the Union Cabinet cleared a ₹1.64 lakh crore package for the revival of which of the following organisations?

- Ans**
- ☐ A. Air India
  - ☐ B. Oil and Natural Gas Corporation Limited
  - ☐ C. Container Corporation of India Limited (CONCOR)
  - ☒ D. Bharat Sanchar Nigam Limited (BSNL)

**Q.93** On which model was the Second Five-Year Plan made?

- Ans**
- ☐ A. Harrod-Domar model
  - ☐ B. Investment Model of Planning Commission
  - ☐ C. Manmohan Plan
  - ☒ D. PC Mahalanobis Model

**Q.94** \_\_\_\_\_ was the first Indian man to win gold at Commonwealth Games 2022 held at Birmingham.

- Ans**
- ☐ A. Tejaswin Shankar
  - ☐ B. Murali Sreeshankar
  - ☐ C. Jeremy Lalrinnunga
  - ☐ D. Mohit Grewal

**Note:** For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

**Q.95** As per Census 2011, which language replaced Telugu as the third most spoken language in India?

- Ans**
- ☐ A. Bengali
  - ☒ B. Marathi
  - ☐ C. Tamil
  - ☐ D. Gujarati

**Q.96** Vincov-19, the first indigenous drug to treat Covid-19, has been developed by synthesizing blood serum obtained from \_\_\_\_\_ immunised with spike glycoprotein of inactivated SARS-CoV-2 virus.

- Ans**
- ☐ A. rabbits
  - ☒ B. horses
  - ☐ C. pigs
  - ☐ D. monkeys

**Q.97** The Godavari river rises from \_\_\_\_\_ about 80 km from the Arabian Sea at an elevation of 1,067 m.

- Ans**
- ☐ A. Mahabaleshwar
  - ☐ B. Talakaveri
  - ☒ C. Trimbakeshwar
  - ☐ D. Satpura Range

**Q.98** The Prarthana Samaj, which was recognised as an institution that worked for religious as well as social reform, was established in Bombay by \_\_\_\_\_ in 1876.

- Ans**
- ☐ A. Mahadev Govind Ranade
  - ☐ B. RC Bhandarkar
  - ☒ C. Dr. Atma Ram Pandurang
  - ☐ D. Ishwar Chandra Vidyasagar

**Q.99** Through which of the following states of India does the Tropic of Cancer NOT pass?

- Ans**
- ☐ A. Rajasthan
  - ☒ B. Odisha
  - ☐ C. Madhya Pradesh
  - ☐ D. Tripura

**Q.100** The executive power of the State shall be vested in the Governor and shall be exercised by him either directly or through officers subordinate to him in accordance with which Article of the Constitution of India?

- Ans**
- ☐ A. Article 124
  - ☐ B. Article 134
  - ☐ C. Article 144
  - ☒ D. Article 154





# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 17/09/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

Q.1 If  $x - \frac{1}{x} = 5$ , then the value of  $x^4 + \frac{1}{x^4}$  is:

- Ans
- ☒ A. 927
  - ☒ B. 827
  - ☒ C. 727
  - ☒ D. 627

Q.2 If  $16 : y :: y : 25$ , find the positive value of y.

- Ans
- ☒ A. 10
  - ☒ B. 15
  - ☒ C. 18
  - ☒ D. 20

Q.3 If  $5^{x+y} = 125$  and  $5^{x-y} = 3125$ , then the value of y is:

- Ans
- ☒ A. -1
  - ☒ B. -2
  - ☒ C. -4
  - ☒ D. -3

Q.4 What is the quadratic equation whose roots are 2 and  $-\frac{1}{2}$ ?

- Ans
- ☒ A.  $2x^2 - 3x - 1 = 0$
  - ☒ B.  $2x^2 - 3x - 2 = 0$
  - ☒ C.  $2x^2 - 3x - 3 = 0$
  - ☒ D.  $2x^2 - 3x - 4 = 0$

**Q.5** In a triangle PQR,  $\angle P = 30^\circ$  and the straight line UV is drawn parallel to QR, intersecting PQ at S and PR at T. Which of the following is always true?

- a)  $\frac{PS}{PQ} = \frac{PT}{PR}$
- b)  $ST = \frac{QR}{2}$
- c) The triangle PST is similar to the triangle PQR.

**Ans** ☒ A. Only (a)  
☒ B. All of (a), (b) and (c)  
☒ C. Only (a) and (b)  
☒ D. Only (a) and (c)

**Q.6** The ratio of  $9^{3.5} : 3^5$  is the same as:

**Ans** ☒ A. 7 : 1  
☒ B. 1 : 7  
☒ C. 1 : 14  
☒ D. 9 : 1

**Q.7** The ages of Ram and Sita are in the ratio 5 : 8. Three years later the sum of their ages will be 58 years. The present age of Ram is:

**Ans** ☒ A. 22 years  
☒ B. 21 years  
☒ C. 20 years  
☒ D. 25 years

**Q.8** At present, a man is 50 years old and his daughter is 22 years old. The man will be twice as old as his daughter after \_\_\_\_\_ years.

**Ans** ☒ A. 18  
☒ B. 9  
☒ C. 6  
☒ D. 5

**Q.9** If the curved surface area of a right circular cylinder is  $880 \text{ cm}^2$  and the diameter of its base is 7 cm, then the height (in cm) of the cylinder is \_\_\_\_\_.

Take  $\pi = \frac{22}{7}$ .

**Ans** ☒ A. 14  
☒ B. 28  
☒ C. 40  
☒ D. 20

**Q.10** The smallest 1-digit number to be added to the 6-digit number 234492 so that it is completely divisible by 11 is:

**Ans** ☒ A. 4  
☒ B. 5  
☒ C. 6  
☒ D. 7

**Q.11** A wholesaler sells a tin of oil at ₹540 and bears a loss of 10%. Now, if he decides to sell another tin of oil with same cost at ₹696, his profit percentage in the sale of second tin will be equal to:

- Ans**
- ☐ A. 12%
  - ☐ B. 18%
  - ☐ C. 15%
  - ☒ D. 16%

**Q.12** Ashish sold a cow to Bipin for ₹5,000 by losing 20%. Bipin sold it to Kasim at that price which would have given Ashish a profit of 15%. What is Bipin's gain in this transaction?

- Ans**
- ☐ A. ₹2,100.00
  - ☐ B. ₹937.50
  - ☒ C. ₹2,187.50
  - ☐ D. ₹1,250.00

**Q.13** The mode of 5, 18, 6, 7, 6, 2, 3, 4, 24, 2, 7, 21, 2, 81 is:

- Ans**
- ☐ A. 6
  - ☒ B. 2
  - ☐ C. 7
  - ☐ D. 81

**Q.14** AD is the altitude of an isosceles triangle ABC in which AB = AC. Which of the following is true for AD?

- Ans**
- ☒ A. AD bisects  $\angle A$
  - ☐ B. AD bisects  $\angle B$
  - ☐ C. AD bisects  $\angle C$
  - ☐ D. AD does not bisect  $\angle A$

**Q.15** If the volume of a solid cube is  $216 \text{ cm}^3$ , then its total surface area (in  $\text{cm}^2$ ) is \_\_\_\_\_.

- Ans**
- ☐ A. 36
  - ☐ B. 6
  - ☒ C. 216
  - ☐ D. 38

**Q.16** A number is increased by 30% and then decreased by 40%. The net increase or decrease percentage is:

- Ans**
- ☐ A. 44% decrease
  - ☐ B. 32% increase
  - ☒ C. 22% decrease
  - ☐ D. 34% increase

**Q.17** The speed of a bus increases by 4 km/h after every two hours. If the bus covers a distance of 80 km in the first two hours, then the total distance covered by the bus in 10 hours will be:

- Ans**
- ☐ A. 440 km
  - ☐ B. 460 km
  - ☐ C. 470 km
  - ☒ D. 480 km

Q.18 The value of  $20 - [12 - \{14 - (12 - \overline{16 - 10})\}]$  is:

- Ans
- ☐ A. 8
  - ☐ B. 20
  - ☒ C. 16
  - ☐ D. 10

Q.19 The discriminant of a quadratic equation is 0. The quadratic equation has:

- Ans
- ☐ A. two distinct real roots
  - ☒ B. two equal real roots
  - ☐ C. no real roots
  - ☐ D. three distinct real roots

Q.20 The value of  $\sqrt{1 + \left(\frac{1 - \tan A}{1 - \cot A}\right)^2}$  is:

- Ans
- ☐ A.  $\cos A$
  - ☐ B.  $\cot A$
  - ☐ C.  $\tan A$
  - ☒ D.  $\sec A$

Q.21 The value of x in the proportion equation  $5 : 12 :: 9 : x$  is:

- Ans
- ☒ A. 21.6
  - ☐ B. 20.6
  - ☐ C. 21.4
  - ☐ D. 20.4

Q.22 The sum of the present ages of Ram, Nikhil and Aswin is 111 years. Ten years ago, the ratio of their ages was  $2 : 3 : 4$ . What is the present age (in years) of Nikhil?

- Ans
- ☐ A. 16
  - ☐ B. 28
  - ☒ C. 37
  - ☐ D. 44

Q.23 Express  $0.\overline{5323}$  in the form  $\frac{p}{q}$ , where p and q are integers and  $q \neq 0$ .

- Ans
- ☐ A.  $\frac{5323}{9990}$
  - ☐ B.  $\frac{5333}{9990}$
  - ☒ C.  $\frac{2659}{4995}$
  - ☐ D.  $\frac{2661}{4990}$

**Q.24** An amount of ₹1,344 is divided among three persons in the ratio of 3 : 4 : 5. The difference between the largest and the smallest shares in the distribution is:

- Ans** ☒ A. ₹224  
☐ B. ₹236  
☐ C. ₹248  
☐ D. ₹260

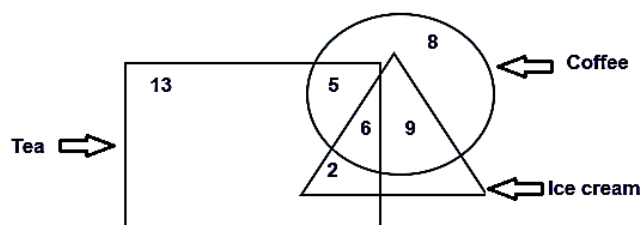
**Q.25** Find the smallest natural number that can be divided by the first five 2-digit positive even numbers without leaving a remainder.

- Ans** ☒ A. 5040  
☐ B. 5120  
☐ C. 5340  
☐ D. 5560

Section : General Intelligence and Reasoning

**Q.26** Study the given diagram carefully and answer the question that follows.

The numbers in different sections indicate the number of people who have coffee, tea, and ice cream.



How many people have all three i.e. Ice cream, Tea as well as Coffee?

- Ans** ☐ A. 2  
☒ B. 6  
☐ C. 9  
☐ D. 5

**Q.27** Which of the following terms will replace the question mark (?) in the given series to make it logically complete?  
MSN15, QWR18, UAV21, YEZ24, ?

- Ans** ☐ A. DBC27  
☐ B. CJL31  
☒ C. CID27  
☐ D. DNS31

**Q.28** Two statement are given below, followed by four conclusions given in the options. Find out which conclusion is true based on the given statements.

Statement:  $A > C = B$ ,  $M > N > O > Q = A$

- Ans** ☒ A.  $B < M$   
☐ B.  $C > N$   
☐ C.  $O < B$   
☐ D.  $N < C$

**Q.29** If each of the letters in the word MIRACLE is arranged in alphabetical order, then how many letters are there in the English alphabetical series between the letter which is third from the left and the one which is third from the right in the new arrangement?

- Ans**
- ☒ A. Three
  - ☒ B. Four
  - ☒ C. Five
  - ☒ D. Six

**Q.30** Six boxes, A, B, C, P, U and V, are kept one over the other, but not necessarily in the same order. B is the top-most box, and C is immediately below B. There are only two boxes between B and V. There are only three boxes between P and C. There is only one box below U. Which box is kept immediately below U?

- Ans**
- ☒ A. P
  - ☒ B. A
  - ☒ C. V
  - ☒ D. C

**Q.31** From the numbers 367, 489, 514, 632 and 728, if 2 is added to the first digit of each of the numbers, how many new numbers will be thus formed whose sum of all digits will be divisible by three?  
(Example- 697 – First digit = 6, second digit = 9 and third digit = 7)

- Ans**
- ☒ A. One
  - ☒ B. Two
  - ☒ C. Three
  - ☒ D. four

**Q.32** Ajay starts from his office and drives 3 km towards the east. He then takes a right turn, drives 4 km, turns left, and drives 5 km. He then takes a left turn and drives 3 km and stops at a shop. Which direction should he drive now in order to reach his office from that shop? (All turns are 90° turns only.)

- Ans**
- ☒ A. North
  - ☒ B. North-west
  - ☒ C. South
  - ☒ D. South-east

**Q.33** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/symbol | * | 2 | @ | 5 | ^ | + | 7 | # | % | 9 | 4 |
|---------------|---|---|---|---|---|---|---|---|---|---|---|
| Letter code   | J | P | A | F | D | N | R | K | M | Z | B |

Conditions:

- (i) If both first and fourth elements are even numbers, the third element is to be coded as the code for the third element
- (ii) If both second and third elements are perfect squares, the third element is to be coded as the code for the second element

Which one of the following would be the code for %94#2 ?

- Ans**
- ☒ A. MZBKP
  - ☒ B. MZZKP
  - ☒ C. MBZKP
  - ☒ D. MBZPK

**Q.34** If '+' means '-', '-' means '×', '×' means '+', '+' means '+', what will come in place of the question mark (?) in the following equation?

$$17 \div 3 - 2 + 12 \times 4 = ?$$

- Ans**
- ☒ A. 15
  - ☒ B. 18
  - ☒ C. 21
  - ☒ D. 20

**Q.35** Five runners are standing in a straight row facing the east. Runner K is standing at the first position and M is at the end position. L is standing to the immediate left of N, and N is standing to the immediate left of M. P is standing third to the left of M. Who is standing to the immediate left of P?

- Ans**
- ☒ A. M
  - ☒ B. K
  - ☒ C. N
  - ☒ D. L

**Q.36** Select the option that is related to the fifth number in the same way as the second number is related to the first number, the fourth number is related to the third number.

28 : 2 :: 126 : 4 :: 65 : ?

- Ans**
- ☒ A. 3
  - ☒ B. 6
  - ☒ C. 7
  - ☒ D. 5

**Q.37** Refer to the following letter series and answer the question that follows.

(Left) E B Y T F R D C S W E R F V Y H N E C S R F C A R W (Right)

If every odd placed letter in the above series is dropped, which letter would appear at the seventh place from the left?

- Ans**
- ☒ A. V
  - ☒ B. F
  - ☒ C. Y
  - ☒ D. H

**Q.38** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

TSRA : ZIHG

OLEV : EVOL

- Ans**
- ☒ A. JPMN : ONKQ
  - ☒ B. CRVF : VEIX
  - ☒ C. KVRA : ZIEQ
  - ☒ D. ARNI : RMIZ

**Q.39** Select the option that is related to the fifth number in the same way as the fourth number is related to the third number and the second number is related to the first number.

17 : 38 :: 23 : 50 :: 12 : ?

- Ans**
- ☒ A. 28
  - ☒ B. 33
  - ☒ C. 39
  - ☒ D. 35

**Q.40** Six actors are sitting in a line facing the north. A is sitting at the first position, and G is sitting third to the right of A. H is sitting to the immediate right of G. F is sitting second to the right of A. L is sitting to the immediate right of A. S is sitting at the end of the line. Who is sitting to the immediate right of L?

- Ans**
- ☒ A. G
  - ☒ B. H
  - ☒ C. F
  - ☒ D. S

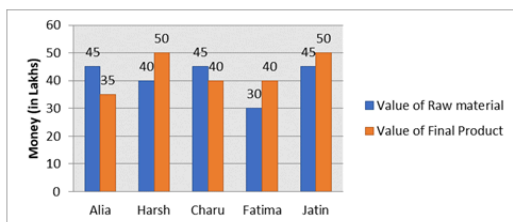
**Q.41** Refer to the following letter, number, symbol series and answer the question.

(Left) E 5 % H V 7 8 L M # @ A 6 3 F & S 4 Z (Right)

How many such letters are there which are immediately preceded by a letter and also immediately followed by a number?

- Ans**
- ☒ A. 0
  - ☒ B. 1
  - ☒ C. 2
  - ☒ D. 3

**Q.42** The value of raw material and the value of final products manufactured by five people are shown in the following graph. Study the graph and answer the question.



Which manufacturer among the following has the maximum percentage increase in the value of final product as compared to the value of raw material, and by how much (approx.)?

- Ans**
- ☒ A. Harsh, 25%
  - ☒ B. Fatima, 25%
  - ☒ C. Fatima, 33%
  - ☒ D. Harsh, 33%

**Q.43** Avina has tuitions for six subjects - Maths, English, Computer Science, Physics, Biology and Chemistry, each on a different day of a week from Monday and ending on Saturday of the same week, but not necessarily in this order. Only three subject tuitions are scheduled between Computer Science and Physics tuitions. Only Chemistry tuition is scheduled between Maths and English tuitions. Biology tuition is on Monday. Physics tuition is on the day immediately after the Maths tuition which is on Friday. Which subject's tuition is scheduled on Wednesday?

- Ans**
- ☒ A. Physics
  - ☒ B. English
  - ☒ C. Biology
  - ☒ D. Chemistry

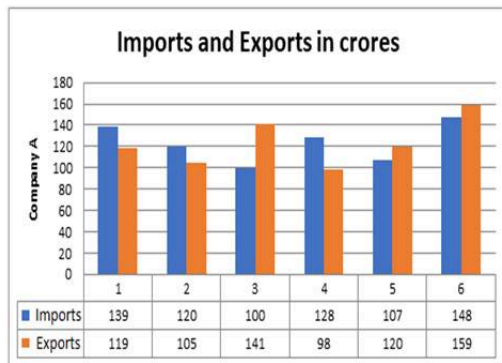
**Q.44** Amongst six girls- A, C, F, H, J and K, each has a different height. They are standing in the ascending order of their heights, shortest in the front and tallest at the back. C is at the beginning of the queue. There is only one person taller than F. H is immediately taller than A. Both C and H are shorter than K. There is only one other person between A and C. If H and F are at the fourth and the fifth places from the start of the queue, respectively in the queue, then who is second from the beginning of the queue?

- Ans**
- ☒ A. K
  - ☒ B. J
  - ☒ C. A
  - ☒ D. C



**Q.45** The given bar graph shows the exports and imports of Company A over a period of time. Study the bar graph and answer the question that follows.

The numbers 1 to 6 in the graph represent the years from 2001 to 2006.



For how many years are the exports at least 10% higher than the imports?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.46** Which of the following numbers will replace the question mark (?) in the given series?  
48, 52, 26, 30, 15, ?

- Ans**
- ☒ A. 17
  - ☒ B. 18
  - ☒ C. 19
  - ☒ D. 20

**Q.47** Eight boxes, J, K, L, M, N, O, P and Q, are kept in a vertical pattern, one over the other (but not necessarily in the same order). L is placed at the bottommost position. Q is at the third place from the top and N is just below J. Only two boxes are placed between Q and M. K is placed somewhere between M and N and O is just below Q. Which box is placed at the second position from the bottom?

- Ans**
- ☒ A. M
  - ☒ B. N
  - ☒ C. J
  - ☒ D. P

**Q.48** Read the given statement and the arguments carefully and select the appropriate answer from the given options.

Statement:

India still needs gender equality programmes to make people aware about this.

Arguments:

- I. People still believe boys are better than girls.
- II. Gender discrimination has vanished from our society.

- Ans**
- ☒ A. I weakens while II strengthens the statement.
  - ☒ B. II weakens while I strengthens the statement.
  - ☒ C. Both I and II weaken the statement.
  - ☒ D. Both I and II strengthen the statement.

**Q.49** Refer to the following letter, number, symbol series and answer the question that follows.

(Left) 4 # O S 5 T F 8 % U 2 P A & F o 3 @ T 4 \* I # H (Right)

How many such symbols are there in the above series each of which is immediately followed by a vowel and also immediately preceded by a number?

**Ans** ☒ A. 1

☒ B. 2

☒ C. 3

☒ D. 4

**Q.50** Three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

Statements:

1. All cashews are jaggery.
2. No food is jaggery.
3. Some walnuts are food.

Conclusions:

- I. Some walnuts are cashews.
- II. Some walnuts are jaggery.
- III. No food is cashew.

**Ans** ☒ A. Only conclusions I and II follow

☒ B. Only conclusions II and III follow

☒ C. All conclusions follow

☒ D. Only conclusion III follows

**Q.51** Which of the following numbers will replace the question mark (?) in the given series?

17, 19, 21, 19, 25, 19, ?

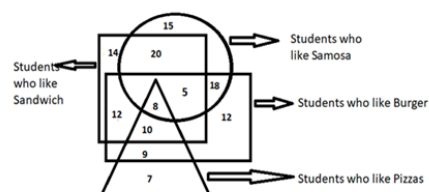
**Ans** ☒ A. 29

☒ B. 32

☒ C. 27

☒ D. 30

**Q.52** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of students surveyed regarding types of snacks they like to have in the college canteen.



How many students like both Samosa and Burger?

**Ans** ☒ A. 13

☒ B. 23

☒ C. 18

☒ D. 31

- Q.53** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/<br>Symbols | 2 | @ | 9 | 5 | \$ | & | 3 | % | # | 7 | + | 4 | 8 | 6 |
|--------------------|---|---|---|---|----|---|---|---|---|---|---|---|---|---|
| Code               | T | F | A | J | L  | E | W | Q | D | P | R | B | U | S |

Conditions:

- (i) If the first element is a symbol and the last is a number, the codes for these two (the first and the last elements) are to be interchanged.
- (ii) If the first element is an odd number and the last is an even number, the first and the last elements are to be coded as ©
- (iii) If both the second and the third elements are perfect squares, the third element is to be coded as the code for the second element.

Question: 7 % 9 # 2

- Ans**  **A. ©QAD©**
-  **B. ©AD©Q**
-  **C. ©D©QA**
-  **D. Q©AD©**

- Q.54** A group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/<br>symbol | # | * | + | 8 | @ | 6 | 5 | 2 | % | 4 | 3 | & | 7 | 9 |
|-------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code<br>Letter    | D | L | F | A | H | M | Q | N | C | X | W | G | T | R |

Conditions:

- (i) If the first element is a symbol and the last element is a number, the codes for these two (the first and the last elements) are to be interchanged.
- (ii) If the first element is an odd number and the last element is an even number, the first and last elements are to be coded as ©.
- (iii) If both the second and third elements are perfect squares, the third element is to be coded as the code for the second element.

What will be the code for 3 & % 4 6 ?

- Ans**  **A. WQLT©**
-  **B. ©GCX#**
-  **C. ©GCX©**
-  **D. WGCXM**

- Q.55** If '+' means '-', '-' means '+', '×' means '+', '÷' means '×', what will come in place of the question mark (?) in the following equation?

$$2 - 4 \times 25 + 13 \div 2 = ?$$

- Ans**  **A. -1**
-  **B. 3**
-  **C. 0.5**
-  **D. -0.5**

**Q.56** Two wires are of the same length and the same resistance, but the ratio of their cross-sectional areas is 1 : 8. The ratio of their resistivities will be:

- Ans**
- ☐ A. 8 : 1
  - ☐ B. 8 : 3
  - ☒ C. 1 : 8
  - ☐ D. 3 : 8

**Q.57** In which of the following infections does the virus go to the immune system and damages its function?

- Ans**
- ☐ A. Cancer
  - ☒ B. HIV-AIDS
  - ☐ C. Typhoid
  - ☐ D. Malaria

**Q.58** Which of the following components are necessary for photosynthesis?

- Ans**
- ☒ A. Carbon dioxide, water, sunlight and chlorophyll
  - ☐ B. Carbon dioxide, water, sunlight and oxygen
  - ☐ C. Oxygen, water, sunlight and chlorophyll
  - ☐ D. Carbon dioxide, water, oxygen and chlorophyll

**Q.59** Which of the following statements is INCORRECT?

- a) Methanoic acid is secreted by Nettle plant leaves.
- b) Acetic acid is found in vinegar.
- c) Tooth decay starts when mouth pH is lower than 5.5.
- d) Bacteria present in the mouth produces base by degradation of the remaining food particles present in the mouth.

- Ans**
- ☐ A. a
  - ☐ B. b
  - ☐ C. c
  - ☒ D. d

**Q.60** Why should we human beings reduce our dependence on petroleum products?

- Ans**
- ☐ A. Petroleum is very expensive
  - ☒ B. Amount of petroleum is finite
  - ☐ C. Petroleum needs to be imported
  - ☐ D. Petroleum needs to be refined

**Q.61** What was the historic contribution of the community of Amrita Devi Bishnoi in Rajasthan in the 1700s?

- Ans**
- ☐ A. They dug several ponds to capture rainwater and stopped desertification of the region.
  - ☐ B. They planted thousands of Khejri trees and stopped desertification of the region.
  - ☒ C. They laid down their lives to stop the cutting down of trees growing in their region.
  - ☐ D. They set up the first wildlife sanctuary to protect deer from hunters.

**Q.62** A needle is placed at a distance  $2.5f$  from the pole of a convex mirror of focal length  $f$ . The linear magnification is:

**Ans**

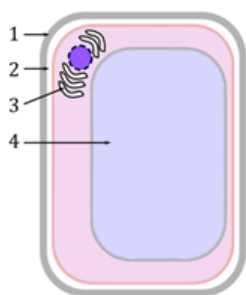
☒ A.  $\frac{1}{7}$

☒ B.  $\frac{2}{7}$

☒ C.  $\frac{3}{7}$

☒ D.  $\frac{4}{7}$

**Q.63** Where can we find waste products in a plant cell shown in the following figure?



**Ans**

☒ A. Region shown by arrow 1

☒ B. Region shown by arrow 2

☒ C. Region shown by arrow 3

☒ D. Region shown by arrow 4

**Q.64** What are the main products in the process of neutralisation reaction?

**Ans**

☒ A.  $O_2$  and salt

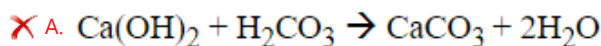
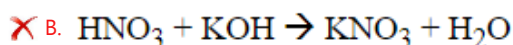
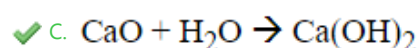
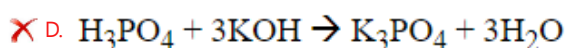
☒ B.  $CO_2$  and salt

☒ C.  $N_2$  and salt

☒ D.  $H_2O$  and salt

**Q.65** Which of the following reactions is NOT an example of neutralisation reaction?

**Ans**



**Q.66** Which of the following metals is the least reactive, as per the reactivity series of metals?

**Ans**

☒ A. Lead

☒ B. Zinc

☒ C. Magnesium

☒ D. Iron

**Q.67** Dialysis is the procedure done to remove the waste products from the blood when the normal functioning of kidneys is affected. The steps of dialysis are given below but not in the proper order. Which option shows the correct sequence of these steps?

- a) Line to vein
- b) Patient's blood passed through a tank with dialysing fluid
- c) Line from artery
- d) Waste products from the blood pass into dialysing fluid
- e) Dialysing fluid has same osmotic pressure as blood except the wastes

**Ans** ☒ A. a—b—c—d—e  
☒ B. a—c—d—b—e  
☒ C. c—b—e—d—a  
☒ D. c—b—d—a—e

**Q.68** If three resistors of  $3\ \Omega$ ,  $2\ \Omega$  and  $6\ \Omega$  are connected in series combination with a  $9\ \text{V}$  battery, then the potential difference across the  $6\ \Omega$  resistor will be:

**Ans** ☒ A.  $9\ \text{V}$   
☒ B.  $4.9\ \text{V}$   
☒ C.  $2.4\ \text{V}$   
☒ D.  $1.6\ \text{V}$

**Q.69** The functional group which has more than one oxygen atom is:

**Ans** ☒ A. Alcohol  
☒ B. Ketone  
☒ C. Aldehyde  
☒ D. carboxylic acid

**Q.70** How many molecules of hydrogen sulphide are required to balance the given chemical equation?  $\text{SO}_2 + \text{H}_2\text{S} \rightarrow 3\text{S} + 2\text{H}_2\text{O}$

**Ans** ☒ A. Four  
☒ B. Three  
☒ C. Two  
☒ D. One

**Q.71** In a triad the middle element has:

**Ans** ☒ A. double the atomic mass of the first element  
☒ B. double the atomic mass of the third element  
☒ C. average atomic mass of the first and third elements  
☒ D. atomic mass equal to the of sum of the first and third elements

**Q.72** Consider two wires of the same material, but the ratio of their cross-sectional areas is  $2 : 5$  and the ratio of their lengths is  $7 : 5$ . If the same amount of current is flowing through them when they are connected to two batteries with voltages  $V_1$  and  $V_2$ , respectively, then  $V_1 : V_2$  is:

**Ans** ☒ A.  $2 : 7$   
☒ B.  $2 : 5$   
☒ C.  $7 : 2$   
☒ D.  $7 : 5$

**Q.73** The magnitude of force that acts on the arms of an armature is the maximum when the length of the arms are:

- Ans**
- ☒ A. parallel to the magnetic field
  - ☒ B.  $45^\circ$  to the magnetic field
  - ☒ C. perpendicular to the magnetic field
  - ☒ D.  $60^\circ$  to the magnetic field

**Q.74** A commutator is used to change the direction of current in the coil of \_\_\_\_\_.

- Ans**
- ☒ A. AC generator only
  - ☒ B. DC motor and DC generator both
  - ☒ C. DC generator only
  - ☒ D. DC Motor Only

**Q.75** Which of the following enzymes in the saliva breaks down starch which is a complex molecule to give simple sugar?

- Ans**
- ☒ A. Salivary amylase
  - ☒ B. Salivary pepsin
  - ☒ C. Salivary lipase
  - ☒ D. Salivary trypsin

**Q.76** Smaller particles scatter the light of \_\_\_\_\_ and \_\_\_\_\_ colour the most; on the other hand, larger particles scatter the light of \_\_\_\_\_ and \_\_\_\_\_ colour the most.

- Ans**
- ☒ A. red, orange; violet, blue
  - ☒ B. violet, blue; red, orange
  - ☒ C. red, orange; green, yellow
  - ☒ D. violet, blue; green, yellow

**Q.77** Suppose a human hair is  $30.0 \mu\text{m}$  thick. If Reshmi uses a concave mirror of focal length 25 cm and obtains an image of the hair of 60 cm thickness, then the hair should be placed in front of the mirror at:

- Ans**
- ☒ A. 25 cm
  - ☒ B. 50 cm
  - ☒ C. 40 cm
  - ☒ D. 60 cm

**Q.78** The state of Rajasthan regained its lost greenery due to which canal?

- Ans**
- ☒ A. Agra Canal
  - ☒ B. Indira Gandhi Canal
  - ☒ C. Munak Canal
  - ☒ D. Sirhind Canal

**Q.79** Which of the following groups in the Modern Periodic Table have NO metallic element?

- Ans**
- ☒ A. 14
  - ☒ B. 15
  - ☒ C. 16
  - ☒ D. 17



**Q.80** An astronaut from the moon's surface will observe the sky as:

- Ans**
- ☐ A. blue
  - ☐ B. white
  - ☐ C. red
  - ☒ D. black

Section : General Awareness and Current Affairs

**Q.81** Which of the following is NOT a constitutional body of the Government of India?

- Ans**
- ☒ A. NITI Aayog
  - ☐ B. Union Public Service Commission
  - ☐ C. Comptroller and Auditor General
  - ☐ D. Election Commission

**Q.82** Which of the following terms is used for the expression ' $\bar{C}$ ' in the consumption function?

- Ans**
- ☐ A. Induced consumption
  - ☐ B. Marginal propensity to consume
  - ☐ C. Average propensity to consume
  - ☒ D. Autonomous Consumption

**Q.83** Most popularly celebrated in Maharashtra and Gujarat, the Parsi New Year is known as \_\_\_\_\_ and marks the beginning of the Iranian calendar.

- Ans**
- ☒ A. Nowruz
  - ☐ B. Navreh
  - ☐ C. Bestu Varas
  - ☐ D. Losoong

**Q.84** As of August 2022, under which Mission has the Government of India subsumed the Child Protection Services Scheme of 2017?

- Ans**
- ☐ A. Bachpan
  - ☐ B. Poshan
  - ☒ C. Vatsalya
  - ☐ D. Indradhanush

**Q.85** Which of the following Articles of the Indian Constitution deals with the separation of judiciary from the executive?

- Ans**
- ☒ A. 50
  - ☐ B. 51
  - ☐ C. 52
  - ☐ D. 53

**Q.86** Which river of Rajasthan had dried up but revived with efforts of the villagers assisted by Tarun Bharat Sangh, an NGO?

- Ans**
- ☐ A. Luni River
  - ☒ B. Arvari River
  - ☐ C. Bhagirathi River
  - ☐ D. Saraswati River



**Q.87** The Board of Control for Cricket in India (BCCI) has finalised a Central Contracts list for the 2022-23 season for Indian cricketers. Which of the following senior players has lost the Grade A status in 2022?

- Ans**
- ✓ A. Chateshwar Pujara
  - ✗ B. Virat Kohli
  - ✗ C. Jasprit Bumrah
  - ✗ D. Rohit Sharma

**Q.88** In March 2022, the Union Cabinet, chaired by Prime Minister Narendra Modi, has extended the Pradhan Mantri Garib Kalyan Anna Yojana till which period?

- Ans**
- ✗ A. September 2025
  - ✗ B. September 2024
  - ✗ C. September 2023
  - ✓ D. September 2022

**Q.89** In India, the Integrated Wastelands Development Programme (IWDP) has been under implementation since \_\_\_\_\_.

- Ans**
- ✓ A. 1989-90
  - ✗ B. 1991-92
  - ✗ C. 1994-95
  - ✗ D. 2001-02

**Q.90** Which of the following goals does NASA hope to achieve by launching the HelioSwarm research mission?

- Ans**
- ✗ A. Understanding the intense seasonal episodes of Pluto
  - ✗ B. Improving the understanding of MARS
  - ✗ C. Improving the understanding of Ionosphere
  - ✓ D. Improving the understanding of the dynamics of the Sun

**Q.91** The limit of 'Shishu' loan that is granted under Micro Units Development & Refinance Agency (MUDRA) is \_\_\_\_\_.

- Ans**
- ✗ A. ₹50,000 to ₹5 lakh
  - ✓ B. up to ₹50,000
  - ✗ C. ₹5 lakh to ₹10 lakh
  - ✗ D. up to ₹50 lakh

**Q.92** As per the report of Stockholm International Peace Research Institute (SIPRI) titled 'Trends in International Arms Transfers, 2021', India is the world's \_\_\_\_\_ arms importer globally.

- Ans**
- ✓ A. largest
  - ✗ B. second largest
  - ✗ C. third largest
  - ✗ D. fourth largest

Q.93 The Vikram Sarabhai Journalism Award is given in the field of \_\_\_\_\_.

- Ans
- ☐ A. Atomic Energy Research
  - ☐ B. Health and Physical Education Research
  - ☐ C. Medical Science Research
  - ☒ D. Space Science, Technology and Research

Q.94 The first 'Home Rule League' was founded by \_\_\_\_\_.

- Ans
- ☐ A. Chandra Shekhar Azad
  - ☒ B. Bal Gangadhar Tilak
  - ☐ C. Surendranath Tagore
  - ☐ D. Bipin Chandra Pal

Q.95 Deomali Peak is in which of the following states of India?

- Ans
- ☒ A. Odisha
  - ☐ B. Himachal Pradesh
  - ☐ C. Rajasthan
  - ☐ D. Karnataka

Q.96 As of March 2022, who is the Union Minister of Rural Development & Panchayati Raj?

- Ans
- ☐ A. Dharmendra Pradhan
  - ☒ B. Giriraj Singh
  - ☐ C. Pralhad Joshi
  - ☐ D. Mansukh L Mandaviya

Q.97 Ramadan is the \_\_\_\_\_ month of the Islamic calendar and the holy month of fasting.

- Ans
- ☐ A. seventh
  - ☐ B. eighth
  - ☒ C. ninth
  - ☐ D. tenth

Q.98 The British introduced the concept of \_\_\_\_\_ in 1850, which significantly influenced the structure of the Indian economy.

- Ans
- ☐ A. airways
  - ☒ B. railways
  - ☐ C. roadways
  - ☐ D. waterways

Q.99 When was Tamil declared a classical language of India?

- Ans
- ☒ A. 2004
  - ☐ B. 2005
  - ☐ C. 2006
  - ☐ D. 2007

**Q.100** Who among the following was appointed the head coach of Indian Cricket Team in November 2021?

**Ans**

- ☒ A. Anil Kumble
- ☒ B. Sachin Tendulkar
- ☒ C. Rahul Dravid
- ☒ D. VVS Laxman



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 17/09/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** Express  $0.\overline{64}$  in the form  $\frac{p}{q}$ , where p and q are integers and  $q \neq 0$ .

**Ans**

☐ A.  $\frac{9}{11}$

☒ B.  $\frac{64}{99}$

☐ C.  $\frac{67}{95}$

☐ D.  $\frac{7}{9}$

**Q.2** A man receives ₹6,500 per month as salary. He saves 20% of his salary every month. His expenditure per month is:

**Ans**

☐ A. ₹4,900

☐ B. ₹5,000

☐ C. ₹5,100

☒ D. ₹5,200

**Q.3** Ten years ago, Krishna was one-third as old as he will be 20 years from now. Krishna's present age (in years) is \_\_\_\_\_.

**Ans**

☐ A. 30

☒ B. 25

☐ C. 45

☐ D. 27

**Q.4** The value of the discriminant of the quadratic equation  $2x^2 - 4x - 3 = 0$  is:

**Ans**

☒ A. 40

☐ B. 16

☐ C. 24

☐ D. 36

**Q.5** Find the value of  $[(12 \times 4) \times \{6 \div 4 \times (\frac{7-4}{6})\}]$ .

- Ans**
- ☒ A. 24
  - ☒ B. 36
  - ☒ C. 42
  - ☒ D. 48

**Q.6** Given that c is the third proportional of 15 and b. If b is the sum of first three odd natural numbers, then the value of c is:

- Ans**
- ☒ A.  $\frac{29}{5}$
  - ☒ B.  $\frac{28}{5}$
  - ☒ C.  $\frac{27}{5}$
  - ☒ D.  $\frac{26}{5}$

**Q.7** A factory built in the shape of a cuboid except for its roof had its dimensions given as  $140 \text{ m} \times 10 \text{ m} \times 10 \text{ m}$ . The structure is then closed on the top with a semi-cylindrical structure to exactly cover the open top of the cuboidal structure. The volume (in  $\text{m}^3$ ) of the semi-cylindrical structure forming the roof is:

Take  $\pi = \frac{22}{7}$

- Ans**
- ☒ A. 6500
  - ☒ B. 5500
  - ☒ C. 11000
  - ☒ D. 13000

**Q.8** Which of the following fractions is the largest?

$$\frac{5}{7}, \frac{9}{14}, \frac{16}{21}, \frac{29}{42}$$

- Ans**
- ☒ A.  $\frac{5}{7}$
  - ☒ B.  $\frac{9}{14}$
  - ☒ C.  $\frac{16}{21}$
  - ☒ D.  $\frac{29}{42}$

**Q.9** The present total age of A and B is 12 years more than the present total age of B and C. By how many years is C younger than A?

- Ans**
- ☒ A. 6
  - ☒ B. 8
  - ☒ C. 10
  - ☒ D. 12

**Q.10** By selling a computer for ₹30,875, a shopkeeper suffers a loss of 5%. At what price should he sell it to gain 7%?

- Ans**
- ☒ A. ₹35,525
  - ☒ B. ₹34,775
  - ☒ C. ₹36,105
  - ☒ D. ₹33,985

**Q.11** The traffic signals at three different road crossings change after every 45 seconds, 75 seconds and 90 seconds respectively. If they all change simultaneously at 9:30:00 a.m., then at what time will they next change again simultaneously?

- Ans**
- ☒ A. 9:39:20 a.m.
  - ☒ B. 9:38:00 a.m.
  - ☒ C. 9:37:30 a.m.
  - ☒ D. 9:39:10 a.m.

**Q.12** Two pipes A and B can fill a cistern in 21 minutes and 28 minutes, respectively. Both the pipes are opened together but after 4 minutes, pipe B is turned off. What is the total time taken to fill the tank?

- Ans**
- ☒ A. 12 minutes
  - ☒ B. 13 minutes
  - ☒ C. 18 minutes
  - ☒ D. 15 minutes

**Q.13** The mean of a data is 38 and its median is 46. The mode (using empirical relation) of the data is:

- Ans**
- ☒ A. 62
  - ☒ B. 63
  - ☒ C. 64
  - ☒ D. 65

**Q.14** The surface area (in  $\text{cm}^2$ ) of a sphere of radius 14 cm is:

Take  $\pi = \frac{22}{7}$

- Ans**
- ☒ A. 2464
  - ☒ B. 1848
  - ☒ C. 1232
  - ☒ D. 616

**Q.15** A company earns a profit that is distributed among the company's three partners in the ratio of 1 : 3 : 5. If the difference between the smallest and the largest shares is ₹80,000, the total profit of the company is:

- Ans**
- ☒ A. ₹1,80,000
  - ☒ B. ₹1,60,000
  - ☒ C. ₹1,40,000
  - ☒ D. ₹1,20,000

**Q.16** The difference between the smallest and the largest fractions among  $\frac{5}{6}$ ,  $\frac{7}{8}$ ,  $\frac{11}{12}$ ,  $\frac{13}{16}$  is:

**Ans**

☐ A.  $\frac{5}{41}$

☐ B.  $\frac{5}{43}$

☐ C.  $\frac{5}{47}$

☒ D.  $\frac{5}{48}$

**Q.17** The perimeter of an isosceles triangle is 32 cm. If each of the equal sides is 4 cm longer than the base, then the length of the sides of the triangle are \_\_\_\_\_.

**Ans**

☐ A. 16, 12, 12

☒ B. 8, 12, 12

☐ C. 14, 10, 10

☐ D. 14, 14, 4

**Q.18** The perimeter of a square is 32 m. Its area (in  $m^2$ ) is:

**Ans**

☐ A. 32

☐ B. 56

☒ C. 64

☐ D. 128

**Q.19** If the cost of two tables and three wooden benches is ₹3,500 and the cost of three tables and two wooden benches is ₹4,000, then the cost (in ₹) of one table is \_\_\_\_\_.

**Ans**

☐ A. 500

☐ B. 2,200

☐ C. 1,400

☒ D. 1,000

**Q.20** A dealer sold his goods at a discount of 20% but set the marked price of each article at 30% above the cost price. His gain percentage on each article is \_\_\_\_\_.

**Ans**

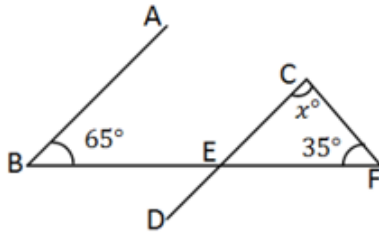
☐ A. 5%

☐ B. 8%

☒ C. 4%

☐ D. 10%

Q.21 In the given figure, AB is parallel to CD. What is the value of  $x^\circ$  ?



- Ans
- ☐ A.  $30^\circ$
  - ☐ B.  $100^\circ$
  - ☐ C.  $110^\circ$
  - ☒ D.  $80^\circ$

Q.22 Convert  $\frac{7893}{9990}$  to its recurring decimal form.

- Ans
- ☐ A.  $0.\overline{790}$
  - ☒ B.  $0.\overline{7900}$
  - ☐ C.  $0.\overline{799}$
  - ☐ D.  $0.\overline{7990}$

Q.23 A shopkeeper claims to sell his goods at cost price but uses a weight that actually weighs 900 gm though 1 kg is written on it. The gain percentage is:

- Ans
- ☐ A.  $22\frac{1}{2}\%$
  - ☐ B.  $14\frac{1}{3}\%$
  - ☒ C.  $11\frac{1}{9}\%$
  - ☐ D.  $9\%$

Q.24 Which of the following numbers is exactly divisible by 18?

- Ans
- ☒ A. 239076
  - ☐ B. 317468
  - ☐ C. 842104
  - ☐ D. 792462

Q.25 If  $\alpha, \beta$  be the roots of the quadratic equation  $3x^2 - 9x + 8 = 0$ , then the value of  $\left(\frac{\alpha}{\beta} + \frac{\beta}{\alpha}\right) + 4\left(\frac{1}{\alpha} + \frac{1}{\beta}\right)$  is:

- Ans
- ☐ A. 6.125
  - ☒ B. 5.875
  - ☐ C. 7.225
  - ☐ D. 4.825

Section : General Intelligence and Reasoning



**Q.26** Read the given statements and conclusions carefully and decide which of the given conclusions logically follow(s) from the statements.

**Statements:**

1. M ranked higher than B who ranked equal to S.
2. B ranked higher than F.
3. S did not rank higher than Q who ranked lower than M.
4. M ranked higher than F who did not rank lower than T.

**Conclusions:**

- I. Q ranked higher than T.
- II. Q ranked equal to T.
- III. M ranked higher than F.

**Ans** ☒ A. Conclusions I and II follow  
☒ B. Conclusions I and III follow  
☒ C. Conclusion III follows  
☒ D. Conclusions II and III follow

**Q.27** Eight girls, A, B, C, D, E, F, G and H, are sitting around a circular table and facing the centre (but not necessarily in the same order). A is sitting second to the left of B. F is sitting to the immediate left of C. D is not an immediate neighbour of either F or E. H is not an immediate neighbour of B. Only three girls are sitting between A and D.

Who among the following girls are the immediate neighbours of D?

**Ans** ☒ A. F and B  
☒ B. A and E  
☒ C. H and G  
☒ D. E and B

**Q.28** Six Engineering graduates, Jayanth, Komal, Lasya, Midhun, Nayan and Ojaswi, graduated from a reputed engineering institute, each of them in a different year between 2004-2009. Jayanth graduated in the year immediately before the year Nayan graduated. Only one engineering student graduated between Komal and Ojaswi, where Komal was Ojaswi's senior. Ojaswi graduated in 2009.

If Midhun graduated in 2004, then who graduated in 2006?

**Ans** ☒ A. Komal  
☒ B. Nayan  
☒ C. Lasya  
☒ D. Jayanth

**Q.29** Each vowel in the word GRADIENT is changed to the letter following it in the English alphabetical order and each consonant is changed to the letter preceding it in the English alphabetical order. Which of the following letters will appear twice in the group of letters thus formed?

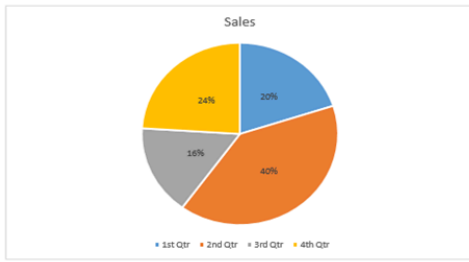
**Ans** ☒ A. B  
☒ B. J  
☒ C. F  
☒ D. M

**Q.30** What approximate value should come in place of the question mark (?) in the following equation?

$$7.05 - 20.92 + 16.20 \times 3.99 = ?$$

**Ans** ☒ A. 52  
☒ B. 50  
☒ C. 62  
☒ D. 76

- Q.31** The given pie chart shows the sales of a store in each quarter as the percentage of total sales. Study the pie chart and answer the question that follows.



Which quarters have the highest and lowest sales, respectively?

- Ans**
- ✓ A. 2<sup>nd</sup> and 3<sup>rd</sup>
  - ✗ B. 1<sup>st</sup> and 2<sup>nd</sup>
  - ✗ C. 4<sup>th</sup> and 3<sup>rd</sup>
  - ✗ D. 2<sup>nd</sup> and 4<sup>th</sup>

- Q.32** Which of the following numbers will replace the question mark (?) in the given series?

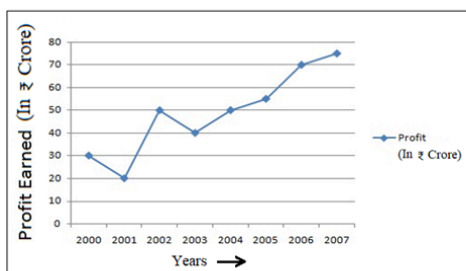
0, 3, 8, 15, 24, 35, ?

- Ans**
- ✗ A. 80
  - ✗ B. 63
  - ✓ C. 48
  - ✗ D. 37

- Q.33** Janak started from his office and after travelling a distance of 4 km towards north, he turned to the left and travelled a distance of 3 km. He then turned left and travelled 9 km. He then took a final left, travelled 3 km and stopped. What is the shortest distance between the stopping point and his office? (All turns are 90 degree turns only)

- Ans**
- ✗ A. 8 km
  - ✗ B. 7 km
  - ✗ C. 6 km
  - ✓ D. 5 km

- Q.34** The following graph shows the profit earned by a company over the years. Study the graph and answer the question that follows.



Calculate the increase in profit earned by the company in year 2002 as compared to previous year.

- Ans**
- ✗ A. ₹20 crore
  - ✓ B. ₹30 crore
  - ✗ C. ₹40 crore
  - ✗ D. ₹50 crore

- Q.35** In a certain code language, 'TOTAL' is written as 'RMRYT' and 'PLANT' is written as 'NJYLR'. How will 'PHONE' be written in that code language?

- Ans**
- ✗ A. NFLMC
  - ✓ B. NFMLC
  - ✗ C. MLCNF
  - ✗ D. FNMLC

**Q.36** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. EXAMPLE: 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

3 : 16 :: 5 : 36 :: 7 : ?

**Ans** ☒ A. 62

☒ B. 63

☒ C. 64

☒ D. 65

**Q.37** A statement is given followed by two assumptions numbered I and II. You have to assume everything in the statement to be true and decide which of the assumptions is/are implicit in the statement.

Statement:

Do not throw glass bottles in green dustbins which are meant for other recyclable waste items.

Assumptions:

- I. Dustbins for collecting glass bottles are of a different colour than the dustbins used to collect other recyclable items.
- II. Glass bottles are to be thrown along with the non-recyclable waste.

**Ans** ☒ A. Only assumption I is implicit

☒ B. Only assumption II is implicit

☒ C. Neither assumptions I nor II is implicit

☒ D. Both assumptions I and II are implicit

**Q.38** Three statements are given followed by two conclusions numbered I and II. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

Statements:

All aliens are people.  
All people are mammals.  
All mammals are animals.

Conclusions:

- I. Some animals are mammals.
- II. All people are aliens.

**Ans** ☒ A. Only conclusion I follows

☒ B. Only conclusion II follows

☒ C. Both conclusions I and II follow

☒ D. Neither conclusion I or II follows

**Q.39** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

SJC : XOH

FMT : KRY

**Ans** ☒ A. HNF : MSK

☒ B. NFH : MSK

☒ C. NHF : MWK

☒ D. NFK : SKD

- Q.40** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/<br>Symbol | 6 | 8 | 4 | + | 5 | # | % | 2 | \$ | 1 | ^ | 7 | 9 | * | @ |
|-------------------|---|---|---|---|---|---|---|---|----|---|---|---|---|---|---|
| Code              | S | U | T | W | N | P | V | D | A  | Z | J | M | O | M | Y |

**Conditions:**

- (i) If the first and last elements are numbers, then the last element will be replaced by the symbol @.
- (ii) If the first element is a symbol, then the first element will be coded as ©.
- (iii) If both the first and second elements are numbers, then the third element will be coded as \*.

What will be the code for the following?

7 8 4 % @

- Ans**
- ✓ A. MU\* VY
  - ✗ B. VY\*UM
  - ✗ C. UM\*VY
  - ✗ D. UMVY\*

- Q.41** A statement is followed by two conclusions. Find out which conclusion is true based on the given statement.

**Statement:**

$R < S \leq T \leq U = V > W > X$

**Conclusions:**

- I.  $S = V$
- II.  $V > S$

- Ans**
- ✗ A. Only conclusion I is true
  - ✗ B. Only conclusion II is true
  - ✗ C. Both conclusions I and II are true
  - ✓ D. Either conclusion I or II is true

- Q.42** Six medical students, J, K, L, M, N and O completed their MBBS graduation from a reputed medical institute between 2014 and 2019. Each of them graduated in a different year. J graduated in the year immediately before the year N graduated. Only one medical student graduated between K and O, where K graduated before O. O graduated in 2019. If M graduated in 2014, then who graduated in 2016?

- Ans**
- ✗ A. K
  - ✓ B. N
  - ✗ C. L
  - ✗ D. J

- Q.43** Six friends Q, R, S, T, U and V are sitting in a row facing north. Q is seated 2<sup>nd</sup> to the right of T and 3<sup>rd</sup> to the left of S. U is not an immediate neighbour of Q. Who is seated between R and V?

- Ans**
- ✓ A. Q
  - ✗ B. U
  - ✗ C. S
  - ✗ D. T

- Q.44** Which of the following numbers will replace the question mark (?) in the given series?

13, 14, 27, 41, 68, ?

- Ans**
- ✗ A. 85
  - ✗ B. 118
  - ✓ C. 109
  - ✗ D. 98

**Q.45** Which of the following term will replace the question mark (?) in the given series to make it logically complete?

AMB3, DPE5, GSH7, ?, MYN11

- Ans**
- ☒ A. KYL12
  - ☒ B. JVK9
  - ☒ C. KVL9
  - ☒ D. JVK12

**Q.46** Refer to the following letter, number and symbol series and answer the question.

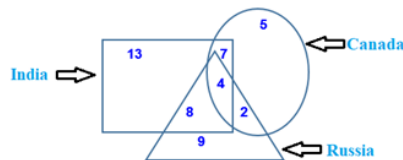
(Left) V 2 5 U @ ¢ W ¤ # 2 Ω A R Q 1 @ F B 4 6 # H J % Z E (Right)

If all the consonants are dropped from the series, what will be the position of 'Ω' from the left?

- Ans**
- ☒ A. Eighth
  - ☒ B. Seventh
  - ☒ C. Ninth
  - ☒ D. Tenth

**Q.47** Study the given diagram carefully and answer the question that follows.

The numbers in different sections indicate the number of people who belong to different countries.



What number represents the people who belong to India, Canada as well as Russia?

- Ans**
- ☒ A. 2
  - ☒ B. 7
  - ☒ C. 4
  - ☒ D. 8

**Q.48** Select the option that is related to the seventh number in the same way as the second number is related to the first number, the fourth number is related to the third number and the sixth number is related to the fifth number.

8 : 2 :: 16 : 6 :: 18 : 7 :: 28 : ?

- Ans**
- ☒ A. 21
  - ☒ B. 11
  - ☒ C. 9
  - ☒ D. 12

**Q.49** Refer to the following number series and answer the question.

(Left) 1 4 6 2 7 8 3 7 5 6 8 9 1 3 9 5 3 (Right)

Find the sum of all the odd numbers in the above number series.

- Ans**
- ☒ A. 53
  - ☒ B. 55
  - ☒ C. 57
  - ☒ D. 58

**Q.50** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

All chairs are pens.

Some pens are shoes.

Some shoes are desks.

Conclusions:

(I) Some desks are chairs.

(II) Some shoes are chairs.

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Neither conclusion I nor II follow
  - ☒ D. Both conclusions I and II follow

**Q.51** If '+' means '÷', '÷' means '×', '×' means '+', and '-' means '+', what will come in place of the question mark (?) in the following equation?

$$44 \times 11 - 25 \div 20 + 80 = ?$$

- Ans**
- ☒ A. 40
  - ☒ B. 60
  - ☒ C. 100
  - ☒ D. 90

**Q.52** Which two numbers should be interchanged to make the following equation correct?

$$9 + 7 - (6 \div 3 - 4) \times 8 = 31$$

- Ans**
- ☒ A. 9 and 7
  - ☒ B. 8 and 7
  - ☒ C. 6 and 7
  - ☒ D. 4 and 7

**Q.53** Study the following arrangement and answer the question given below. All numbers given below are 2 digit numbers.

33 56 93 % 28 21 @ / 84 94 39 \$ 65 19 # 81

Which is the 7<sup>th</sup> term to the right of the 14<sup>th</sup> term from the right end in the above arrangement?

- Ans**
- ☒ A. @
  - ☒ B. 84
  - ☒ C. 94
  - ☒ D. 21

**Q.54** Amit starts from Point A and drives 6 km towards the south. He then takes a left turn, drives 4 km, turns right and drives 3 km. He then takes a right turn and drives 7 km. He takes a final right turn, drives 9 km and stops at Point B. How far and towards which direction should he drive in order to reach Point A from Point B? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 3 km towards the north
  - ☒ B. 2 km towards the east
  - ☒ C. 3 km towards the east
  - ☒ D. 2 km towards the west

**Q.55** Six pen boxes of different brands, P1, Q2, R3, S4, T5 and U6, are kept one above the other but not necessarily in the same order. P1 is third from the top and immediately below U6. Only two boxes are there between P1 and Q2. There are two boxes between R3 and T5. R3 is placed below T5. How many pen boxes are there between T5 and Q2?

- Ans**
- ☐ A. One
  - ☐ B. Two
  - ☐ C. Three
  - ☒ D. Four

Section : General Science

**Q.56** When light is passed through a prism, refraction of light occurs:

- Ans**
- ☐ A. one time
  - ☒ B. two times
  - ☐ C. zero times
  - ☐ D. three times

**Q.57** Consider two coils, A, having larger number of turns than B, kept axially at a distance from each other. The coil A is connected to a battery and a switch and B is connected to a galvanometer. On switching on or off the circuit a DC current flows through the coil A, then deflection in the galvanometer connected to coil B can be increased by winding the core of coil B on \_\_\_\_\_.

- Ans**
- ☒ A. an iron rod
  - ☐ B. a glass rod
  - ☐ C. an ebonite rod
  - ☐ D. a wooden rod

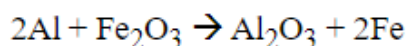
**Q.58** Carbon exhibits catenation property due to \_\_\_\_\_.

- Ans**
- ☐ A. its large size and greater strength of carbon-carbon bond
  - ☒ B. its small size and greater strength of carbon-carbon bond
  - ☐ C. its small size and weaker strength of carbon-carbon bond
  - ☐ D. its large size and weaker strength of carbon-carbon bond

**Q.59** In the modern periodic table, addition of new shells down the group results in \_\_\_\_\_.

- Ans**
- ☒ A. increase in atomic size and nuclear charge
  - ☐ B. decrease in atomic size and nuclear charge
  - ☐ C. increase in atomic size and decrease in nuclear charge
  - ☐ D. decrease in atomic size and increase in nuclear charge

**Q.60** The given reaction is an example of \_\_\_\_\_.



- Ans**
- ☐ A. oxidation reaction
  - ☐ B. reduction reaction
  - ☒ C. displacement reaction
  - ☐ D. double displacement reaction



**Q.61** Arrange the following organic compounds in the increasing order of their boiling point.

$\text{CH}_4$ ,  $\text{CH}_3\text{COOH}$ ,  $\text{CHCl}_3$ ,  $\text{CH}_3\text{CH}_2\text{OH}$

- Ans**
- ☒ A.  $\text{CH}_3\text{COOH} < \text{CH}_3\text{CH}_2\text{OH} < \text{CHCl}_3 < \text{CH}_4$
  - ☒ B.  $\text{CH}_4 < \text{CHCl}_3 < \text{CH}_3\text{CH}_2\text{OH} < \text{CH}_3\text{COOH}$
  - ☒ C.  $\text{CH}_3\text{CH}_2\text{OH} < \text{CH}_3\text{COOH} < \text{CHCl}_3 < \text{CH}_4$
  - ☒ D.  $\text{CH}_4 < \text{CHCl}_3 < \text{CH}_3\text{COOH} < \text{CH}_3\text{CH}_2\text{OH}$

**Q.62** The first menstrual flow begins at puberty and is termed as:

- Ans**
- ☒ A. menarche
  - ☒ B. menopause
  - ☒ C. menstruation
  - ☒ D. ovulation

**Q.63** Why are contraceptive methods used?

- Ans**
- ☒ A. To overcome fatigue
  - ☒ B. To reduce blood pressure
  - ☒ C. To prevent bacterial infection
  - ☒ D. To avoid pregnancy

**Q.64** The element 'X' has seven electrons in outermost shell. Select the group of the modern periodic table to which it belongs.

- Ans**
- ☒ A. 18<sup>th</sup> group
  - ☒ B. 7<sup>th</sup> group
  - ☒ C. 16<sup>th</sup> group
  - ☒ D. 17<sup>th</sup> group

**Q.65** A substance is said to be reduced in a redox reaction if it:

- Ans**
- ☒ A. gains oxygen or loses hydrogen
  - ☒ B. gains hydrogen or loses oxygen
  - ☒ C. gains hydrogen and oxygen both
  - ☒ D. loses hydrogen and oxygen both

**Q.66** The magnification produced by a concave mirror is found to be  $-2$  when an object of height 1 cm is placed at a suitable distance from the pole. Here, image height is equal to:

- Ans**
- ☒ A. 2 cm
  - ☒ B. 1 cm
  - ☒ C. 3 cm
  - ☒ D. 0.2 cm



**Q.67** Normally, in a healthy adult, the initial filtrate in the kidneys is about 180 L daily. However, the volume actually excreted is only:

- Ans**
- ✓ **A.** 1 litre or 2 litres a day
  - ✗ **B.** 2 litres or 3 litres a day
  - ✗ **C.** 3 litres or 3.5 litres a day
  - ✗ **D.** 2 litres or 3.5 litres a day

**Q.68** Which of the following chemicals can be applied to get relief from pain due to bee-sting?

- Ans**
- ✗ **A.**  $\text{CaSO}_4$
  - ✗ **B.**  $\text{Na}_2\text{CO}_3$
  - ✗ **C.**  $\text{CaCO}_3$
  - ✓ **D.**  $\text{NaHCO}_3$

**Q.69** What is the cause of muscle cramps?

- Ans**
- ✓ **A.** Insufficiency of oxygen supply to muscles
  - ✗ **B.** Excessive excitation of neuromuscular junctions
  - ✗ **C.** Fatigue and weakness of the body
  - ✗ **D.** Low glucose level in the blood (hypoglycaemia)

**Q.70** Which of the following part connects the urinary bladder and the kidney?

- Ans**
- ✗ **A.** Nephrons
  - ✗ **B.** Tubules
  - ✓ **C.** Ureters
  - ✗ **D.** Urethra

**Q.71** Different-coloured dustbins are provided by some municipalities in some cities and towns. The blue one is used for collecting \_\_\_\_\_.

- Ans**
- ✗ **A.** kitchen wastes
  - ✗ **B.** medical wastes
  - ✓ **C.** reusable wastes
  - ✗ **D.** agricultural wastes

**Q.72** An electric bulb of  $40\ \Omega$  resistance and a conductor of  $10\ \Omega$  resistance are connected to a 10 V battery. The total resistance of the circuit is:

- Ans**
- ✗ **A.**  $30\ \Omega$
  - ✗ **B.**  $40\ \Omega$
  - ✓ **C.**  $50\ \Omega$
  - ✗ **D.**  $60\ \Omega$

**Q.73** The principal focus of a convex mirror is located:

- Ans**
- ✗ **A.** in front of the mirror
  - ✓ **B.** behind the mirror
  - ✗ **C.** above the principal axis
  - ✗ **D.** below the principal axis

**Q.74** Which acid is produced by the human stomach?

- Ans**
- ☒ A. HCl
  - ☐ B.  $\text{CH}_3\text{COOH}$
  - ☐ C.  $\text{H}_2\text{SO}_4$
  - ☐ D. Lactic acid

**Q.75** In return for help in protection of 1,272 hectares of a badly degraded Sal forest, villagers were given employment in:

- Ans**
- ☐ A. pome culture
  - ☒ B. silviculture
  - ☐ C. agriculture
  - ☐ D. Sericulture

**Q.76** Ashutosh plotted Voltage against Current for two Ohmic conductors and found that the slopes of these two conductors are 10 and 50, respectively. If the same 20 V battery is connected across these two Ohmic wires separately, what will be the ratio of the current flow in these two wires?

- Ans**
- ☐ A. 5 : 4
  - ☐ B. 5 : 3
  - ☐ C. 5 : 2
  - ☒ D. 5 : 1

**Q.77** The refractive indices of dense flint glass and water are 1.65 and 1.33, respectively. A ray of light passes from dense flint glass to water. The refractive index of water with respect to dense flint glass is \_\_\_\_\_ and the ray bends \_\_\_\_\_ the normal in water.

- Ans**
- ☐ A. 0.81, towards
  - ☐ B. 1.24, towards
  - ☒ C. 0.81, away from
  - ☐ D. 1.24, away from

**Q.78** The rate of electricity in a state is Rs5.00 per unit. The cost of running an 100 W fan for 10 hours a day for the whole month of May will be rupees:

- Ans**
- ☐ A. 250
  - ☐ B. 200
  - ☒ C. 150
  - ☐ D. 300

**Q.79** For green plant tissues undergoing photosynthesis, \_\_\_\_\_ is a waste product.

- Ans**
- ☐ A. carbon dioxide
  - ☒ B. oxygen
  - ☐ C. urea
  - ☐ D. ammonia

**Q.80** Suppose a current of 0.05 A is passing through a wire of resistance R when the voltage across the resistor is 10 V. What current will pass through this wire when the voltage across it is 20 V?

- Ans**
- ☐ A. 0.01 A
  - ☒ B. 0.1 A
  - ☐ C. 0.02 A
  - ☐ D. 0.2 A

**Q.81** In which year was the High Court of Delhi established?

- Ans**
- ☐ A. 1862
  - ☒ B. 1966
  - ☐ C. 1948
  - ☐ D. 1956

**Q.82** Who among the following social reformers wrote the book called 'Barno-Porichoy'?

- Ans**
- ☐ A. Debendranath Tagore
  - ☒ B. Ishwar Chandra Vidyasagar
  - ☐ C. Swami Vivekananda
  - ☐ D. Dwarkanath Ganguly

**Q.83** The elections for Panchayat are conducted by \_\_\_\_\_.

- Ans**
- ☐ A. urban local government
  - ☐ B. election commission of India
  - ☒ C. state election commission
  - ☐ D. Revenue Department of the state

**Q.84** What is term used for perks that employers give to their employees above and beyond any financial compensation?

- Ans**
- ☐ A. Marginal benefits
  - ☒ B. Fringe benefits
  - ☐ C. Outlying benefits
  - ☐ D. Trim benefits

**Q.85** The Dree Festival, an important agricultural festival, is primarily celebrated by the Apatani tribe in the state of \_\_\_\_\_.

- Ans**
- ☐ A. Kerala
  - ☒ B. Arunachal Pradesh
  - ☐ C. West Bengal
  - ☐ D. Madhya Pradesh

**Q.86** As of March 2022, who is the chief justice of Karnataka high court?

- Ans**
- ☒ A. Ritu Raj Awasthi
  - ☐ B. Alok Aradhe
  - ☐ C. S Sujatha
  - ☐ D. B Veerappa

**Q.87** Who among the following clocked 20.52 seconds in the men's 200 m final of the Federation Cup 2022 to break Muhammed Anas Yahiya's previous national record of 20.63 created at a meet in the Czech Republic back in 2018?

- Ans**
- ☐ A. Jinson Johnson
  - ☒ B. Amlan Borgohain
  - ☐ C. Amiya Kumar Mallick
  - ☐ D. Surendra Singh

**Q.88** Devprayag is the confluence of \_\_\_\_\_.

- Ans**
- ☐ A. Sutlej and Indus
  - ☐ B. Yamuna and Ganga
  - ☐ C. Godavari and Narmada
  - ☒ D. Alaknanda and Bhagirathi

**Q.89** In India, the duration from \_\_\_\_\_ is the time of the arrival of the normal rainfall, which increases suddenly and continues constantly for several days, known as the 'burst' of the monsoon.

- Ans**
- ☐ A. Early June to August
  - ☐ B. July to early September
  - ☐ C. Early July to mid-August
  - ☒ D. Early June to mid-September

**Q.90** Who among the following sportsmen was in news in June 2021 for being inducted into the ICC Hall of Fame ahead of WTC Final?

- Ans**
- ☐ A. Dilip Vengsarkar
  - ☒ B. Vinoo Mankad
  - ☐ C. Javagal Srinath
  - ☐ D. Ajay Jadeja

**Q.91** Which of the following is in-house software of the Indian Railways to tackle the problem of cattle getting run over by the trains?

- Ans**
- ☒ A. Smart Event Tracking System
  - ☐ B. Animal Tracking and Vigilant System
  - ☐ C. Indian Railway Tracking System
  - ☐ D. Cattle Tracking Collar System

**Q.92** \_\_\_\_\_ pass is a high mountain pass in the state of Himachal Pradesh, that connects Kullu valley with Lahual - Spiti Valley.

- Ans**
- ☐ A. Zoji La
  - ☒ B. Rohtang
  - ☐ C. Shipki La
  - ☐ D. Lipu Lekh

**Q.93** Which of the following Indian languages is NOT categorised as a classical language by the Ministry of Culture, Government of India?

- Ans**
- ☐ A. Telugu
  - ☐ B. Tamil
  - ☐ C. Sanskrit
  - ☒ D. Bengali

**Q.94** Parshavnatha temple is located in which state?

- Ans**
- ☐ A. Kerala
  - ☐ B. Karnataka
  - ☐ C. Rajasthan
  - ☒ D. Madhya Pradesh

**Q.95** As per the 16th Annual Status of Education Report (ASER) 2021 (Rural), the enrolment rate decreased to \_\_\_\_\_ in private schools.

- Ans**
- ☐ A. 18.2%
  - ☐ B. 20.1%
  - ☒ C. 24.4%
  - ☐ D. 27.2%

**Q.96** SHG – Bank Linkage Programme (SHG-BLP) is a bank-led microfinance channel in India, which was initiated by \_\_\_\_\_.

- Ans**
- ☐ A. SIDBI
  - ☒ B. NABARD
  - ☐ C. LIC
  - ☐ D. EXIM Bank

**Q.97** The Union Budget also known as Annual Financial Statement (AFS) for a particular financial year is given in which Article of the Indian Constitution?

- Ans**
- ☐ A. Article 31-C
  - ☐ B. Article 38
  - ☒ C. Article 112
  - ☐ D. Article 134

**Q.98** Which of the following falls under the Right to Constitutional Remedies?

- Ans**
- ☐ A. Right to education
  - ☐ B. Equality of opportunity in public employment
  - ☐ C. Freedom of conscience and free profession, practice and propagation of religion
  - ☒ D.

The right to move the Supreme Court by appropriate proceedings for the enforcement of the rights conferred by Part III is guaranteed

**Q.99** \_\_\_\_\_ is an Indian Technology developed by Research Design and Standards Organisation in collaboration with Indian Railways in March 2022, that can prevent two trains from colliding.

- Ans**
- ☐ A. Srivatsa
  - ☐ B. Jaivardhan
  - ☒ C. Kavach
  - ☐ D. Trishool

**Q.100** In which of the following years was the Planning Commission set up with the Prime Minister as its Chairperson, and hence began the era of five-year plans.

- Ans**
- ☐ A. 1947
  - ☐ B. 1948
  - ☐ C. 1949
  - ☒ D. 1950



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 17/09/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** The population of a town in 1980 was 2,25,000. If its population increased in two successive decades by 10% in each decade, the population of the town in 2000 was:

- Ans**
- ☒ A. 2,72,150
  - ☒ B. 2,72,250
  - ☐ C. 2,72,350
  - ☐ D. 2,72,450

**Q.2** Using the fact that  $4515 \div 12.9 = 350$ , find the value of  $4.515 \div 12.9$ ?

- Ans**
- ☐ A. 35
  - ☐ B. 3.5
  - ☒ C. 0.35
  - ☐ D. 0.035

**Q.3** The marked price of an article is ₹150. The shopkeeper offers a discount of 20% on the purchase of the article. Thereby, he makes a profit of 25%. The cost price of the article is:

- Ans**
- ☐ A. ₹72
  - ☒ B. ₹96
  - ☐ C. ₹120
  - ☐ D. ₹144

**Q.4** The nature of the roots of the quadratic equation  $(x + 12)(x + 6) = 4^2$  satisfy the following:

- Ans**
- ☐ A. both the roots are positive and rational
  - ☐ B. one of the roots is positive and the other one is negative, and both are rational
  - ☒ C. both the roots are negative and rational
  - ☐ D. both the roots are irrational

**Q.5** The sum of the digits of a 2-digit number is 9. The number at the tens' place is double of the number at the units' place. The 2-digit number is:

- Ans** ☒ A. 63  
☐ B. 36  
☐ C. 45  
☐ D. 54

**Q.6** Find the value of  $[(12 \div 4) \times \{\frac{12}{3} + \frac{5}{3} \times (7 - 4)\}]$ .

- Ans** ☐ A. 54  
☐ B. 45  
☐ C. 36  
☒ D. 27

**Q.7** A man makes a monthly payment equal to 15% of his monthly salary towards debt repayment. He spends 75% of the remaining salary and saves ₹425. His monthly salary is:

- Ans** ☐ A. ₹1,800  
☒ B. ₹2,000  
☐ C. ₹2,200  
☐ D. ₹2,400

**Q.8** ₹ 2,000 is divided among A, B and C such that half of A's part, one-third of B's part and one-fifth of C's part are equal. What is A's part (in ₹)?

- Ans** ☐ A. 200  
☐ B. 1,000  
☒ C. 400  
☐ D. 600

**Q.9** If the diameter of a sphere is 12 cm, then find the volume of the sphere. [Use  $\pi = \frac{22}{7}$ ]

- Ans** ☒ A.  $905\frac{1}{7} \text{ cm}^3$   
☐ B.  $906\frac{6}{7} \text{ cm}^3$   
☐ C.  $907\frac{4}{7} \text{ cm}^3$   
☐ D.  $908\frac{2}{7} \text{ cm}^3$

**Q.10** The value of  $[(k^a)^{b-c} \times (k^b)^{c-a} \times (k^c)^{a-b}] \times (x^0 - 1)$  is

- Ans** ☐ A. 1  
☐ B. abc  
☐ C.  $a + b + c$   
☒ D. 0



Q.11

The roots of the quadratic equation  $x + \frac{10}{x} = 7$  are:

Ans

☒ A. 2, -5☒ B. ☒ C. -2, 5☒ D. 5, 2

Q.12

Three numbers are co-prime to one another and the product of the first two and the last two are 432 and 945, respectively. Find the LCM of the three numbers.

Ans

☒ A. 16650☒ B. 14850☒ C. 15030☒ D. 15120

Q.13

The sum of the ages of William and Brijesh is 20 years. Four years ago, Brijesh's age was half of William's then age. How old (in years) is William at present?

Ans

☒ A. 12☒ B. 10☒ C. 8☒ D. 6

Q.14

A man spends 20% of his monthly salary on the rent of his house. If every month he also spends ₹600 on his conveyance and ₹3,500 on his grocery and saves the remaining ₹500, his monthly salary is:

Ans

☒ A. ₹5,000☒ B. ₹5,250☒ C. ₹5,500☒ D. ₹5,750

Q.15

Evaluate  $23^3 + (-11)^3 + (-12)^3$ .

Ans

☒ A. 9108☒ B. 8908☒ C. 8708☒ D. 8608

Q.16

A and B can complete a work in 10 days and 15 days, respectively. They started working together but after 3 days B had to leave and A alone completed the remaining work. In how many days in all was the entire work completed?

Ans

☒ A. 8 days☒ B. 6 days☒ C. 7 days☒ D. 5 days



Q.17 The mean marks of the following distribution is:

| Marks obtained | No. of students |
|----------------|-----------------|
| 25             | 5               |
| 30             | 6               |
| 35             | 3               |
| 40             | 1               |

- Ans
- ☒ A. 29
  - ☒ B. 30
  - ☒ C. 31
  - ☒ D. 32

Q.18 1000 identical small spheres are cast from a sphere of radius 10 cm, with the total volume of the small spheres being equal to the volume of the larger sphere. The diameter (in cm) of each of the small spheres is:

- Ans
- ☒ A. 0.5
  - ☒ B. 1
  - ☒ C. 2
  - ☒ D. 3

Q.19 The length of a rectangular park is 22 m more than its breadth. Its area is  $1400 \text{ m}^2$ . Its breadth (in m) is:

- Ans
- ☒ A. 21
  - ☒ B. 28
  - ☒ C. 35
  - ☒ D. 42

Q.20 A trader offers a discount of 10% on an article if a customer makes the payment in cash. How much percentage above the cost price should he mark the article to make a profit of 10%? [Give your answer correct to 2 decimal places.]

- Ans
- ☒ A. 11.22%
  - ☒ B. 15.22%
  - ☒ C. 20.22%
  - ☒ D. 22.22%

Q.21 Simplify the given expression.

$$\frac{0.068 \times 3.5 \times 12}{3.6 \times 0.17 \times 7}$$

- Ans
- ☒ A.  $\frac{2}{3}$
  - ☒ B.  $\frac{4}{7}$
  - ☒ C.  $\frac{1}{4}$
  - ☒ D.  $\frac{3}{8}$

**Q.22** Five years hence the age of Ramesh will be three times the then age of his son, and 5 years ago his age was seven times the then age of his son. Ramesh's present age (in years) is:

- Ans**
- ☒ A. 38
  - ☒ B. 40
  - ☒ C. 42
  - ☒ D. 44

**Q.23** Which of the following is NOT NECESSARILY true for congruent triangles?

- Ans**
- ☒ A.  
If the three sides of one triangle are equal to the corresponding three sides of another triangle, then the two triangles are congruent.
  - ☒ B.  
If any two sides and the angle included between the sides of one triangle are equal to the corresponding two sides and the angle included between those two sides of the second triangle, then the two triangles are congruent.
  - ☒ C.  
If two angles and the included side of one triangle are equal to two angles and the included side of another triangle, then the two triangles are congruent.
  - ☒ D.  
If two sides and an angle of one triangle are equal to two sides and an angle of the other triangle, then the two triangles are congruent.

**Q.24** A bus is moving at a speed of 84 km/h. If its speed is reduced by 12%, the new speed of the bus (in km/h) will be:

- Ans**
- ☒ A. 70.92
  - ☒ B. 71.92
  - ☒ C. 72.92
  - ☒ D. 73.92

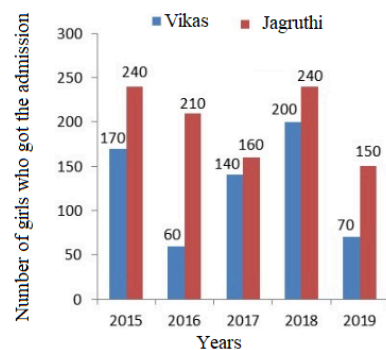
**Q.25** The value of  $3 + 3 \times [(11 - 2) \div 3] - 2 \times 3$  is:

- Ans**
- ☒ A. 9
  - ☒ B. 8
  - ☒ C. 7
  - ☒ D. 6

Section : General Intelligence and Reasoning

**Q.26** Study the graph and answer the question that follows.

The following bar graph shows the total numbers of girls who got the admission in two degree colleges Vikas and Jagruthi from 2015 to 2019 are given.



What is the ratio between total girl students in 2016 to the total girl students in 2019 of both degree colleges?

- Ans**
- ☒ A. 25 : 21
  - ☒ B. 29 : 12
  - ☒ C. 31 : 11
  - ☒ D. 27 : 22

**Q.27** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. EXAMPLE: 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(12, 8, 90)

(8, 8, 58)

- Ans**
- ☒ A. (13, 7, 85)
  - ☒ B. (11, 7, 72)
  - ☒ C. (9, 8, 78)
  - ☒ D. (5, 8, 30)

**Q.28** A certain number of class XII students are standing together; each are of different weights. When their weights are compared, Adya is heavier than Dilipa, but lighter than Fiya. Charu is lighter than Esha and heavier than Bidan, who is heavier than Fiya. Only one student is heavier than Esha. Only two students are lighter than Dilipa. If no other student is part of the group, what is the total number of students in the group?

- Ans**
- ☒ A. Ten
  - ☒ B. Six
  - ☒ C. Seven
  - ☒ D. Nine

**Q.29** Refer to the number and symbol series, and answer the question that follows.

(Left) 6 % 7 & 9 4 3 @ 2 8 \* 3 # 9 & 2 (Right)

How many symbols are there between the third element from the right end and the fourth element from the left end of the given series?

- Ans**
- ☒ A. 4
  - ☒ B. 3
  - ☒ C. 2
  - ☒ D. 5

**Q.30** Refer to the following letter series and answer the question.

(Left) Q A Y S R E Z I L X B O P A R D I H O U K (Right)

How many such consonants are there, each of which is immediately preceded by a vowel and also immediately followed by a vowel?

- Ans**
- ☒ A. One
  - ☒ B. Two
  - ☒ C. Three
  - ☒ D. Four

**Q.31** Shiv started from his office and walked 15 m towards the south. He then turned right and walked 20 m. He then turned right again and walked 15 m. He then turned left and walked another 15 m to reach the place where his car is parked. How far and in which direction is the car parked from the office?

- Ans**
- ☒ A. 15 meters East
  - ☒ B. 15 meters West
  - ☒ C. 20 meters North
  - ☒ D. 35 meters West

**Q.32** Which of the following numbers will replace the question mark (?) in the given series?

1, 8, 7, 14, 13, 20, 19, 26, 25, ?

- Ans**
- ☒ A. 29
  - ☒ B. 30
  - ☒ C. 31
  - ☒ D. 32

**Q.33** Study the following table carefully and answer the questions based on it.

The table below shows the number of Air coolers sold on different days by five different stores in a city.

|   | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday |
|---|--------|---------|-----------|----------|--------|----------|--------|
| P | 45     | 40      | 28        | 48       | 20     | 20       | 24     |
| Q | 92     | 90      | 12        | 27       | 16     | 26       | 98     |
| R | 36     | 80      | 13        | 30       | 38     | 47       | 62     |
| S | 46     | 60      | 64        | 12       | 52     | 76       | 34     |
| T | 18     | 48      | 69        | 58       | 80     | 15       | 10     |

What is the average of number of Air coolers sold by the store Q on Thursday, store T on Saturday and store S on Tuesday?

- Ans**
- ☒ A. 44
  - ☒ B. 24
  - ☒ C. 34
  - ☒ D. 52

**Q.34** Refer to the following letter series and answer the question.

A C P D I U V K J Q E V F

How many consonants have one vowel on one side and one consonant on the other side as immediate neighbours?

- Ans**
- ☒ A. 7
  - ☒ B. 6
  - ☒ C. 4
  - ☒ D. 5

- Q.35** Select the set in which the numbers are related in the same way as are the numbers of the following sets.  
(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(11, 202, 9)  
(13, 233, 8)

- Ans** ☒ A. (17, 231, 9)  
☒ B. (15, 255, 8)  
☒ C. (9, 181, 7)  
☒ D. (15, 274, 7)

- Q.36** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

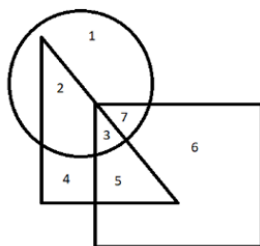
| Number/symbol | * | 2 | @ | 5 | ^ | + | 7 | # | % | 9 |
|---------------|---|---|---|---|---|---|---|---|---|---|
| Letter code   | J | P | A | F | D | N | R | K | M | Z |

Conditions:

- (i) If the first element is a symbol and the last, a number, the codes for these two (the first and the last elements) are to be interchanged.  
(ii) If the first element is an odd number and the last, an even number, the first and last elements are to be coded as S.  
Which of the following will be the code for  $+ 5 \wedge 9 \# 2$  ?

- Ans** ☒ A. F D Z K P N  
☒ B. N D F Z K P  
☒ C. P F D Z K N  
☒ D. N F D Z K P

- Q.37** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons. The circle represents 'hockey players', the square represents 'golf players', and the triangle represents 'badminton players'. How many persons are there who play both golf and hockey but NOT badminton?



- Ans** ☒ A. 7  
☒ B. 6  
☒ C. 5  
☒ D. 4

- Q.38** Which of the following numbers will replace the question mark (?) in the given series?

3, 1, 5, -1, 7, ?

- Ans** ☒ A. -2  
☒ B. 2  
☒ C. 9  
☒ D. -3

**Q.39** Five friends, Sandya, Rinku, Prachi, Thiru and Madavi, are sitting on a bench in a playground, facing north (but not necessarily in the same order). Sandya is to the immediate left of Rinku and to the immediate right of Prachi. Madavi is somewhere to the right of Rinku. Thiru is an immediate neighbour of both Rinku and Madavi. Who is sitting at the rightmost end?

- Ans**
- ☒ A. Prachi
  - ☒ B. Madavi
  - ☒ C. Rinku
  - ☒ D. Sandya

**Q.40** If the digits of the number 2079816 are arranged in increasing order from left to right, what will be the middle digit?

- Ans**
- ☒ A. 6
  - ☒ B. 2
  - ☒ C. 7
  - ☒ D. 8

**Q.41** Select the triad which follows the same pattern as that followed by the two triads given below. Both triads follow the same pattern.

ULJ - POO - KLT  
LMF - GNK - BMP

- Ans**
- ☒ A. GTF - BGJ - GTN
  - ☒ B. YVJ - UEO - QVT
  - ☒ C. PIO - KRT - FIY
  - ☒ D. RGF - STK - TGP

**Q.42** Six persons, Aditya, Binod, Chaya, Dilshan, Estar and Fatima, travelled in different months of the same year viz. January, March, May, July, September and November. None of them travelled after Binod, who travelled immediately after Chaya. Only three people travelled before Estar. Aditya travelled immediately after Fatima. Dilshan did not travel in the month of May.

Who among them travelled in May?

- Ans**
- ☒ A. Fatima
  - ☒ B. Aditya
  - ☒ C. Estar
  - ☒ D. Chaya

**Q.43** In this question, a statement is followed by two conclusions. Which of the two conclusions is/are true with respect to the statement?

Statement:  $E = A < T \leq D > H > O < X$

Conclusions:

I.  $D > E$

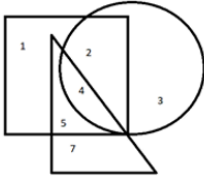
II.  $D > O$

- Ans**
- ☒ A. Only conclusion I is true
  - ☒ B. Only conclusion II is true
  - ☒ C. Both conclusions I and II are true
  - ☒ D. Neither conclusion I nor II is true

- Q.44** Six persons, A, B, C, D, E and F, travelled in different months of the same year, viz. January, March, May, July, September and November. None of them travelled after B, and he travels just after C. Only three people travelled before E. A travelled just after F. D did not travel in the month of May. Who among the following travelled in May?

**Ans** ☒ A. F  
☒ B. A  
☒ C. E  
☒ D. C

- Q.45** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons. The circle represents 'sports persons', the square represents 'coaches', and the triangle represents 'administrators'. How many sports persons are there who are also coaches but NOT administrators?



**Ans** ☒ A. 1  
☒ B. 2  
☒ C. 3  
☒ D. 4

- Q.46** In this question, a group of numbers is coded using letters/symbols as per the table given below, and the conditions that follow. The correct combination of codes following the conditions is your answer.

| Number/Digit | 9 | 5 | 1 | 7 | 3 | 4 | 8 | 6 | 2 |
|--------------|---|---|---|---|---|---|---|---|---|
| Code         | B | K | L | D | ^ | S | # | & | F |

Conditions.

- If the first digit is odd and last digit is even, the codes for the first and the last digits are to be interchanged.
- If the first digit is even and last digit is odd, both are to be coded by the code for the first digit.

What will be the code for 85624731?

**Ans** ☒ A. #KF&SD^L  
☒ B. #KF&DS^#  
☒ C. #K&FSD^L  
☒ D. #K&FSD^#

- Q.47** Kamal is at a distance of 10 m south-west of Laxmi. If Mohit is 10 m south-east of Laxmi, then Mohit is in which direction with respect to Kamal?

**Ans** ☒ A. East  
☒ B. West  
☒ C. North  
☒ D. South

- Q.48** Six students P, Q, R, S, T and U are standing in a straight row such that all of them are facing towards north, but not necessarily in the same order. Q stands second from one of the ends and immediately to the right of P. Only two persons stand between P and R. R stands second to the left of the T. The number of persons standing to the left of T is the same as to the right of P. T stands at the extreme right end of the row and to the immediate right of U. Q stands third to the left of U and stands to the immediate left of S. How many persons stand between Q and U?

**Ans** ☒ A. Two  
☒ B. Three  
☒ C. Four  
☒ D. One

**Q.49** A statement is followed by two conclusions. Find out which conclusion is true based on the given statement.

**Statement:**

$$Q < A < B \leq C > D > E \geq F$$

**Conclusions:**

I.  $F < C$

II.  $D < A$

**Ans**

- ✓ **A.** Only conclusion I is true
- ✗ **B.** Only conclusion II is true
- ✗ **C.** Neither conclusion I nor II is true
- ✗ **D.** Both conclusions I and II are true

**Q.50** A statement is given followed by two arguments I and II. Read the statement and the arguments carefully and select the appropriate answer from the given options.

**Statement:**

Keeping children below the age of two in day care should be avoided as it only has disadvantages.

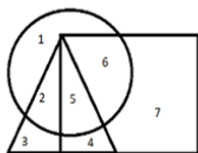
**Arguments:**

- I. Since some parents have full time jobs with no one to take care of their children at home, keeping children in day care can provide the children with the required care.
- II. Children at day care benefit by having other children around and develop good social skills.

**Ans**

- ✗ **A.** I weakens, while II strengthens the statement
- ✗ **B.** II weakens, while I strengthens the statement
- ✓ **C.** Both I and II weaken the statement
- ✗ **D.** Both I and II strengthen the statement

**Q.51** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons. The circle represents 'doctors', the square represents 'men', and the triangle represents 'philanthropists'. How many philanthropists are there who are NEITHER men NOR doctors?



**Ans**

- ✗ **A.** 4
- ✓ **B.** 3
- ✗ **C.** 2
- ✗ **D.** 1

**Q.52** Which of the following options is the closest approximate value which will come in place of question mark(?) in the following equation?

$$23.96 + 24.96 + 23.16 - 18.89 \times 3.04 + 36.13 \div 6.1 = ?$$

**Ans**

- ✗ **A.** 27
- ✓ **B.** 21
- ✗ **C.** 23
- ✗ **D.** 25

**Q.53** Each of the digits in the number 56137428 is arranged in ascending order from left to right. What will be the sum of the digits which are second from the left and second from the right in the new number thus formed?

**Ans**

- ✗ **A.** 10
- ✗ **B.** 11
- ✗ **C.** 12
- ✓ **D.** 9



**Q.54** Which of the following letter-number clusters will replace the question mark (?) in the given series to make it logically complete?

OZF6, QWK12, STP18, UQU24, ?

- Ans**
- ☒ A. WNY30
  - ☒ B. WNZ30
  - ☒ C. WNZ32
  - ☒ D. VMZ32

**Q.55** Each vowel in the word FRANTIC is changed to the letter following it in the English alphabetical order and each consonant is changed to the letter preceding it in the English alphabetical order. Which of the following letters will appear twice in the group of letters thus formed?

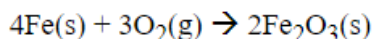
- Ans**
- ☒ A. Q
  - ☒ B. J
  - ☒ C. R
  - ☒ D. B

#### Section : General Science

**Q.56** An object of diameter 6 cm is placed at a distance of 10 cm in front of a lens with a power of +5.0 D. The diameter of the image of the object will be:

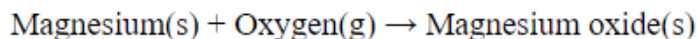
- Ans**
- ☒ A. 8 cm
  - ☒ B. 10 cm
  - ☒ C. 12 cm
  - ☒ D. 14 cm

**Q.57** Which of the following substances is being oxidised in the given reaction?



- Ans**
- ☒ A. Fe(s)
  - ☒ B. O<sub>2</sub>(g)
  - ☒ C. Fe<sub>2</sub>O<sub>3</sub>(s)
  - ☒ D. Both Fe(s) and Fe<sub>2</sub>O<sub>3</sub>(s)

**Q.58** Select the correct balanced chemical equation for the given reaction.



- Ans**
- ☒ A.  $\text{Mg(s)} + \text{O}_2\text{(g)} \rightarrow 2\text{MgO(s)}$
  - ☒ B.  $2\text{Mg(s)} + \text{O}_2\text{(g)} \rightarrow 2\text{MgO(s)}$
  - ☒ C.  $2\text{Mg(s)} + \text{O}_2\text{(g)} \rightarrow 2\text{MgO}_2\text{(s)}$
  - ☒ D.  $\text{Mg(s)} + \text{O}_2\text{(g)} \rightarrow \text{MgO}_2\text{(s)}$

**Q.59** Warts are caused by:

- Ans**
- ☒ A. fungus
  - ☒ B. bacterium
  - ☒ C. virus
  - ☒ D. algae

**Q.60** The compound 'X' is produced when baking soda is heated. Recrystallization of X gives compound 'Y'. Select the compounds X and Y, respectively.

- Ans**
- ☒ A. Sodium carbonate and washing soda
  - ☐ B. Sodium bicarbonate and washing soda
  - ☐ C. Sodium carbonate and bleaching powder
  - ☐ D. Sodium bicarbonate and bleaching powder

**Q.61** In an electric circuit, where 3 lamps A, B and C of resistances  $10\ \Omega$ ,  $20\ \Omega$  and  $30\ \Omega$ , respectively, are in parallel and a battery of 60 V is applied across them, the total power dissipation in the circuit is:

- Ans**
- ☐ A. 560 W
  - ☐ B. 620 W
  - ☒ C. 660 W
  - ☐ D. 700 W

**Q.62** An electric lamp of  $30\ \Omega$  resistance and a conductor of  $6\ \Omega$  resistance are connected in series to a 6 V battery. The total resistance of the circuit is:

- Ans**
- ☐ A.  $24\ \Omega$
  - ☐ B.  $30\ \Omega$
  - ☒ C.  $36\ \Omega$
  - ☐ D.  $42\ \Omega$

**Q.63** The gum produced by various types of trees like Acacia trees is \_\_\_\_\_.

- Ans**
- ☐ A. a form of stored food
  - ☒ B. a waste product of these plants
  - ☐ C. an insect-repellent substance
  - ☐ D. an indication of poor health/infection

**Q.64** Select the correct pair of semi-metals amongst the following elements.

- Ans**
- ☐ A. Carbon and nitrogen
  - ☐ B. Hydrogen and helium
  - ☐ C. Sulphur and phosphorus
  - ☒ D. Silicon and germanium

**Q.65** The site of complete digestion of carbohydrates, proteins and fat is:

- Ans**
- ☒ A. the small intestine
  - ☐ B. the large intestine
  - ☐ C. the stomach
  - ☐ D. the rectum

**Q.66** Ram bought a bulb rated as 50 W and 220 V. When it is connected to a 220 V supply, its resistance will be:

- Ans**
- ☐ A.  $868\ \Omega$
  - ☒ B.  $968\ \Omega$
  - ☐ C.  $1068\ \Omega$
  - ☐ D.  $1098\ \Omega$

**Q.67** Which of the following chemical compounds is known as marble?

- Ans**
- ☐ A. Calcium bicarbonate
  - ☐ B. Calcium oxide
  - ☒ C. Calcium carbonate
  - ☐ D. Calcium hydroxide

**Q.68** Where can we find spores in a fern plant?

- Ans**
- ☐ A. At the tips of older leaves
  - ☐ B. In the central chamber of flowers
  - ☒ C. At the underside of leaves
  - ☐ D. On special branches called sporangia

**Q.69** The common domestic power supplied in India is given by which of the following?

- Ans**
- ☐ A. 110V, 60 Hz
  - ☒ B. 220V, 50Hz
  - ☐ C. 110V, 50Hz
  - ☐ D. 220V, 100Hz

**Q.70** Biodegradable plastics are the new industry for export as well as marketing. Some advantages of these plastics are mentioned below. Which option is NOT an advantage?

- Ans**
- ☐ A. Easy to recycle
  - ☐ B. Consume less energy for manufacture
  - ☒ C. Cannot be composted
  - ☐ D. Less greenhouse emissions

**Q.71** Magnetic field lines never cross each other. This fact implies that the magnetic field always have \_\_\_\_\_.

- Ans**
- ☐ A. multiple values at any point in space
  - ☒ B. a unique value at any point in space
  - ☐ C. double values at any point in space
  - ☐ D. triple values at any point in space

**Q.72** In which of the following animals does the body temperature NOT depend on the temperature in the environment?

- Ans**
- ☒ A. Birds and mammals
  - ☐ B. Birds and some reptiles
  - ☐ C. Birds and fishes
  - ☐ D. Fishes and mammals

**Q.73** Red cabbage is a natural indicator which gives different colour when mixed with an acid or a base. Identify the change in colour when it is mixed with an alkaline solution.

- Ans**
- ☒ A. Bluish green
  - ☐ B. Orange
  - ☐ C. Reddish brown
  - ☐ D. Pale pink

**Q.74** When we observe the floor of a swimming pool filled with water we notice that the pool looks:

- Ans**
- ☐ A. More wider than it actually is
  - ☐ B. less wide than it actually is
  - ☐ C. deeper than it actually is
  - ☒ D. less deep than it actually is

**Q.75** Which of the following is used to detect the presence of starch in food?

- Ans**
- ☐ A. Litmus solution
  - ☐ B. Phenolphthalein
  - ☐ C. Benedict's solution
  - ☒ D. Iodine solution

**Q.76** Which of the following statements about Mendeleev's periodic table is NOT correct?

- Ans**
- ☐ A. Like alkali metals, hydrogen reacts with halogen, oxygen, and sulphur to form compounds having similar formulae.
  - ☒ B. Hydrogen was assigned a fixed position in the Mendeleev's periodic table.
  - ☐ C. No specific position was assigned to the isotopes in the Mendeleev's periodic table.
  - ☐ D. Noble gases were not discovered at that time.

**Q.77** If the magnification of an image from a spherical mirror is  $-1.38$ , then the nature of the image will be:

- Ans**
- ☐ A. virtual, erect and smaller
  - ☐ B. virtual, erect and enlarged
  - ☐ C. real, inverted and smaller
  - ☒ D. real, inverted and enlarged

**Q.78** What is the difference between the molecular masses of two successive members of the homologous series?

- Ans**
- ☐ A. 12 u
  - ☒ B. 14 u
  - ☐ C. 8 u
  - ☐ D. 6 u

**Q.79** An object is placed in front of a concave mirror of focal length 18 cm, at a distance of 12cm. The magnification produced by the mirror is \_\_\_\_.

- Ans**
- ☐ A.  $-0.6$
  - ☐ B.  $+0.6$
  - ☐ C.  $-3$
  - ☒ D.  $+3$

**Q.80** Which canal brought considerable greenery to Rajasthan?

- Ans**
- ☐ A. Agra canal
  - ☐ B. Buckingham canal
  - ☒ C. Indira Gandhi canal
  - ☐ D. Handri-Neeva canal

**Q.81** The minimum age required to contest the election for the President of India is \_\_\_\_\_.

- Ans**
- ☐ A. 21 years
  - ☐ B. 25 years
  - ☐ C. 32 years
  - ☒ D. 35 Years

**Q.82** Which additional duty was added in 2002 by the 86th Amendment of the Constitution, under clause K of the fundamental duties of India?

- Ans**
- ☐ A. To safeguard public property and to abjure violence
  - ☐ B. To value and preserve the rich heritage of our composite culture
  - ☐ C. To defend the country and render national service when called upon to do so
  - ☒ D.

Who is a parent or guardian, to provide opportunities for education to his child or, as the case may be, ward, between the age of six and fourteen years.

**Q.83** Which of the following is NOT a capital receipt?

- Ans**
- ☐ A. Borrowings from other countries
  - ☒ B. Interest received on loans
  - ☐ C. Recovery of loans
  - ☐ D. Sale of public sector undertaking

**Q.84** In December 2021, in which city was the National Billiards Championship held?

- Ans**
- ☒ A. Bhopal
  - ☐ B. Guwahati
  - ☐ C. Ranchi
  - ☐ D. Mumbai

**Q.85** Which of the following is a part of the urban local government in India?

- Ans**
- ☐ A. Gram Panchayat
  - ☐ B. Panchayat Samiti
  - ☐ C. Zila Parishad
  - ☒ D. Nagar Panchayat

**Q.86** Which of the following states has the largest deposits of jet black granite?

- Ans**
- ☐ A. Rajasthan
  - ☐ B. Madhya Pradesh
  - ☒ C. Karnataka
  - ☐ D. Odisha

**Q.87** \_\_\_\_\_ is a skill training program launched by Microsoft in collaboration with Ministry of Labour and Employment (MoLE) of India in September 2021.

- Ans**
- ☐ A. DigiUday
  - ☐ B. DigiUtkarsh
  - ☐ C. DigiSmart
  - ☒ D. DigiSaksham

**Q.88** The Village and Small-Scale Industries Committee, passed in 1955, which noted the possibility of using small-scale industries for promoting rural development, is also known as \_\_\_\_\_.

- Ans**
- ☐ A. The Nayak Committee
  - ☐ B. The Kothari Committee
  - ☐ C. The Abid Hussain Committee
  - ☒ D. The Karve Committee

**Q.89** According to Reserve Bank of India, which is a foreign Bank in India from following -

- Ans**
- ☐ A. DCB Bank Ltd.
  - ☐ B. IndusInd Bank Ltd
  - ☒ C. Sonali Bank Ltd.
  - ☐ D. YES Bank Ltd.

**Q.90** The milestone of having how many open defecation-free (ODF) Plus villages has been crossed by India in March 2022?

- Ans**
- ☒ A. 50,000
  - ☐ B. 30,000
  - ☐ C. 20,000
  - ☐ D. 40,000

**Q.91** The President can nominate not more than \_\_\_\_\_ members from the Anglo-Indian community if he/she feels that the said community is not adequately represented in the House of the people.

- Ans**
- ☒ A. 2
  - ☐ B. 3
  - ☐ C. 4
  - ☐ D. 5

**Q.92** Excess demand leads to:

- (A) inflationary gap.
- (B) rise in employment level.

- Ans**
- ☒ A. Only A
  - ☐ B. Only B
  - ☐ C. Both A and B
  - ☐ D. Neither A nor B



**Q.93** In April 2021 the Union Education Minister launched the world's first microsensor-based explosive trace detector called 'NanoSniffer'. NanoSniffer was developed by which IIT incubated startup?

- Ans**
- ✓ A. IIT-Bombay
  - ✗ B. IIT-Kharagpur
  - ✗ C. IIT-Madras
  - ✗ D. IIT-Hyderabad

**Q.94** Who became U-20 World Wrestling Champion in August, 2022?

- Ans**
- ✓ A. Antim Panghal
  - ✗ B. Mulaym Yadav
  - ✗ C. Anshu Malik
  - ✗ D. Sushil Kumar

**Q.95** What does 'Barchans' (Barkhans) refer to?

- Ans**
- ✗ A. Shrub in desert
  - ✗ B. Type of hut in deserts
  - ✓ C. Sand dune
  - ✗ D. Hot winds in desert

**Q.96** In which state from following, we can see the local wind 'Loo' in summer season from following?

- Ans**
- ✗ A. Assam
  - ✓ B. Rajasthan
  - ✗ C. Telangana
  - ✗ D. Maharashtra

**Q.97** Under the Scheme for Protection and Preservation of Endangered Languages of India (SPPEL), the Central Institute of Indian Languages (CIIL) works on protection, preservation and documentation of all the mother tongues/languages of India spoken by less than \_\_\_\_\_ people, which are called endangered languages

- Ans**
- ✗ A. 5000
  - ✓ B. 10,000
  - ✗ C. 15,000
  - ✗ D. 20,000

**Q.98** The Baisakhi festival in India marks the birth of Khalsa Panth under Guru Gobind Singh, the \_\_\_\_\_ Guru of Sikhs, in the year 1699.

- Ans**
- ✗ A. 7<sup>th</sup>
  - ✗ B. 8<sup>th</sup>
  - ✗ C. 9<sup>th</sup>
  - ✓ D. 10<sup>th</sup>

**Q.99** As on August 2022, the Pradhan Mantri Shram Yogi Maandhan (PM-SYM) Yojana, is a voluntary and contributory pension scheme for providing monthly minimum assured pension of \_\_\_\_\_ after attaining the age of 60 years.

- Ans**
- ✗ A. ₹2,000
  - ✓ B. ₹3,000
  - ✗ C. ₹4,000
  - ✗ D. ₹5,000

Q.100 Yajur Veda deals with \_\_\_\_\_.

- Ans
- ☐ A. the Gayatri Mantra
  - ☐ B. melodies
  - ☒ C. the rituals of the Yagna
  - ☐ D. spells and charms





# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 18/09/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** In triangle DEF, side EF is produced to G. If  $\angle DFG = 110^\circ$  and  $EF = DF$ , then  $\angle DEF$  measures:

- Ans**
- ☒ A.  $70^\circ$
  - ☒ B.  $55^\circ$
  - ☐ C.  $45^\circ$
  - ☐ D.  $40^\circ$

**Q.2** Using the fact that  $\sqrt{18496} = 136$ , find the value of  $\sqrt{184.96} - \sqrt{1.8496}$ .

- Ans**
- ☐ A. 18.49
  - ☐ B. 14.96
  - ☒ C. 12.24
  - ☐ D. 10

**Q.3** The area of a square field is  $169 \text{ m}^2$ . Its perimeter (in m) is:

- Ans**
- ☐ A. 13
  - ☐ B. 26
  - ☐ C. 39
  - ☒ D. 52

**Q.4** Mahesh earned ₹1,23,450, ₹1,34,900, ₹98,640, ₹1,26,500, and ₹1,42,000 as his monthly salaries (inclusive of incentives) during the first five months of a year. What is the mean salary (inclusive of incentives) earned every month by Mahesh during the first five months of the given year?

- Ans**
- ☐ A. ₹1,25,346
  - ☒ B. ₹1,25,098
  - ☐ C. ₹1,24,975
  - ☐ D. ₹1,24,678

Q.5 The decimal equivalent of 50% of 50% is \_\_\_\_\_.

- Ans
- ☐ A. 25
  - ☐ B. 50
  - ☒ C. 0.25
  - ☐ D. 0.50

Q.6 Out of 162 students in a school, 72 are boys and the remaining are girls. What is the ratio of the number of girls to the number of boys in that school?

- Ans
- ☒ A. 5 : 4
  - ☐ B. 4 : 5
  - ☐ C. 6 : 5
  - ☐ D. 5 : 6

Q.7 A taxi charges a fixed charge of ₹40 and an additional charge per kilometre. A person pays ₹150 for 11 km of distance travelled. Find out the charges paid by Ramesh if he travelled for a distance of 20 km.

- Ans
- ☐ A. ₹230
  - ☒ B. ₹240
  - ☐ C. ₹250
  - ☐ D. ₹260

Q.8 Evaluate

$$(40.25 \div 5) + (0.07 \times 5)$$

$$(0.15 \times 8) + (0.18 \div 0.2)$$

- Ans
- ☐ A. 7.5
  - ☐ B. 3
  - ☒ C. 4
  - ☐ D. 5

Q.9 Find the smallest natural number which must be subtracted from 2430 to get a perfect square.

- Ans
- ☐ A. 25
  - ☐ B. 26
  - ☒ C. 29
  - ☐ D. 36

Q.10 Balaram sells a Bluetooth device to Krishna at a profit of 12%. Krishna sells it to Arjun at a profit of 10%. If Arjun pays ₹1,540 for it, what is the cost price of the Bluetooth device for Krishna?

- Ans
- ☒ A. ₹1,400
  - ☐ B. ₹1,320
  - ☐ C. ₹1,250
  - ☐ D. ₹1,370

**Q.11** What digit should come in the place of 'x' so that the given 6-digit number: 28x232 is exactly divisible by 88?

- Ans**
- ☒ A. 3
  - ☒ B. 5
  - ☒ C. 7
  - ☒ D. 9

**Q.12** The present cost of a building is ₹1,28,000. After a year, its cost increased to ₹1,46,000. The percentage increase (rounded off to the nearest integer) in the cost of the building is:

- Ans**
- ☒ A. 12
  - ☒ B. 13
  - ☒ C. 14
  - ☒ D. 15

**Q.13** The cost price of an article is ₹1,200. The vendor wants to earn a profit of 15% after giving a discount of 10%. What is the marked price of the article? [Give your answer correct to the nearest integer.]

- Ans**
- ☒ A. ₹1,433
  - ☒ B. ₹1,466
  - ☒ C. ₹1,566
  - ☒ D. ₹1,533

**Q.14** If  $\frac{c}{d} + \frac{d}{c} = 1$ , then the value of  $\frac{c^3 - d^3}{dc^2 - cd^2}$  is:

- Ans**
- ☒ A. -1
  - ☒ B. 1
  - ☒ C. 0
  - ☒ D. 2

**Q.15** A closed metallic cylindrical container is 1.05 m high and its base radius is 35 cm. If the metal sheet costs ₹150 per m<sup>2</sup>, then find the cost of the material used in this container. [Use  $\pi = \frac{22}{7}$ ]

- Ans**
- ☒ A. ₹462
  - ☒ B. ₹514
  - ☒ C. ₹360
  - ☒ D. ₹336

**Q.16** The quadratic equation whose roots are  $\frac{1}{\sqrt{2}}$  and  $\frac{1}{\sqrt{2}}$  is:

- Ans**
- ☒ A.  $2x^2 - 3\sqrt{2}x + 2 = 0$
  - ☒ B.  $2x^2 - 2\sqrt{2}x + 2 = 0$
  - ☒ C.  $2x^2 - 3\sqrt{2}x + 1 = 0$
  - ☒ D.  $2x^2 - 2\sqrt{2}x + 1 = 0$

**Q.17** Krishan is four times as old as Ram. He is also 6 years older than Ram. Krishan's present age (in years) is:

- Ans**
- ☒ A. 7
  - ☒ B. 8
  - ☒ C. 9
  - ☒ D. 10

**Q.18** Geetha spends 70% of her monthly income. If her monthly savings is ₹15,600, then her monthly income is:

- Ans**
- ☒ A. ₹52,000
  - ☐ B. ₹54,000
  - ☐ C. ₹45,000
  - ☐ D. ₹60,000

**Q.19** A number when decreased by  $37\frac{1}{2}\%$ , gives 375. The number is:

- Ans**
- ☐ A. 800
  - ☐ B. 700
  - ☒ C. 600
  - ☐ D. 500

**Q.20** The cost of 2 pencils and 3 erasers is ₹7 and the cost of 5 pencils and 6 erasers is ₹16. The combined cost of one pencil and one eraser is:

- Ans**
- ☐ A. ₹1
  - ☐ B. ₹2
  - ☒ C. ₹3
  - ☐ D. ₹4

**Q.21** The sum of the roots of  $x^2 - px + q = 0$  is \_\_\_\_\_.

- Ans**
- ☐ A.  $\frac{1}{p}$
  - ☐ B.  $-p$
  - ☐ C.  $q$
  - ☒ D.  $p$

**Q.22** Ravi can complete a certain job in 48 days. Kiran is 60% more efficient than Ravi. In how many days will they together complete the same job?

- Ans**
- ☐ A.  $19\frac{5}{13}$  days
  - ☐ B.  $20\frac{8}{13}$  days
  - ☒ C.  $18\frac{6}{13}$  days
  - ☐ D.  $21\frac{7}{13}$  days

**Q.23** Find the value of  $[66 \div \{12 + 5 \times (6 - 4)\}]$ .

- Ans**
- ☐ A. 1
  - ☐ B. 2
  - ☒ C. 3
  - ☐ D. 4

**Q.24** From a book containing 264 pages, the teacher taught  $\frac{2}{3}$  of the total number of pages and the children studied  $\frac{1}{8}$  of the remaining pages at home. How many pages were yet to be either taught by the teacher or studied on their own by the students?

- Ans**
- ☒ A. 55
  - ☒ B. 77
  - ☒ C. 80
  - ☒ D. 88

**Q.25** The roots of the quadratic equation  $3x^2 - 2\sqrt{6}x + 2 = 0$  are:

- Ans**
- ☒ A.  $\sqrt{\frac{2}{3}}, \sqrt{\frac{2}{3}}$
  - ☒ B.  $\sqrt{\frac{5}{3}}, \sqrt{\frac{2}{3}}$
  - ☒ C.  $\sqrt{\frac{1}{3}}, \sqrt{\frac{1}{3}}$
  - ☒ D.  $\sqrt{\frac{5}{3}}, \sqrt{\frac{5}{3}}$

#### Section : General Intelligence and Reasoning

**Q.26** Three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

All packets are urns.

No urn is a truck.

All trucks are drums.

**Conclusions:**

I. Some packets are drums.

II. Some drums are urns.

III. All drums are truck.

- Ans**
- ☒ A. Only conclusions I and III follow.
  - ☒ B. Only conclusions II and III follow.
  - ☒ C. Only conclusions I and II follow.
  - ☒ D. None of the conclusions follow.

**Q.27** Preeti is walking towards the south and after covering some distance, she turns to her left, then takes a turn towards the right, and finally takes a left turn. In which direction is she going now? (All turns are 90 degree turns only)

- Ans**
- ☒ A. South
  - ☒ B. North
  - ☒ C. East
  - ☒ D. West

**Q.28** If '+' means '-', '-' means '×', '×' means '÷', '÷' means '+', what will come in place of the question mark (?) in the following equation?

$$15 - 4 \div 2 + 10 \times 2 = ?$$

- Ans**
- ☒ A. 55
  - ☒ B. 56
  - ☒ C. 57
  - ☒ D. 58

**Q.29** What will come in the place of the question mark (?) in the following equation, if '×' is replaced with '÷' and '÷' is replaced with '×'?

$$14 \times 2 + 5 - 56 \div 8 = ?$$

- Ans**
- ☒ A. 44
  - ☒ B. 26
  - ☒ C. 40
  - ☒ D. 42

**Q.30** Which of the following numbers will replace the question mark (?) in the given series?

27, 54, 42, 84, 72, 144, ?

- Ans**
- ☒ A. 156
  - ☒ B. 138
  - ☒ C. 152
  - ☒ D. 132

**Q.31** Each vowel in the word 'FOURTH' is changed to the letter following it in the English alphabetical order and each consonant is changed to the letter preceding it in the English alphabetical order. If each letter of the word thus formed is arranged in alphabetical order, which letter will be third from the left?

- Ans**
- ☒ A. P
  - ☒ B. G
  - ☒ C. Q
  - ☒ D. S

**Q.32** Each of the letters in the word DIAGNOSE is arranged in alphabetical order. How many letters are there in the English alphabetical series between the letter which is third from the left and the one which is fifth from the right?

- Ans**
- ☒ A. One
  - ☒ B. Three
  - ☒ C. Five
  - ☒ D. Six

**Q.33** Six friends- A, B, D, E, F and K got different ranks in class VIII final exams. Only two friends got higher rank than D and only four friends got lower rank than B. K's rank was immediately higher than B. E had 4th rank from top. A had the lowest rank among the six friends. Who got the highest rank among the six friends?

- Ans**
- ☒ A. F
  - ☒ B. E
  - ☒ C. K
  - ☒ D. B

- Q.34** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/<br>Symbol | 6 | 8 | 4 | + | 5 | # | % | 2 | \$ | 1 | ^ | 7 | 9 | * | @ |
|-------------------|---|---|---|---|---|---|---|---|----|---|---|---|---|---|---|
| Code              | S | U | T | W | N | P | V | D | A  | Z | J | M | O | M | Y |

**Conditions:**

- If the first and last elements are numbers, then the last element will be replaced by the symbol @.
- If the first element is a symbol, then the first element will be coded as ©.
- If both the first and second elements are numbers, then the third element will be coded as \*.

What will be the code for the following?

% 6 8 4 @

- Ans**
- ✓ **A. ©SUTY**
  - ✗ **B. YTUS@**
  - ✗ **C. @SUTY**
  - ✗ **D. TYUS@**

- Q.35** Three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

Few desks are blades.  
Most blades are pillows.  
All pillows are flowers.

**Conclusions:**

- Few desks are pillows.
- Some flowers are desks.
- Some flowers are blades.

- Ans**
- ✗ **A. Only conclusion I follows.**
  - ✗ **B. Only conclusion II follows.**
  - ✓ **C. Only conclusion III follows.**
  - ✗ **D. All the conclusions follow.**

- Q.36** A statement is given followed by two assumptions numbered I and II. You have to assume everything in the statement to be true and decide which of the assumptions is/are implicit in the statement.

**Statement:**

Children below the age of 5 years should not be allowed too much of screen time a day.

**Assumptions:**

- Too much screen time for growing children will affect them adversely.
- Limited screen time is not detrimental to children below 5 years of age.

- Ans**
- ✗ **A. Only assumption I is implicit**
  - ✗ **B. Only assumption II is implicit**
  - ✗ **C. Neither assumption I nor II is implicit**
  - ✓ **D. Both assumptions I and II are implicit**

- Q.37** Which of the following terms will replace the question mark (?) in the given series to make it logically complete?  
A169D, B144E, C121F, D100G, ?

- Ans**
- ✓ **A. E81H**
  - ✗ **B. H81E**
  - ✗ **C. F81I**
  - ✗ **D. I81F**

**Q.38** Which of the following numbers will replace the question mark (?) in the given series?

4   ?   14   19   24

- Ans**
- ☒ A. 7
  - ☒ B. 8
  - ☒ C. 9
  - ☒ D. 10

**Q.39** A statement is given below, followed by four conclusions given in the options. Find out which conclusion is true based on the given statement.

Statement:  $X > F \geq I > V < Z < K \leq O$

- Ans**
- ☒ A.  $F = K$
  - ☒ B.  $I > Z$
  - ☒ C.  $O > V$
  - ☒ D.  $X > O$

**Q.40** Which of the following options is the closest approximate value which will come in place of question mark (?) in the following equation?

$$149.99 \times 30.01 - 109.99 + 30.01 = ?$$

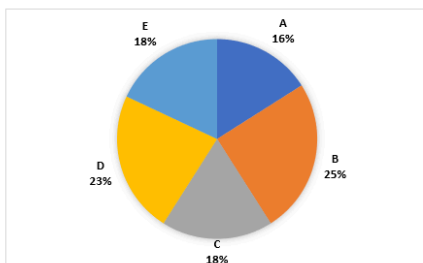
- Ans**
- ☒ A. 4420
  - ☒ B. 4430
  - ☒ C. 4450
  - ☒ D. 4560

**Q.41** Five students are sitting around a square table facing the centre. Ram and Somu are both sitting in the two left corners each (but not necessarily in the same order). Sita and Kamal are both sitting in the two right corners each (but not necessarily in the same order). Ritu is an immediate neighbour of Sita and Kamal. Sita is sitting second to the left of Kamal. Who is sitting to the immediate left of Kamal?

- Ans**
- ☒ A. Somu
  - ☒ B. Ritu
  - ☒ C. Sita
  - ☒ D. Ram

**Q.42** Study the pie chart and answer the question that follows.

The following pie chart gives the information about the production of sugar in different districts as percentage of total sugar production in all districts put together in a State.



The production of sugar from district C is how much percentage less than that of the production of sugar from district B?

- Ans**
- ☒ A. 28%
  - ☒ B. 8%
  - ☒ C. 16%
  - ☒ D. 35%



- Q.43** A group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

|                   |   |   |   |   |   |   |   |   |   |   |    |   |   |   |
|-------------------|---|---|---|---|---|---|---|---|---|---|----|---|---|---|
| Number<br>/symbol | 2 | 9 | % | 4 | @ | * | 3 | 7 | 6 | 5 | \$ | 3 | ^ | # |
| Code<br>Letter    | G | F | D | O | H | A | C | M | K | S | L  | T | M | B |

Conditions:

- (i) If the first element is a symbol and the last element is a number, the codes for these two (the first and the last elements) are to be interchanged.
- (ii) If the first element is an odd number and the last element is an even number, the first and last elements are to be coded as ©.
- (iii) If both the second and third elements are perfect squares, the third element is to be coded as the code for the second element.

What will be the code for % 2 4 \* 9 ?

- Ans** ☒ A. FGAOD  
☒ B. FGOAD  
☒ C. DGOAF  
☒ D. DOAGF

- Q.44** Three statements are given followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

Statements:

All doctors are surgeons.  
Some nurses are surgeons.  
Some nurses are students.

Conclusions:

- I. Some doctors are students.  
II. Some surgeons are doctors.  
III. Some doctors are nurses.

- Ans** ☒ A. Only conclusions I and II follow  
☒ B. Only conclusions I and III follow  
☒ C. Only conclusions II and III follow  
☒ D. Only conclusion II follows

- Q.45** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

10 : 110 :: 7 : 56 :: 17 : ?

- Ans** ☒ A. 272  
☒ B. 306  
☒ C. 235  
☒ D. 315

- Q.46** This question is based on the following 3-letter words:

(Left) FRY CAT GUN NOT (Right)

If in each of the words, each letter is changed to the next letter in the English alphabetical order, how many words thus formed will have no vowel?

- Ans** ☒ A. One  
☒ B. Two  
☒ C. Three  
☒ D. Four

**Q.47** A statement is followed by two conclusions. Find out which conclusion is true based on the given statement.

**Statement:**

$$F > A \geq B > C < D \leq E$$

**Conclusions:**

I.  $E > C$

II.  $E > B$

- Ans**
- ✓ A. Only conclusion I is true
  - ✗ B. Only conclusion II is true
  - ✗ C. Neither conclusion I nor II is true
  - ✗ D. Both conclusions I and II are true

**Q.48** Aman travels a distance of 12 km in the north direction and he turns to the east and travels a distance of 5 km. He further turns to the north and travels 3 km and then he turns in the east direction and travels a distance of 4 km. Finally he turns in the south direction and travels a distance of 15 Km. What is the shortest distance between his starting and end positions? (All turns are 90 degree turns only)

- Ans**
- ✓ A. 9 km
  - ✗ B. 11 km
  - ✗ C. 12 km
  - ✗ D. 15 km

**Q.49** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding / deleting / multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(123, 90, 68)

(61, 28, 6)

- Ans**
- ✗ A. (114, 82, 60)
  - ✓ B. (143, 110, 88)
  - ✗ C. (68, 36, 14)
  - ✗ D. (85, 52, 29)

**Q.50** Six friends, Udit, Varuni, Wasim, Hayati, Yash and Zunaid, live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it number 2, and so on till the topmost floor is numbered 6. Zunaid lives on the floor immediately above Yash. Only one person lives between Udit and Varuni. Wasim lives immediately above Zunaid and immediately below Varuni.

Who lives on the second floor?

- Ans**
- ✗ A. Udit
  - ✗ B. Varuni
  - ✗ C. Wasim
  - ✓ D. Zunaid

**Q.51** Select the option that is related to the fifth letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster and the fourth letter-cluster is related to the third letter-cluster.

LETTER : RETTEL :: OPTION : NOITPO :: SELECT : ?

- Ans**
- ✗ A. CETLEC
  - ✗ B. ECTLCE
  - ✗ C. TECLEC
  - ✓ D. TCELES

**Q.52** If 10 March 2011 is a Thursday, then what will be the day of the week on 8 April 2022?

- Ans**
- ☒ A. Friday
  - ☐ B. Thursday
  - ☐ C. Tuesday
  - ☐ D. Monday

**Q.53** Five businessmen are sitting around a circular table facing the centre (but not necessarily in the same order). X is an immediate neighbour of Y and Z. W is to the immediate left of Y and right of Q. Who is sitting to the immediate left of W?

- Ans**
- ☐ A. Y
  - ☒ B. Q
  - ☐ C. X
  - ☐ D. Z

**Q.54** Study the table and answer the question that follows. (High. = highest marks and Ave. = average marks)

| Year | English |      | Maths |      | Science |      | Social Science |      |
|------|---------|------|-------|------|---------|------|----------------|------|
|      | High.   | Ave. | High. | Ave. | High.   | Ave. | High.          | Ave. |
| 2018 | 80      | 70   | 94    | 60   | 89      | 70   | 65             | 55   |
| 2019 | 82      | 65   | 85    | 62   | 95      | 64   | 66             | 58   |
| 2020 | 71      | 56   | 92    | 68   | 97      | 68   | 68             | 48   |
| 2021 | 75      | 52   | 91    | 64   | 92      | 75   | 77             | 58   |

What is the overall average of the marks in all four subjects in the year 2020, considering that equal number of students appeared for all these exams?

- Ans**
- ☐ A. 55
  - ☐ B. 58
  - ☒ C. 60
  - ☐ D. 62

**Q.55** Eight pencil boxes of different brands, B, D, F, H, J, L, N and P, are kept one above the other but not necessarily in the same order. N is fourth from the top and immediately below F. P is placed at the topmost position and immediately above B. Only one box is there between H and J. J is always placed at one of the positions below H. L is placed immediately below N. How many boxes are there between J and D?

- Ans**
- ☐ A. Two
  - ☐ B. One
  - ☒ C. None
  - ☐ D. Three

#### Section : General Science

**Q.56** Is safe sex the only method to prevent transmission of HIV?

- Ans**
- ☐ A. Yes. It is the only method and usage of condoms is recommended
  - ☐ B. No. The primary route of transmission of HIV is drug use only.
  - ☐ C. No. The safest method is to avoid sex completely.
  - ☒ D.

No. There are other methods like preventing use of infected needles and transfusion of infected blood.

**Q.57** A ray of white light is incident on a refracting surface AB of a glass prism and emerges out of the other refracting surface AC. Consider the following statements:

- (a) The angle of refraction at surface AB is different for different colours of white light.
- (b) The angle of refraction at the surface AC is different for different colours.

Which of the above statements is/are correct?

- Ans**
- ☒ A. Only (a)
  - ☒ B. Only (b)
  - ☒ C. Both (a) and (b)
  - ☒ D. Neither (a) nor (b)

**Q.58** According to Fleming's right hand rule, the direction of the motion of the conductor and the direction of the induced EMF are:

- Ans**
- ☒ A. the same
  - ☒ B. perpendicular
  - ☒ C. parallel
  - ☒ D. opposite

**Q.59** For a given concave mirror of focal length 0.1 m, if an object is kept at a distance 0.2 m, then the image distance will be:

- Ans**
- ☒ A. 0.1 m
  - ☒ B. 0.2 m
  - ☒ C. 2 m
  - ☒ D. 1 m

**Q.60** Absence of oxygen as in anerobic fermentations by yeast cells convert pyruvate into \_\_\_\_\_.

- Ans**
- ☒ A. Lactic acid + Energy
  - ☒ B. Ethanol + lactic acid + Energy
  - ☒ C. Ethanol + Carbon dioxide + Water + Energy
  - ☒ D. Ethanol+ Carbon dioxide + Energy

**Q.61** Which of the following statements are correct?

- (A) All children will inherit an X chromosome from their mother.
- (B) A child who inherits an X chromosome from her mother will be a girl.
- (C) Women have a perfect pair of sex chromosomes; both are called X.
- (D) A child who inherits a Y chromosome from his father will be a boy.

- Ans**
- ☒ A. A, C and D
  - ☒ B. B and D
  - ☒ C. A and D
  - ☒ D. B and C

**Q.62** Which of the following properties of carbon is responsible for a large number of carbon compounds?

- Ans**
- ☐ A. Catenation property and divalency
  - ☐ B. Isomerisation and divalency
  - ☐ C. Allotropy and tetravalency
  - ☒ D. Catenation property and tetravalency

**Q.63** Which of the following is based on the principle of 'Electromagnetic induction'?

- Ans**
- ☒ A. The relative motion between a coil and a bar magnet induces electric current
  - ☐ B. An electric current produces a magnetic field
  - ☐ C. The electricity produced in a glass rod
  - ☐ D. The magnetic field exerts a force on a current carrying conductor

**Q.64** Group 2<sup>nd</sup> elements in the modern periodic table are also known as:

- Ans**
- ☐ A. inert gases
  - ☐ B. alkali metals
  - ☒ C. alkaline earth metals
  - ☐ D. transition metals

**Q.65** High blood pressure is also called as Hypertension which is caused due to \_\_\_\_\_.

- Ans**
- ☒ A. Constriction of arterioles
  - ☐ B. Relaxation of arterioles
  - ☐ C. Relaxation of veins
  - ☐ D. Contraction of heart muscles

**Q.66** When sunlight passes through a canopy of a dense forest, tiny water droplets in the mist \_\_\_\_\_ light and Tyndall effect is observed.

- Ans**
- ☐ A. reflect
  - ☐ B. refract
  - ☐ C. reflect and refract
  - ☒ D. scatter

**Q.67** Which of the following is a tough, porous and black substance obtained from coal?

- Ans**
- ☒ A. Coke
  - ☐ B. Coal tar
  - ☐ C. Coal gas
  - ☐ D. Diamond

**Q.68** An electric lamp is connected to a 240 V DC source. The current flowing through the lamp is 0.25 A. The power of the lamp is:

- Ans**
- ☐ A. 40 W
  - ☒ B. 60 W
  - ☐ C. 80 W
  - ☐ D. 100 W

**Q.69** The heat produced in a resistor of  $100\ \Omega$  when a current of 5A passes through it for 15 minutes is:

- Ans**
- ☒ A.  $3.25 \times 10^6\ \text{J}$
  - ☒ B.  $2.25 \times 10^6\ \text{J}$
  - ☒ C.  $1.15 \times 10^7\ \text{J}$
  - ☒ D.  $1.05 \times 10^7\ \text{J}$

**Q.70** Which of the following wastes cause least damage to the environment?

- Ans**
- ☒ A. Paper cups
  - ☒ B. Polythene bags
  - ☒ C. Plastic bottles
  - ☒ D. Chemical pesticides

**Q.71** Which of the following statements is true for a solution with high concentration of hydroxide ions?

- Ans**
- ☒ A. Solution is basic with low pH value.
  - ☒ B. Solution is acidic with high pH value.
  - ☒ C. Solution is basic with high pH value.
  - ☒ D. Solution is acidic with low pH value.

**Q.72** Suppose a wire of aluminum is 1 m long, its cross-sectional area is  $10^{-2}\ \text{mm}^2$ , and its resistance is  $2.8\ \Omega$ . If it is stretched to 8 times its original length, then its resistivity will be:

- Ans**
- ☒ A.  $2.8 \times 10^{-8}\ \Omega\ \text{m}$
  - ☒ B.  $8.8 \times 10^{-8}\ \Omega\ \text{m}$
  - ☒ C.  $1.8 \times 10^{-7}\ \Omega\ \text{m}$
  - ☒ D.  $2.8 \times 10^{-7}\ \Omega\ \text{m}$

**Q.73** What is the energy currency for most of the cellular processes?

- Ans**
- ☒ A. ADP
  - ☒ B. ATP
  - ☒ C. Glucose
  - ☒ D. Pyruvate

**Q.74** Which of the following statements is correct for washing soda?

- Ans**
- ☒ A. Washing soda is used for the preparation of glass.
  - ☒ B. Washing soda is used for the production of  $\text{H}_2$  and  $\text{Cl}_2$ .
  - ☒ C. Washing soda is a decolorising agent.
  - ☒ D. Washing soda is  $\text{Na}_2\text{CO}_3$ .

**Q.75** Which of the following statements is correct with respect to Alkanes?

- Ans**
- ☒ A. Saturated hydrocarbons contain one or more double bonds.
  - ☒ B. Unsaturated hydrocarbons contain one or more double bonds.
  - ☒ C. Unsaturated hydrocarbons contain one or more single bonds.
  - ☒ D. Saturated hydrocarbons contain one or more single bonds.



Q.76 Select the compounds 'A' and 'B' produced in the given reaction.



- Ans
- ☒ A.  $\text{Na}_2\text{CO}_3$  and  $\text{H}_2\text{O}$
  - ☒ B.  $\text{CH}_3\text{COONa}$  and  $\text{H}_2\text{O}$
  - ☒ C.  $\text{NaHCO}_3$  and  $\text{H}_2\text{O}$
  - ☒ D.  $(\text{CH}_3\text{COO})_2\text{Na}$  and  $\text{H}_2\text{O}$

Q.77 In which cell should iron be placed in the following table?

|                | Biodegradable | Non-biodegradable |
|----------------|---------------|-------------------|
| Recyclable     | A             | B                 |
| Non-recyclable | C             | D                 |

- Ans
- ☒ A. Cell A
  - ☒ B. Cell B
  - ☒ C. Cell C
  - ☒ D. Cell D

Q.78 The position of an object placed in front of a concave mirror that gives a real, inverted image at infinity is:

- Ans
- ☒ A. at pole
  - ☒ B. at focus F
  - ☒ C. at centre of curvature C
  - ☒ D. between pole P and focus F

Q.79 Which of the given statements about non-metals is true?

- Ans
- ☒ A. Non-metals are electronegative in nature and form bonds by losing electrons.
  - ☒ B. Non-metals are electropositive in nature and form bonds by gaining electrons.
  - ☒ C. Non-metals are electronegative in nature and form bonds by gaining electrons.
  - ☒ D. Non-metals are electropositive in nature and form bonds by losing electrons.

Q.80 What is the main product when calcium oxide reacts vigorously with water?

- Ans
- ☒ A. Slaked lime
  - ☒ B. Lime stone
  - ☒ C. Quick lime
  - ☒ D. Hydrogen gas

Section : General Awareness and Current Affairs

Q.81 Where is the headquarters of Bandhan Financial Services Ltd, which offers micro financial services?

- Ans
- ☒ A. Kolkata
  - ☒ B. Chennai
  - ☒ C. Bhubaneswar
  - ☒ D. Bengaluru

**Q.82** In which of the following events did India win the bronze medal in the world games 2022 in the USA?

- Ans**
- ☐ A. Wrestling
  - ☒ B. Archery
  - ☐ C. Shooting
  - ☐ D. Wushu

**Q.83** In which of the following years was the Official Languages Act enacted?

- Ans**
- ☒ A. 1963
  - ☐ B. 1964
  - ☐ C. 1965
  - ☐ D. 1966

**Q.84** Which of the following can be classified as a public sector company in India?

- Ans**
- ☐ A. Anand Milk Union Limited
  - ☒ B. Hindustan Aeronautics Limited
  - ☐ C. ITC Limited
  - ☐ D. Reliance Industries Limited

**Q.85** PARAM Ganga is the Made in India Petascale supercomputer installed at \_\_\_\_\_ under National Supercomputing Mission in the year 2022.

- Ans**
- ☐ A. IIT Bombay
  - ☒ B. IIT Roorkee
  - ☐ C. IIT Delhi
  - ☐ D. IIT Kanpur

**Q.86** Which of the following options correctly defines 'Aldermen' in the context of municipal corporation?

- Ans**
- ☐ A. Representative or elected member of ward in municipal corporation
  - ☒ B. Nominated members to the corporation
  - ☐ C. Head of the municipal corporation
  - ☐ D. Municipal Commissioner appointed by the state government

**Q.87** Which of the following festivals is predominantly celebrated in Varanasi on a full moon day, 15 days after Diwali, on the ghats of River Ganga?

- Ans**
- ☐ A. Makar Sankranti
  - ☒ B. Dev Deepawali
  - ☐ C. Chhath Pooja
  - ☐ D. Rath Yatra

**Q.88** Instant messaging platform WhatsApp launched a UPI payment service in a graded manner in India in \_\_\_\_\_.

- Ans**
- ☐ A. October 2020
  - ☐ B. December 2020
  - ☒ C. November 2020
  - ☐ D. September 2020



**Q.89** As per Provisional Coal Statistics released by the Ministry of Coal for the year 2020-21, \_\_\_\_\_ was the largest producer of non-coking coal in the country in 2020-21.

- Ans**
- ✓ A. Chhattisgarh
  - ✗ B. Madhya Pradesh
  - ✗ C. Odisha
  - ✗ D. Jharkhand

**Q.90** Which of the following ministries introduced the National Anti-Doping Bill, 2022, which was passed in the Rajya Sabha on 3 August 2022?

- Ans**
- ✗ A. Ministry of Education
  - ✓ B. Ministry of Youth Affairs and Sports
  - ✗ C. Ministry of Tribal affairs
  - ✗ D. Ministry of Home Affairs

**Q.91** As on 31<sup>st</sup> March 2022 who among the following became India's first woman to win ICC women's cricketer of the year twice?

- Ans**
- ✗ A. Simran Bahadur
  - ✗ B. Renuka Singh
  - ✓ C. Smriti Mandhana
  - ✗ D. Meghna Singh

**Q.92** Which of the following countries witnessed a military coup in February 2021?

- Ans**
- ✓ A. Myanmar
  - ✗ B. Bangladesh
  - ✗ C. Pakistan
  - ✗ D. Afghanistan

**Q.93** The right to privacy which was recognised as a Fundamental Right by the Supreme Court in the landmark case 'Justice K.S. Puttaswamy (Retd.) vs. Union of India 2017', emerges primarily from \_\_\_\_\_ of the Constitution of India.

- Ans**
- ✗ A. Article 18
  - ✗ B. Article 19
  - ✗ C. Article 20
  - ✓ D. Article 21

**Q.94** Penna river of South India originates from which of the following hills?

- Ans**
- ✗ A. Anamalai Hills
  - ✗ B. Shivalik Hills
  - ✓ C. Nandi Hills
  - ✗ D. Ashambu Hills

**Q.95** Which of the following months are the season of retreating monsoon in India?

- Ans**
- ☒ A. Mid-December to February
  - ☒ B. October to November
  - ☒ C. March to mid-June
  - ☒ D. Mid-June to mid-September

**Q.96** In July 2021, Team India 2021 won \_\_\_\_\_ Grand Awards and 8 Special Awards at the Regeneron International Science and Engineering Fair (ISEF).

- Ans**
- ☒ A. 6
  - ☒ B. 7
  - ☒ C. 9
  - ☒ D. 10

**Q.97** The 73<sup>rd</sup> amendment of the Constitution of India has made a provision for the mandatory creation of the Gram Sabha. What does the Gram Sabha comprise of?

- Ans**
- ☒ A. Adult members registered as voters in the Panchayat area
  - ☒ B. All adult members in the Panchayat area
  - ☒ C. All senior citizens registered as voters in the Panchayat area
  - ☒ D. All male members registered as voters in the Panchayat area

**Q.98** 'Malma' is the finest variety of:

- Ans**
- ☒ A. chiffon
  - ☒ B. muslin
  - ☒ C. crepe
  - ☒ D. linen

**Q.99** How many testaments are there in the Bible?

- Ans**
- ☒ A. five
  - ☒ B. four
  - ☒ C. three
  - ☒ D. two

**Q.100** Which portal was launched by Union Minister of Labour and Employment for better execution of various social security schemes for unorganised sector workers in August 2021?

- Ans**
- ☒ A. e-shram portal
  - ☒ B. e-rozgar portal
  - ☒ C. e-labour portal
  - ☒ D. e-employment portal



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 18/09/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** Five years hence, the age of Jacob will be four times that of his son. Three years ago, Jacob's age was seven times that of his son. Their present ages are:

- Ans**
- ☒ A. 49 and 21
  - ☒ B. 59 and 21
  - ☒ C. 59 and 11
  - ☒ D. 69 and 11

**Q.2** The greatest number, which divides 2000 and 2200 to leave 22 and 38 respectively as remainders, is:

- Ans**
- ☒ A. 36
  - ☒ B. 39
  - ☒ C. 42
  - ☒ D. 46

**Q.3** The value of  $4^2 - 3(8)^{2/3} + (16/9)^{1/2}$  is:

- Ans**
- ☒ A. 0
  - ☒ B. 1
  - ☒ C.  $3\frac{1}{3}$
  - ☒ D.  $5\frac{1}{3}$

**Q.4** The median of the data using an empirical formula, when it is given that mode = 37.4 and mean = 30.5 is:

- Ans**
- ☒ A. 32.8
  - ☒ B. 31.7
  - ☒ C. 33.4
  - ☒ D. 30.5

**Q.5** The diagonals of a rhombus are 12 cm and 8 cm, respectively. The area of the rhombus (in cm<sup>2</sup>) is:

- Ans**
- ☒ A. 24
  - ☒ B. 48
  - ☒ C. 72
  - ☒ D. 96

**Q.6** The value of 60% of 28% of 250 = \_\_\_\_\_.

- Ans**
- ☐ A. 68
  - ☐ B. 56
  - ☒ C. 42
  - ☐ D. 22

**Q.7** A sum of ₹7,500 gives a simple interest of ₹1,800 in 4 years. What is the rate of interest per annum?

- Ans**
- ☒ A. 6%
  - ☐ B. 5%
  - ☐ C. 4%
  - ☐ D. 3%

**Q.8** Ritesh is 12 years older than the Mohit. 17 years ago, Ritesh's age was four times of Mohit's age. Mohit's present age (in years) is:

- Ans**
- ☐ A. 18
  - ☒ B. 21
  - ☐ C. 24
  - ☐ D. 27

**Q.9** Ramesh invested a certain sum of money at 9% per annum simple interest. If he receives an interest of ₹20,250 after one year, the sum he invested is:

- Ans**
- ☐ A. ₹2,00,000
  - ☒ B. ₹2,25,000
  - ☐ C. ₹2,50,000
  - ☐ D. ₹2,75,000

**Q.10** Find the value of  $[(12 \div \frac{4}{3}) \times \{6 \div 4 \times (\frac{12-7}{6})\}] \div \{4 \times 6 \div 3\}$ .

- Ans**
- ☒ A.  $1\frac{13}{32}$
  - ☐ B.  $1\frac{15}{32}$
  - ☐ C.  $1\frac{11}{32}$
  - ☐ D.  $1\frac{17}{32}$

**Q.11** The average age of 40 students of a class is 15 years. If the age of the teacher is also included, the average age of the whole group becomes 16 years. The age (in years) of the teacher is:

- Ans**
- ☒ A. 56
  - ☐ B. 54
  - ☐ C. 52
  - ☐ D. 50

**Q.12** The product of two consecutive positive natural numbers is 72. The greater of the two numbers is:

- Ans**
- ☒ A. 24
  - ☒ B. 12
  - ☒ C. 9
  - ☒ D. 8

**Q.13** If a milkman adds 4 l of water to 9 l of milk, then the amount of water he should add to 36 l of milk in order to maintain the same proportion of milk and water will be:

- Ans**
- ☒ A. 16 l
  - ☒ B. 14 l
  - ☒ C. 12 l
  - ☒ D. 10 l

**Q.14** The HCF of 64, 48 and y is 8. Which of the options below cannot be a possible value of y?

- Ans**
- ☒ A. 72
  - ☒ B. 88
  - ☒ C. 96
  - ☒ D. 104

**Q.15** The cost of 10 chairs is equal to that of 4 tables. The cost of 15 chairs and 2 tables is equal to ₹2,000. The cost of a table is:

- Ans**
- ☒ A. ₹500
  - ☒ B. ₹250
  - ☒ C. ₹200
  - ☒ D. ₹100

**Q.16** The difference between the ages of Radha and Murari is 12 years. Five years ago, the sum of their ages was 28 years. If Radha is older than Murari, find Murari's present age (in years).

- Ans**
- ☒ A. 13
  - ☒ B. 15
  - ☒ C. 17
  - ☒ D. 25

**Q.17** The marked price of an article is ₹400 and successive discounts of 10% and 12% are offered on its sale. The selling price of the article is:

- Ans**
- ☒ A. ₹306.80
  - ☒ B. ₹313.80
  - ☒ C. ₹316.80
  - ☒ D. ₹323.80

**Q.18** If the volume of a sphere is divided by its surface area, the result is 9 cm. The radius (in cm) of the sphere is \_\_\_\_\_.

- Ans**
- ☒ A. 18
  - ☒ B. 4.5
  - ☒ C. 81
  - ☒ D. 27

**Q.19** What is the measure of each interior angle of a regular hexagon?

- Ans**
- ☐ A.  $90^\circ$
  - ☐ B.  $110^\circ$
  - ☒ C.  $120^\circ$
  - ☐ D.  $150^\circ$

**Q.20** If the sum of the immediate successors of two given numbers is 40 and the difference of the two given numbers is 6, then the two given numbers are \_\_\_\_\_.

- Ans**
- ☐ A. 24 and 14
  - ☐ B. 22 and 18
  - ☒ C. 22 and 16
  - ☐ D. 25 and 13

**Q.21** Find the value of  $4^{-5} \div 4^7 \times 4^{-6}$ .

- Ans**
- ☐ A.  $4^{-14}$
  - ☐ B.  $4^{-16}$
  - ☒ C.  $4^{-18}$
  - ☐ D.  $4^{-20}$

**Q.22** The speed of a car is 20 metres/second. The distance (in kilometres) travelled by the car in 2 hours and 20 minutes is:

- Ans**
- ☐ A. 158
  - ☐ B. 162
  - ☐ C. 166
  - ☒ D. 168

**Q.23** Simplify the following expression:

$$\frac{\cos A}{1 + \sin A} + \frac{1 + \sin A}{\cos A}$$

- Ans**
- ☐ A.  $2 \cos A$
  - ☐ B.  $2 \sin A$
  - ☒ C.  $2 \sec A$
  - ☐ D.  $1 + 2 \sin A$

**Q.24** A dealer claims to sell his goods at cost price but uses a weight that actually weighs 800 gm though 1 kg is written on it. Find his gain percentage.

- Ans**
- ☐ A. 20%
  - ☐ B. 18%
  - ☒ C. 25%
  - ☐ D. 15%

**Q.25** The volume (in  $\text{m}^3$ ) of a cuboidal tank, whose dimensions are given as  $6 \text{ m} \times 5 \text{ m} \times 4 \text{ m}$ , is:

- Ans**
- ☒ A. 120
  - ☐ B. 80
  - ☐ C. 40
  - ☐ D. 30

**Q.26** Amongst six friends A, B, C, D, E and F, each has a different height. F is taller than only one friend. A is taller than only three other friends. E is taller than D. B is taller than F but shorter than D. Who is the tallest among all the friends?

- Ans**
- ☒ A. D
  - ☒ B. E
  - ☒ C. C
  - ☒ D. A

**Q.27** Siddharth leaves from his home and drives 24 km towards North, and then he turns right and drives 29 km. After that, he turns right again and drives 67 km. Then he turns left and drives 32 km. He finally turns left and drives 43 km to reach his destination. How far is Siddharth from his home?

- Ans**
- ☒ A. 72 km
  - ☒ B. 74 km
  - ☒ C. 62 km
  - ☒ D. 61 km

**Q.28** Two statement are given below, followed by four conclusions given in the options. Find out which conclusion is true based on the given statements.

Statement:  $P < Q < R = T$ ,  $M < T = N$

- Ans**
- ☒ A.  $M > Q$
  - ☒ B.  $M < Q$
  - ☒ C.  $M < R$
  - ☒ D.  $P > M$

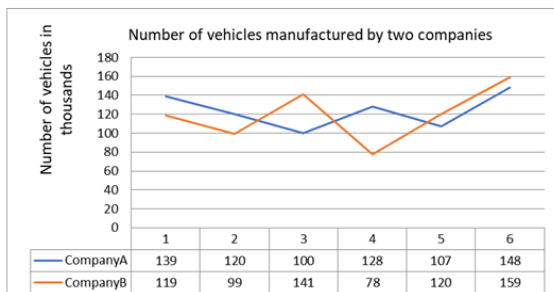
**Q.29** Refer to the following letter and symbol series and answer the question.

(Left) Z # U \* Y \$ K W P Q @ G & A % J B L % & H D # V (Right)

How many such consonants are there in the series which are immediately preceded and immediately followed by a symbol?

- Ans**
- ☒ A. Two
  - ☒ B. Three
  - ☒ C. Four
  - ☒ D. Five

**Q.30** Study the given chart and answer the question that follows.  
The numbers 1 to 6 represent the years from 2001 to 2006.



The production of company B in 2004 was approximately what percentage of the production of company A in the same year?

- Ans**
- ☒ A. 61%
  - ☒ B. 172%
  - ☒ C. 99%
  - ☒ D. 136%

**Q.31** Which of the following numbers will replace the question mark (?) in the given series?

17, 51, 42, 126, 117, ?

- Ans**
- ☒ A. 273
  - ☒ B. 351
  - ☒ C. 289
  - ☒ D. 327

**Q.32** Which of the following options is the closest approximate value which will come in place of question mark(?) in the following equation?

$$12.99 - 3.02 + 11.89 \times 9.19 = ?$$

- Ans**
- ☒ A. 118
  - ☒ B. 189
  - ☒ C. 220
  - ☒ D. 80

**Q.33** Select the option that represents the letters that, when placed from left to right in the same sequence in the blanks below, will complete the letter series.

BA \_ DL \_ AM \_ LBA \_ FLBA \_ GL

- Ans**
- ☒ A. MBEMM
  - ☒ B. MBMBL
  - ☒ C. MMMCL
  - ☒ D. MCEMM

**Q.34** Select the option in which the numbers are related in the same way as are the numbers of the given sets.

(NOTE: Operations should be performed on the whole numbers without breaking down the numbers into its constituent digits.

E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(9, 8, 15)

(4, 5, 11)

- Ans**
- ☒ A. (8, 19, 10)
  - ☒ B. (17, 13, 22)
  - ☒ C. (8, 9, 15)
  - ☒ D. (11, 10, 17)

**Q.35** Six students are sitting around a circular table facing the centre (but not necessarily in the same order). Ram is an immediate neighbour of both Shyam and Kamal. Kartik is an immediate neighbour of Kamal. Diksha is sitting to the immediate left of Kartik and Aditya is sitting to the immediate right of Shyam. Who are the immediate neighbours of Kamal?

- Ans**
- ☒ A. Ram and Kartik
  - ☒ B. Shyam and Diksha
  - ☒ C. Shyam and Ram
  - ☒ D. Kartik and Diksha



**Q.36** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follows from the statements.

Statements:

Some chairs are TVs.

Some TVs are fans.

Some fans are buses.

Conclusions:

(I) Some buses are chairs.

(II) No bus is a chair.

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Neither conclusion I nor II follow
  - ☒ D. Either conclusion I or II follows

**Q.37** Five boxes, A, C, D, E and F, are kept one over the other, but not necessarily in the same order. D is kept immediately above E. F is kept third from the top. D is neither the top-most nor the bottom-most box. A is kept immediately below C. Which box is kept immediately below A?

- Ans**
- ☒ A. C
  - ☒ B. F
  - ☒ C. D
  - ☒ D. E

**Q.38** Read the given statement and the arguments carefully and select the appropriate answer from the given options.

Statement:

Global warming has become an unprecedented issue over the globe.

Argument :

- I. Urban life style produces a vast amount of greenhouse gases.
- II. Change in temperature in many countries, is an indicator of global warming.

- Ans**
- ☒ A. I weakens while II strengthens the statement.
  - ☒ B. II weakens while I strengthens the statement.
  - ☒ C. Both I and II weaken the statement.
  - ☒ D. Both I and II strengthen the statement.

**Q.39** Three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

Statements:

- 1. Some institutes are universities.
- 2. All schools are universities.
- 3. Some colleges are schools.

Conclusions:

- I. Some colleges are institutes.
- II. Some institutes are schools.
- III. Some colleges are universities.

- Ans**
- ☒ A. Only conclusions I follows
  - ☒ B. Only conclusions II and III follow
  - ☒ C. Only III follows
  - ☒ D. Only conclusions I and II follow

**Q.40** Eight people, P, Q, R, S, T, U, V and W, live on different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it is numbered 2 and so on till the topmost floor is numbered 8.

Exactly two people live between P and T. Q lives immediately above R, on an even numbered floor. P lives on the topmost floor. S lives in one of the floors above T on an odd numbered floor. Only four people live between S and U. W lives on the lowermost floor. Who lives on the sixth floor?

- Ans**
- ☒ A. U
  - ☒ B. V
  - ☒ C. W
  - ☒ D. Q

**Q.41** In a code language, 'hay in the sack' is written as 'it fn en ho', 'the sack is full' is written as 'en ho go bu' and 'the hay is full' is written as 'en bu fn go'. What is the code for the word 'sack' in that language?

- Ans**
- ☒ A. ho
  - ☒ B. it
  - ☒ C. fn
  - ☒ D. en

**Q.42** Select the option that is related to the fifth letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster and the fourth letter-cluster is related to the third letter-cluster.

REPORT : SFQPSU :: WHITE : XIJUF :: PROGRAM : ?

- Ans**
- ☒ A. SHPSNBS
  - ☒ B. SQHPBNS
  - ☒ C. RSHPNSB
  - ☒ D. QSPHSBN

**Q.43** Eight houses M, N, O, P, Q, R, S, and T are located in a big campus. House O is 20 m west from house N which is 30 m south to house M. House M is 40 m west to house Q. House P is 50 m south to house Q. House R is at a distance of 15 m towards the north from house S. House T is located at 20 m to the east from house S. House R is 40 m west to house P. In which direction is house Q located from house R?

- Ans**
- ☒ A. North-east
  - ☒ B. North-west
  - ☒ C. South-east
  - ☒ D. South-west

**Q.44** Refer to the following letter series and answer the question.

KDNCICLOASC SOPM CODKCVNDCMM

How many consonants are there in the given series between the letter that is fifth from the right end and the letter that is sixth from the left end of the given series?

- Ans**
- ☒ A. Eight
  - ☒ B. Three
  - ☒ C. Eleven
  - ☒ D. Thirteen

**Q.45** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

42 : 7 :: 110 : 11 :: 132 : ?

- Ans**
- ☒ A. 13
  - ☒ B. 15
  - ☒ C. 12
  - ☒ D. 17

**Q.46** Which of the following numbers will replace the question mark (?) in the given series?

15, 18, 24, 33, 45, ?

- Ans**
- ☐ A. 36
  - ☐ B. 37
  - ☐ C. 42
  - ☒ D. 60

**Q.47** If 1 is subtracted from each odd digit and 1 is added to each even digit in the number 92379654, what will be the sum of the digits which are second from the left and third from the right?

- Ans**
- ☐ A. 5
  - ☒ B. 10
  - ☐ C. 8
  - ☐ D. 6

**Q.48** Three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

Statements:

1. All products are usefuls.
2. No useful is tough.
3. All toughs are durables.

Conclusions:

- I. Some products are durables.
- II. Some durables are usefuls.
- III. All durables are toughs.

- Ans**
- ☐ A. Only Conclusion I and III follow
  - ☐ B. Only Conclusion II and III follow
  - ☐ C. Only Conclusion I and II follow
  - ☒ D. None of the conclusions follow

**Q.49** This question is based on the following 3-letter words.

GYM HIP JAM LAC PIC

If the first letter of all the words is changed to the following letter of the English alphabetical series, how many words will have more than one vowel? (Same or different Vowel)

- Ans**
- ☐ A. Zero
  - ☒ B. One
  - ☐ C. Two
  - ☐ D. Three

**Q.50** In a certain code language, 'SHAKE' is written as 'TKFRN' and 'JUICE' is written as 'KXNJN'. How will 'SWEET' be written in the same code language?

- Ans**
- ☒ A. TZJLC
  - ☐ B. TZJLK
  - ☐ C. TTJLC
  - ☐ D. TZZLC

**Q.51** Six friends, Atiq, Bijoy, Kamal, Faya, Esha and Dhruv are sitting in a straight row facing North (but not necessarily in the same order). Faya is third to the left of Bijoy. Atiq is third to the right of Kamal. Esha is second to the right of Bijoy. Faya is on the extreme left end. Who is at the extreme Right?

- Ans**
- ☒ A. Dhruv
  - ☒ B. Atiq
  - ☒ C. Esha
  - ☒ D. Kamal

**Q.52** What will come in the place of '?' in the following equation, if '+' and '-' are interchanged and also '×' and '÷' are interchanged?

$$15 \div 27 \times 3 + 36 - 12 = ?$$

- Ans**
- ☒ A. 110
  - ☒ B. 111
  - ☒ C. 105
  - ☒ D. 95

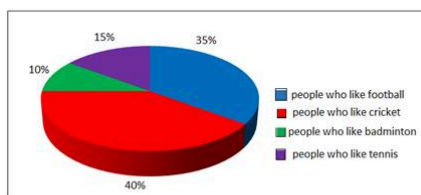
**Q.53** If 26 January 2018 is a Friday, then what will be the day of the week on 29 January 2021?

- Ans**
- ☒ A. Friday
  - ☒ B. Sunday
  - ☒ C. Monday
  - ☒ D. Wednesday

**Q.54** Six persons, Pratik, Ansh, Rajesh, Shivam, Tanu and Ujma, travelled in different months of the same year viz. January, February, March, April, May and June. Pratik travelled in March. Only one person travelled between Pratik and Ujma. No one travelled between Tanu and Ansh. Ansh travelled in one of the months after Tanu. More than two persons travelled between Ansh and Rajesh. Ansh travelled on one of the months before Rajesh. Who among them travelled in June?

- Ans**
- ☒ A. Rajesh
  - ☒ B. Ansh
  - ☒ C. Shivam
  - ☒ D. Ujma

**Q.55** According to a survey, the percentage of people who like different sports is shown in the following pie-chart. Blue represents people who like football, red represents people who like cricket, green represents people who like badminton, and purple represents people who like tennis. Study the pie-chart and answer the question.



The survey was to be conducted on 28,500 people. If only two-third of the total people took the survey, then how many people like badminton and tennis?

- Ans**
- ☒ A. 4,750
  - ☒ B. 19,000
  - ☒ C. 5,425
  - ☒ D. 13,500

**Q.56** If an object is kept at a distance of 50 cm from a convex lens of focal length 20 cm, then the image distance is:

- Ans**
- ☐ A. 0.333 cm
  - ☐ B. 3.33 cm
  - ☐ C. 333 cm
  - ☒ D. 33.3 cm

**Q.57** Which of the following pigments has a high affinity for oxygen?

- Ans**
- ☒ A. Haemoglobin
  - ☐ B. Haemocyanin
  - ☐ C. Melanin
  - ☐ D. Bilirubin

**Q.58** Which of the following is an example of an ovarian hormone?

- Ans**
- ☐ A. Testosterone
  - ☒ B. Oestrogen
  - ☐ C. Thyroxin
  - ☐ D. Adrenalin

**Q.59** Which of the following reactions would undergo precipitation?

- Ans**
- ☐ A.  $\text{HCl} + \text{NaOH}$
  - ☐ B.  $\text{H}_2\text{SO}_4 + 2\text{NaOH}$
  - ☐ C.  $\text{HNO}_3 + \text{NaOH}$
  - ☒ D.  $\text{Pb}(\text{NO}_3)_2 + \text{KI}$

**Q.60** Which of the following statements is not true?

- Ans**
- ☒ A. Potassium is least reactive in the reactivity series
  - ☐ B. The metals in the middle of the reactivity series are moderately reactive.
  - ☐ C. The metals high up in the reactivity series can be obtained from their compounds by electrolytic reduction.
  - ☐ D. The reactivity series is a list of metals arranged in the order of their decreasing reactivities

**Q.61** Which of the following metals has an electronic configuration 2, 8, 4?

- Ans**
- ☐ A. Ar
  - ☒ B. Si
  - ☐ C. P
  - ☐ D. Cl

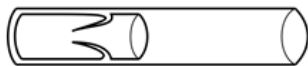
**Q.62** In which of the following animals is sex NOT genetically determined?

- Ans**
- ☒ A. Snails
  - ☐ B. Snakes
  - ☐ C. Shark
  - ☐ D. Salmon

**Q.63** The electric power consumed by an electric heater is found to be 500 W per unit time when it is connected to a 250 V source. The current drawn by the heater per unit time is:

- Ans**
- ✓ A. 2 A
  - ✗ B. 0.2 A
  - ✗ C. 0.5 A
  - ✗ D. 5 A

**Q.64** The following diagram shows which component of the human circulatory system?



- Ans**
- ✗ A. Artery
  - ✓ B. Vein
  - ✗ C. Capillary
  - ✗ D. Aorta

**Q.65** Consider the dispersion of a medium as  $D$  for a wavelength  $\lambda$ . The dispersion of the same medium for wavelength  $3\lambda$  will be:

- Ans**
- ✗ A.  $\frac{D}{4}$
  - ✗ B.  $\frac{D}{16}$
  - ✓ C.  $\frac{D}{27}$
  - ✗ D.  $\frac{D}{81}$

**Q.66** Which of the following processes is NOT applicable to photosynthesis?

- Ans**
- ✗ A. Chlorophyll absorbs light
  - ✗ B. Water molecule splits into hydrogen and oxygen
  - ✓ C. Oxidation of carbon dioxide forms carbohydrates
  - ✗ D. Light energy is converted to chemical energy

**Q.67** The two successive members in a homologous series differ from each other by which group?

- Ans**
- ✗ A.  $-\text{CH}-$
  - ✓ B.  $-\text{CH}_2-$
  - ✗ C.  $-\text{CH}_3$
  - ✗ D.  $-\text{C}_2\text{H}$

**Q.68** Which of the following are NOT considered as biomedical wastes?

- Ans**
- ✓ A. Food wastes
  - ✗ B. Industrial wastes
  - ✗ C. Medical wastes
  - ✗ D. Animal wastes

**Q.69** A magnetic compass consists of:

- Ans**
- ☒ A. a tiny magnetic needle attached to an aluminium pointer
  - ☐ B. an aluminium pointer alone
  - ☐ C. a coil of a conductor
  - ☐ D. a coil carrying conductor

**Q.70** Some consequences of creating monocultures are mentioned below. Which of these are the advantages?

- a. Huge areas are cleared of vegetation
- b. They destroy large amount of biodiversity
- c. Industries can access specific products
- d. They generate revenue for the forest department
- e. Varied needs of local people are not met

- Ans**
- ☐ A. a and e
  - ☒ B. c and d
  - ☐ C. a, b and e
  - ☐ D. b and e

**Q.71** If the radius of curvature of a given convex mirror is 0.3 m, then the distance between the principal focus and the centre of curvature is:

- Ans**
- ☒ A. 0.15 m
  - ☐ B. 0.3 m
  - ☐ C. 0.45 m
  - ☐ D. 0.6 m

**Q.72** In a house, bulbs A, B and C of rating 30 W, 60 W and 75 W, respectively, are connected in parallel with an electric source. Which of the following is true?

- Ans**
- ☐ A. Brightness of bulb A is the maximum
  - ☒ B. Brightness of bulb C is the maximum
  - ☐ C. Brightness of all the bulbs is the same
  - ☐ D. Brightness of bulb B is the minimum

**Q.73** Which of the following is NOT an ionic compound?

- Ans**
- ☐ A. NaCl
  - ☒ B. CO<sub>2</sub>
  - ☐ C. CaCl<sub>2</sub>
  - ☐ D. CaO

**Q.74** Which of the following materials is best suitable for making an electromagnet ?

- Ans**
- ☐ A. Steel
  - ☐ B. Aluminum
  - ☐ C. Copper
  - ☒ D. Soft iron



**Q.75** Which of the following balanced reactions is correct for the given reaction?

Silver nitrate + Sodium chloride  $\rightarrow$  Silver chloride + Sodium nitrate

- Ans**
- ☒ A.  $2\text{AgNO}_3 + \text{NaCl} \rightarrow 2\text{AgCl} + \text{NaNO}_3$
  - ☒ B.  $\text{AgNO}_3 + \text{NaCl} \rightarrow \text{AgCl} + \text{NaNO}_3$
  - ☒ C.  $3\text{AgNO}_3 + \text{NaCl} \rightarrow 3\text{AgCl} + 2\text{NaNO}_3$
  - ☒ D.  $\text{AgNO}_3 + 2\text{NaCl} \rightarrow \text{AgCl} + 2\text{NaNO}_3$

**Q.76** Nichrome is used to make an electric heater because it has:

- Ans**
- ☒ A. low resistivity and high melting point
  - ☒ B. low resistivity and low melting point
  - ☒ C. high resistivity and high melting point
  - ☒ D. high resistivity and low melting point

**Q.77** A child is looking at a reflecting surface of a Christmas tree ball which has a diameter of 10.0 cm, and the child observes an image of his face that is half the real size. How far is the child's face from the ball?

- Ans**
- ☒ A. +5.0 cm
  - ☒ B. -5.0 cm
  - ☒ C. +2.5 cm
  - ☒ D. -2.5 cm

**Q.78** The different steps in the process of photosynthesis in plants are given below. Which option shows the correct sequence of the different steps in the process?

- a) Splitting of water molecule into hydrogen and oxygen
- b) Light energy converted into chemical energy
- c) Absorption of light energy by chlorophyll
- d) Carbon dioxide reduced to carbohydrates

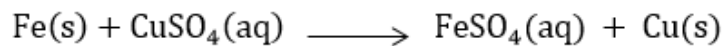
- Ans**
- ☒ A. a—b—c—d
  - ☒ B. b—c—d—a
  - ☒ C. c—b—a—d
  - ☒ D. d—c—a—b

**Q.79** Name the chemist who arranged the elements with similar properties into groups in the year 1817.

- Ans**
- ☒ A. Mosley
  - ☒ B. Mendeleev
  - ☒ C. Newland
  - ☒ D. J W Dobereiner



Q.80 In the given reaction, iron has displaced:



- Ans ☒ A. Cu  
☐ B. S  
☐ C. O<sub>2</sub>  
☐ D. SO<sub>2</sub>

Section : General Awareness and Current Affairs

Q.81 Which Veda is the largest and considered the most important of the collection, containing 1,028 hymns divided into 10 books called mandalas?

- Ans ☒ A. Rig Veda  
☐ B. Sama Veda  
☐ C. Yajur Veda  
☐ D. Atharva Veda

Q.82 \_\_\_\_\_ is a festival of the tribal population of Jharkhand.

- Ans ☐ A. Bushu  
☐ B. Yemshe  
☐ C. Tuluni  
☒ D. Sarhul

Q.83 The slope of an indifference curve is measured by:

- Ans ☐ A. marginal rate of transformation  
☒ B. marginal rate of substitution  
☐ C. marginal rate of technical substitution  
☐ D. marginal rate of effective exchange

Q.84 The Industrial Policy Resolution of 1956 formed the basis of which of the following Five-Year Plans in India?

- Ans ☒ A. Second Five-Year Plan  
☐ B. Third Five-Year Plan  
☐ C. Fourth Five-Year Plan  
☐ D. Fifth Five-Year Plan

Q.85 In 2021, which country won the ICC T20 Cricket World Cup?

- Ans ☐ A. England  
☐ B. West Indies  
☒ C. Australia  
☐ D. New Zealand

**Q.86** Which of the following Indian cricketers played his 100<sup>th</sup> Test Match in March 2022?

- Ans**
- ☐ A. Rohit Sharma
  - ☐ B. Shikhar Dhawan
  - ☐ C. KL Rahul
  - ☒ D. Virat Kohli

**Q.87** Under which of the following Articles of the Indian Constitution, Hindi is declared as an official language of the Union?

- Ans**
- ☐ A. Article 346
  - ☐ B. Article 345
  - ☐ C. Article 344
  - ☒ D. Article 343

**Q.88** When is Earth Day observed?

- Ans**
- ☒ A. April 22
  - ☐ B. April 1
  - ☐ C. March 14
  - ☐ D. May 7

**Q.89** From which country's constitution has Indian Constitution borrowed the feature of Fundamental Rights?

- Ans**
- ☒ A. Germany
  - ☐ B. USA
  - ☐ C. France
  - ☐ D. Japan

**Q.90** The Ministry of Ayush launched the World's first multicentre phase III clinical trial in March 2022 that will be assessing Ayurveda's efficacy in \_\_\_\_\_ treatment.

- Ans**
- ☐ A. Celiac disease
  - ☐ B. Multiple sclerosis
  - ☒ C. Rheumatoid arthritis
  - ☐ D. Pernicious anaemia

**Q.91** As per the All India Higher Education Survey (AISHE) report 2019-20, which state had the highest Gross Enrolment Ratio (GER) in Higher Education?

- Ans**
- ☒ A. Uttar Pradesh
  - ☐ B. Madhya Pradesh
  - ☐ C. Arunachal Pradesh
  - ☐ D. Andhra Pradesh

**Q.92** In India, coins are issued by the \_\_\_\_\_.

- Ans**
- ☐ A. Reserve Bank of India
  - ☐ B. State Bank of India
  - ☒ C. Ministry of Finance
  - ☐ D. Ministry of Home Affairs

**Q.93** What is the name of the version of Oxford–AstraZeneca COVID-19 vaccine in India?

**Ans** ☒ A. Covishield

☒ B. Covaxin

☒ C. Sputnik

☒ D. Sinovac

**Q.94** Which of the following is a political right?

**Ans** ☒ A. Freedom to form associations

☒ B. Right to religious freedom

☒ C. Right to vote

☒ D. Freedom of thought and expression

**Q.95** The most important Gondwana coal fields that lie in the Jharkhand-Bengal coal belt of India are located in the \_\_\_\_\_.

**Ans** ☒ A. Manali Valley

☒ B. Dehradun

☒ C. Kaveri Basin

☒ D. Damodar Valley

**Q.96** Which country's constitution was considered by the makers of the Constitution of India for importing the provisions of Liberty, Equality and Fraternity?

**Ans** ☒ A. Constitution of Australia

☒ B. Constitution of France

☒ C. Constitution of Canada

☒ D. Constitution of Ireland

**Q.97** In normal circumstances, who usually heads the Municipal Corporation?

**Ans** ☒ A. Mayor

☒ B. Chief Minister

☒ C. Governor

☒ D. Home Minister of the State

**Q.98** As per the Centre for Monitoring Indian Economy (CMIE), the rate of unemployment in urban areas was approximately \_\_\_\_\_ in January 2022.

**Ans** ☒ A. 8.1

☒ B. 7.2

☒ C. 5.8

☒ D. 9.3

**Q.99** Who among the following was one of the early leaders of the 'Prarthana Samaj' movement?

**Ans** ☒ A. Mahadev Gobind Ranade

☒ B. Keshab Chandra Sen

☒ C. Swami Sahajanand

☒ D. Balak Singh

**Q.100** Who was the founder of Bank of Baroda from following?

- Ans**
- ☐ A. Maharaja Ganpatrao Gaekwad
  - ☒ B. Maharaja Sayajirao Gaekwad III
  - ☐ C. Maharaja Malharrao Gaekwad
  - ☐ D. Maharaja Govindrao Gaekwad



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 18/09/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** The value of  $2405 \div 13 \times 6 + 35$  is:

- Ans**
- ☐ A. 1035
  - ☐ B. 1305
  - ☒ C. 1145
  - ☐ D. 1235

**Q.2** Let Chennai and Trivandrum be two stations 690 km apart. A train starts from Chennai at 8:00 p.m. and travels towards Trivandrum at a speed of 75 km/h. Another train starts from Trivandrum at 9:00 p.m. and travels towards Chennai on the parallel track at a speed of 60 km/h. At what time will they meet?

- Ans**
- ☐ A. 01:03:40 a.m.
  - ☐ B. 01:23:30 a.m.
  - ☐ C. 01:43:20 a.m.
  - ☒ D. 01:33:20 a.m.

**Q.3** An open water drum is in the form of a cylinder. The height of the drum is 7 m and its internal diameter is 21 m. Find the area (in  $m^2$ ) that needs to be painted if one wants to paint the inside of the drum.

Take  $\pi = \frac{22}{7}$

- Ans**
- ☐ A. 577.5
  - ☐ B. 462
  - ☒ C. 808.5
  - ☐ D. 1155

**Q.4** A man purchased two varieties of apples at the rate of ₹2 for 3 apples and ₹1 per apple, respectively. If he purchased an equal number of apples of each variety and then sold all his apples at ₹1 per apple, what was his profit percentage?

- Ans**
- ☐ A. 15%
  - ☐ B. 18%
  - ☒ C. 20%
  - ☐ D. 22%

**Q.5** The average weight of 11 students is 50 kg. When the teacher's weight of 70 kg is added to the total, then the new average will be:

- Ans**
- ✓ A. 51.66
  - ✗ B. 50.66
  - ✗ C. 51.36
  - ✗ D. 53.66

**Q.6** If the area of a square is  $11025 \text{ cm}^2$ , then the length of its diagonal is:

- Ans**
- ✗ A.  $115\sqrt{2} \text{ cm}$
  - ✓ B.  $105\sqrt{2} \text{ cm}$
  - ✗ C.  $125\sqrt{2} \text{ cm}$
  - ✗ D.  $135\sqrt{2} \text{ cm}$

**Q.7** Simplify the given expression.

$$[13 - (-2) \times \{6 - (7 - 3)\}] \div [4 \times \{5 + (-2) \times (-6)\}]$$

- Ans**
- ✗ A.  $\frac{-1}{3}$
  - ✓ B.  $\frac{1}{4}$
  - ✗ C.  $\frac{7}{34}$
  - ✗ D.  $-\frac{17}{68}$

**Q.8** Convert  $0.2\bar{6}$  into a proper fraction.

- Ans**
- ✓ A.  $\frac{4}{15}$
  - ✗ B.  $\frac{5}{17}$
  - ✗ C.  $\frac{7}{33}$
  - ✗ D.  $\frac{8}{21}$

**Q.9** What percentage of 1 is  $6\frac{3}{4}$ ?

- Ans**
- ✗ A. 625
  - ✗ B. 525
  - ✗ C. 575
  - ✓ D. 675

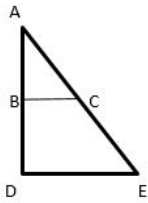
**Q.10** The price of bananas is ₹x per kg. If the price per kg of apples is ₹5 more than the price per kg of bananas, then the price (in ₹) of 5 kg of apples and 3 kg of bananas is:

- Ans**
- ✓ A.  $8x + 25$
  - ✗ B.  $6x + 25$
  - ✗ C.  $8x + 20$
  - ✗ D.  $6x + 20$

**Q.11** A man purchased 50 dozen bananas for a certain amount. He could not sell five dozen of those bananas as they were spoiled. He sold two-thirds of the good bananas at a profit of 20% per dozen and sold the remaining good bananas at a profit of 5% per dozen. What was his loss or gain percentage in the whole transaction?

- Ans**
- ✗ A. 3.5% loss
  - ✓ B. 3.5% gain
  - ✗ C. 2.5% loss
  - ✗ D. 2.5% gain

**Q.12** Given that  $\triangle ABC$  and  $\triangle ADE$  are similar, which of the following options is necessarily true?



- Ans**
- ✗ A.  $\frac{BC}{BD} = \frac{CE}{DE}$
  - ✗ B.  $\frac{EC}{AC} = \frac{AD}{DE}$
  - ✓ C.  $\frac{AB}{AD} = \frac{BC}{DE}$
  - ✗ D.  $\frac{BC}{BD} = \frac{AB}{AC}$

**Q.13** If  $x + \frac{1}{x} = 3$ , then  $x^6 + \frac{1}{x^6}$  is:

- Ans**
- ✗ A. 927
  - ✗ B. 414
  - ✗ C. 364
  - ✓ D. 322

**Q.14** The volume of a cuboid is  $5a^2 - 80b^2$ . Which of the options below can be possible dimensions of the cuboid?

- Ans**
- ✗ A.  $5, 2a - b, 2a + b$
  - ✗ B.  $5, 2a - b, a + 2b$
  - ✗ C.  $5, a - b, a + 4b$
  - ✓ D.  $5, a - 4b, a + 4b$

**Q.15** If 3 is a root of the equation  $x^2 - px + 15 = 0$  and the quadratic equation  $x^2 + px + q = 0$  has equal roots, then the value of  $q$  is:

- Ans**
- ✗ A. 64
  - ✗ B. 12
  - ✓ C. 16
  - ✗ D. 32

Q.16 The value of  $16^3 - 12^3$  is:

- Ans
- ☐ A. 2358
  - ☒ B. 2368
  - ☐ C. 2378
  - ☐ D. 2388

Q.17 If  $a : b :: b : c$ ;  $c = 4a$ ; and  $b = 6$ , find the positive value of  $c$ .

- Ans
- ☒ A. 12
  - ☐ B. 9
  - ☐ C. 8
  - ☐ D. 7

Q.18 Simplify the given expression.

$$6.5 \times [22.6 \div \{14.5 + 2.8 - 4.2 \div 0.7\}]$$

- Ans
- ☒ A. 13
  - ☐ B. 8.75
  - ☐ C. 6.23
  - ☐ D. 4

Q.19 The difference between two numbers is 26. One number is 3 times of the other. The smaller number is:

- Ans
- ☒ A. 13
  - ☐ B. 26
  - ☐ C. 39
  - ☐ D. 52

Q.20 What is  $6^0 \times 4^2 \times 2^{-4}$ ?

- Ans
- ☐ A. 0
  - ☒ B. 1
  - ☐ C. 2
  - ☐ D. 4

Q.21 Evaluate

$$.1 \times .1 \times .1 + .02 \times .02 \times .02$$

$$.2 \times .2 \times .2 + .04 \times .04 \times .04$$

- Ans
- ☐ A. 0.5
  - ☐ B. 0.25
  - ☒ C. 0.125
  - ☐ D. 0.0125



**Q.22** The average score of a cricketer for 10 matches is 40 runs. If the average for the first six matches is 44, then the average runs of the last four matches is:

- Ans**
- ☐ A. 20
  - ☐ B. 42
  - ☒ C. 34
  - ☐ D. 38

**Q.23** A sum of money is to be distributed among the partners A, B and C in the proportion of  $3 : 2 : 1\frac{1}{3}$ . If A gets ₹1,500 more than B, then C's share is:

- Ans**
- ☐ A. ₹3,750
  - ☐ B. ₹2,500
  - ☒ C. ₹2,000
  - ☐ D. ₹3,400

**Q.24** Which of the following is a quadratic equation written in standard form?

- Ans**
- ☐ A.  $5x^2 + 3 = \frac{1}{x}$
  - ☐ B.  $x^3 + 5x^2 + 3 = x^4$
  - ☒ C.  $5x^2 + 3x - 1 = 0$
  - ☐ D.  $x^{-2} + 7x = 8$

**Q.25** Out of his total monthly salary, Mohan spends 20% on house rent and 50% of the rest is his total household expenditure. If he saves ₹10,600, then his total monthly salary is:

- Ans**
- ☐ A. ₹25,000
  - ☒ B. ₹26,500
  - ☐ C. ₹24,500
  - ☐ D. ₹27,000

#### Section : General Intelligence and Reasoning

**Q.26** Each of the digits in the number 5384972 is arranged in ascending order from left to right. The position of how many digits will remain unchanged as compared to that in the original number?

- Ans**
- ☒ A. One
  - ☐ B. Two
  - ☐ C. Three
  - ☐ D. None

**Q.27** Punit was driving a car towards the north direction, then he turned to his left and drove 10 km. Again, he turned left and drove a distance of 20 km, and further took a left turn and drove a distance of 10 km. His present location is 10 km south of his starting point. How far did he drive towards the north direction initially? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 10 km
  - ☐ B. 20 km
  - ☐ C. 15 km
  - ☐ D. 18 km

**Q.28** Each vowel in the word 'PAIR' is changed to the letter following it in the English alphabetical order and each consonant is changed to the letter preceding it in the English alphabetical order. If each letter of the word thus formed is arranged in alphabetical order, which letter will be third from the right?

- Ans**
- ☒ A. B
  - ☒ B. J
  - ☒ C. O
  - ☒ D. Q

**Q.29** Supriya, Tanmay, Umesh, Viplav and Wasim are sitting around a circular table facing the centre (but not necessarily in the same order). Supriya is the immediate neighbour of Tanmay and Wasim. Umesh is to the immediate right of Tanmay. Viplav is the immediate neighbour of Umesh and Wasim.

Who is sitting to the immediate left of Supriya?

- Ans**
- ☒ A. Tanmay
  - ☒ B. Umesh
  - ☒ C. Viplav
  - ☒ D. Wasim

**Q.30** This question is based on the five, three-digit numbers given below.

465 638 359 987 563

If the positions of the first two digits in each number are reversed, then the difference between the first digit of the greatest number and the first digit of the lowest number is equal to:

(Example- 697 – First digit = 6, second digit = 9 and third digit = 7)

- Ans**
- ☒ A. 7
  - ☒ B. 6
  - ☒ C. 5
  - ☒ D. 4

**Q.31** Taruni drives 65 km towards the east to reach city park. Then she turns right and drives another 85 km, then turns left and drives another 53 km to reach the metro station. In which direction is she facing now? (All turns are 90 degree turns only)

- Ans**
- ☒ A. East
  - ☒ B. West
  - ☒ C. North
  - ☒ D. South

**Q.32** Three statements are given followed by two conclusions numbered I and II. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

Statements:

Some blues are greens.

All greens are emeralds.

All emeralds are gems.

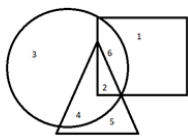
Conclusions:

I. Some blues are gems.

II. Some gems are greens.

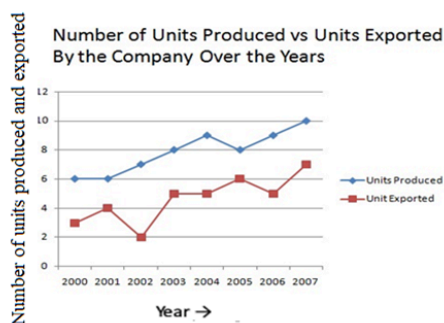
- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Both conclusions I and II follow
  - ☒ D. Neither conclusion I nor II follows

- Q.33** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons. The circle represents 'professors', the square represents 'poets', and the triangle represents 'women'. How many professors are there who are women and also poets?



- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

- Q.34** The following graph shows the number of units produced and number of units exported by a company over the years. Study the graph and answer the question that follows.



During which year did the units produced decline?

- Ans**
- ☒ A. 2000 - 2001
  - ☒ B. 2004 - 2005
  - ☒ C. 2005 - 2006
  - ☒ D. 2001 - 2002

- Q.35** A group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/symbol | 7 | @ | 3 | \$ | ^ | 7 | 6 | 4 | % | & | # | 2 | * | 9 |
|---------------|---|---|---|----|---|---|---|---|---|---|---|---|---|---|
| Code Letter   | G | O | K | I  | R | M | A | T | L | D | F | B | Q | O |

**Conditions:**

- (i) If the first element is a symbol and the last element is a number, the codes for these two (the first and the last elements) are to be interchanged.
- (ii) If the first element is an odd number and the last element is an even number, the first and last elements are to be coded as ©.
- (iii) If both the second and third elements are perfect squares, the third element is to be coded as the code for the second element.

What will be the code for '7 % # @ 4' ?

- Ans**
- ☒ A. GLFOT
  - ☒ B. ©LFOT
  - ☒ C. ©LFO©
  - ☒ D. GLFO©

**Q.36** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. EXAMPLE: 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

7 : 42 :: 9 : 54 :: 11 : ?

**Ans** ☒ A. 55

☒ B. 66

☒ C. 77

☒ D. 88

**Q.37** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

33 : 55 :: 46 : 68 :: 68 : ?

**Ans** ☒ A. 94

☒ B. 96

☒ C. 90

☒ D. 100

**Q.38** A certain number of advocates are sitting in a row in a bar council, facing north. Piyush is an immediate neighbour of both Vinod and Taman, while Rudir is an immediate neighbour of both Taman and Biswas. Vinod is sitting at the extreme right end. There are only two advocates to the left of Biswas. If no other advocate is sitting in the row, what is the total number of advocates seated in that row?

**Ans** ☒ A. Eight

☒ B. Nine

☒ C. Ten

☒ D. Seven

**Q.39** C, E, K, M, O, Q and Z are sitting around a round table facing towards the center (but not necessarily in the same order). C is the immediate neighbour of Z and M. O is neither an immediate neighbour of M nor E. Q, who is second to the left of O has K and E as immediate neighbours? Who is sitting to the immediate right of O?

**Ans** ☒ A. G

☒ B. M

☒ C. K

☒ D. Z

**Q.40** In this question, the statement is followed by four conclusions. Find out which conclusion is true based on the given statement:

Statement:  $W \leq P < S > Y = R \geq T > M$

**Ans** ☒ A.  $Y < P$

☒ B.  $S > W$

☒ C.  $Y \geq P$

☒ D.  $M > R$

**Q.41** Which of the following numbers will replace the question mark (?) in the given series?

6, 12, 30, 84, 246, ?

**Ans** ☒ A. 741

☒ B. 732

☒ C. 763

☒ D. 743

- Q.42** Six players, Aman, Bidya, Chahal, Druv, Elia and Flintoff, were born on different dates 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> of the same month. None of them were born after Druv, who was born on the date which is immediately after Elia. Only three players were born before Aman. Only two players were born between Chahal and Elia. Bidya was not born after Chahal.

Who among the following was born on 3<sup>rd</sup>?

- Ans**
- ☒ A. Bidya
  - ☒ B. Chahal
  - ☒ C. Flintoff
  - ☒ D. Aman

- Q.43** Letters are coded as numbers/symbols as per the table given below and the conditions which follow. Refer to the codes and conditions and then select the correct code for JUPITER.

| Letters       | A | C | P | I | T | U | E | R | J |
|---------------|---|---|---|---|---|---|---|---|---|
| Number/Symbol | + | 8 | - | 6 | % | @ | 4 | 9 | # |

Conditions:

- (i) If a letter is immediately followed by a vowel, it will be coded as 7.
- (ii) If a word ends with a vowel, the vowel will be coded as 3.

- Ans**
- ☒ A. 7@76%49
  - ☒ B. 7@-6%49
  - ☒ C. #@-6%49
  - ☒ D. 7@76749

- Q.44** Select the option that represents the letters that, when placed from left to right in the blanks below, will complete the letter series.

\_ T U \_ R T \_ S \_ \_ W S R T X \_

- Ans**
- ☒ A. RTUSRX
  - ☒ B. RSVTRR
  - ☒ C. RSVRTR
  - ☒ D. RSVRTS

- Q.45** Select the option that is related to the fifth letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster and the fourth letter-cluster is related to the third letter-cluster.

DXB : GSI :: KVR : NQY :: JNP : ?

- Ans**
- ☒ A. MIV
  - ☒ B. NIW
  - ☒ C. MHW
  - ☒ D. MIW

- Q.46** Refer to the following number series and answer the question that follows.

(Left) 2 5 4 3 3 4 5 2 4 6 5 1 1 4 6 7 4 5 8 7 3 1 5 7 (Right)

If every odd number in the above series is dropped, which number would appear at the eighth place from the right?

- Ans**
- ☒ A. 8
  - ☒ B. 6
  - ☒ C. 2
  - ☒ D. 4

**Q.47** Which of the following options is the closest approximate value which will come in place of question mark(?) in the following equation?

$$7.98 \times 2 + 3.96 \times 6 - 18 \div 2 + 1 = ?$$

- Ans**
- ☒ A. 36
  - ☒ B. 40
  - ☒ C. 32
  - ☒ D. 25

**Q.48** A statement is given followed by two arguments I and II. Read the statement and the arguments carefully and select the appropriate answer from the given options.

Statement:

People are becoming more conscious about moving towards a healthy lifestyle.

Arguments:

- I. Many people are switching to organic farming as the food is healthier.
- II. People are planning meals and cooking at home more than before.

- Ans**
- ☒ A. I weakens, while II strengthens the statement
  - ☒ B. II weakens, while I strengthens the statement
  - ☒ C. Both I and II weaken the statement
  - ☒ D. Both I and II strengthen the statement

**Q.49** Two statement are given below, followed by four conclusions given in the options. Find out which conclusion is true based on the given statements.

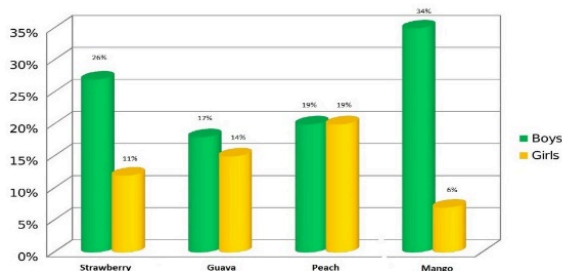
Statement:  $A = T > I > D$ ,  $Q > M > J > T$

- Ans**
- ☒ A.  $I > Q$
  - ☒ B.  $D < Q$
  - ☒ C.  $M < I$
  - ☒ D.  $A = Q$

**Q.50** If 15 May 2001 is a Tuesday, then what will be the day of the week on 11 June 2013?

- Ans**
- ☒ A. Monday
  - ☒ B. Tuesday
  - ☒ C. Wednesday
  - ☒ D. Sunday

- Q.51** The percentage of boys and girls liking four different fruits are shown in the following graph. Study the graph and answer the question.



The respective ratio of the number of boys to the number of girls is 2 : 3. If the total number of boys and girls together is 11,500, then total how many boys and how many girls like peaches?

- Ans** ☒ A. 874 boys and 1311 girls  
☒ B. 874 boys and 874 girls  
☒ C. 1311 boys and 874 girls  
☒ D. 1311 boys and 1311 girls

- Q.52** Which of the following numbers will replace the question mark (?) in the given series?

15, 17, 37, 115, ?

- Ans** ☒ A. 455  
☒ B. 460  
☒ C. 465  
☒ D. 470

- Q.53** If '+' means '×', '×' means '+', '-' means '÷', and '÷' means '-', then what will be the value of the given expression?

$$490 \times 7 + 2 - 8 \div 6$$

- Ans** ☒ A. 142  
☒ B. 136  
☒ C. 98  
☒ D. 202

- Q.54** Seven Woodland shoe boxes marked with A, B, C, D, E, F and G are kept one above the other but not necessarily in the same order. G is kept fourth from the bottom and immediately below E and immediately above B. There are only three boxes between C and F where C is placed somewhere above F. D is placed at the bottom most position. How many shoe boxes are placed between A and F?

- Ans** ☒ A. Four  
☒ B. Three  
☒ C. Two  
☒ D. Five

**Q.55** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

Some pens are books.

Some books are pencils.

Some pencils are chairs.

Conclusions:

(I) Some chairs are pens.

(II) Some pencils are pens.

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Neither conclusion I nor II follows
  - ☒ D. Both conclusions I and II follow

Section : General Science

**Q.56** Which of the following are bisexual flowers?

- Ans**
- ☒ A. Watermelon and papaya
  - ☒ B. Mustard and watermelon
  - ☒ C. Hibiscus and mustard
  - ☒ D. Papaya and hibiscus

**Q.57** Considering Fleming's right hand rule, the thumb indicates:

- Ans**
- ☒ A. the motion of the conductor
  - ☒ B. the magnetic force
  - ☒ C. the magnetic flux
  - ☒ D. the induced EMF

**Q.58** Which of the following can change sex, indicating that sex is not genetically determined?

- Ans**
- ☒ A. Snake
  - ☒ B. Frog
  - ☒ C. Fish
  - ☒ D. Snail

**Q.59** Two wires, A and B, are made of the same material, but the length of A is 3 times that of B, and the cross-section of A is  $\frac{1}{4}$ th of that of B. The resistance of A is:

- Ans**
- ☒ A. 3 times that of B
  - ☒ B. 6 times that of B
  - ☒ C. 9 times that of B
  - ☒ D. 12 times that of B

**Q.60** In which of the following processes is the pyruvate converted into ethanol and carbon dioxide?

- Ans**
- ☒ A. Translocation
  - ☒ B. Diffusion
  - ☒ C. Transpiration
  - ☒ D. Fermentation



**Q.61** Which of the following is the correct product formed by the combination reaction of calcium oxide with water?

- Ans**
- ☐ A. Calcium carbonate
  - ☒ B. Calcium hydroxide
  - ☐ C. Calcium bicarbonate
  - ☐ D. No reaction takes place

**Q.62** In a circuit, there are five resistors each of  $5\ \Omega$ , and they are connected in such a way that the resistance of the circuit is the maximum. Now this circuit is connected to a battery of 15 V. The current flowing through the circuit is:

- Ans**
- ☐ A. 0.4 A
  - ☒ B. 0.6 A
  - ☐ C. 0.8 A
  - ☐ D. 0.9 A

**Q.63** Which of the following statements is INCORRECT about properties of ionic compounds?

- Ans**
- ☒ A. Ionic compounds are solids because of the weak force of attractions between positive and negative ions.
  - ☐ B. Ionic compounds are generally brittle and break into pieces when pressure is applied.
  - ☐ C. Ionic compounds have high melting and boiling points.
  - ☐ D. Electrovalent compounds are generally soluble in water and insoluble in petrol.

**Q.64** Silver chloride turns grey in sunlight.

Which of the following is the correct explanation for the given statement?

- Ans**
- ☐ A. Displacement of silver chloride into silver and chlorine by light.
  - ☐ B. Decomposition of silver chloride into silver oxide and chlorine by light.
  - ☒ C. Decomposition of silver chloride into silver and chlorine by light
  - ☐ D. Displacement of silver chloride into silver oxide and chlorine by light.

**Q.65** The tissue that stores fat is called:

- Ans**
- ☐ A. areolar tissue
  - ☐ B. connective tissue
  - ☒ C. adipose tissue
  - ☐ D. epithelial tissue

**Q.66** An object is placed at a distance of 0.5 m in front of a converging mirror. If the focal length of the mirror is 0.2 m, then the magnification of the image is:

- Ans**
- ☐ A.  $\frac{3}{2}$
  - ☒ B.  $\frac{2}{3}$
  - ☐ C.  $\frac{1}{3}$
  - ☐ D.  $\frac{4}{3}$

**Q.67** What are the chemical formulas of gypsum and plaster of Paris, respectively?

- Ans**
- ☐ A.  $\text{CaCO}_3 \cdot 2\text{H}_2\text{O}$  and  $\text{CaCO}_3 \cdot 1/2\text{H}_2\text{O}$
  - ☐ B.  $\text{CaSO}_4 \cdot 1/2\text{H}_2\text{O}$  and  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$
  - ☐ C.  $\text{CaCO}_3 \cdot 1/2\text{H}_2\text{O}$  and  $\text{CaCO}_3 \cdot 2\text{H}_2\text{O}$
  - ☒ D.  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$  and  $\text{CaSO}_4 \cdot 1/2\text{H}_2\text{O}$

**Q.68** If the value of the refractive index increases then:

- Ans**
- ☐ A. deviation decreases
  - ☐ B. there is no deviation in direction of light
  - ☒ C. deviation in direction of light increases
  - ☐ D. light will follow curved path

**Q.69** Which of the following is the respiratory organ in earthworms?

- Ans**
- ☐ A. Gill pouches
  - ☐ B. Spiracles
  - ☒ C. Skin
  - ☐ D. Lungs (air sacs)

**Q.70** Which of the following substances is/are NOT reabsorbed by the kidneys?

- Ans**
- ☒ A. Creatinine
  - ☐ B. Amino acids
  - ☐ C. Glucose
  - ☐ D. Salts

**Q.71** The refractive indices of mediums 1, 2 and 3 are 1.50, 1.36 and 1.54, respectively. If the speed of light in the mediums are  $v_1$ ,  $v_2$  and  $v_3$ , respectively, which of the following relations between them is correct?

- Ans**
- ☐ A.  $v_1 > v_3 > v_2$
  - ☒ B.  $v_2 > v_1 > v_3$
  - ☐ C.  $v_3 > v_2 > v_1$
  - ☐ D.  $v_1 = v_2 = v_3$

**Q.72** Which statement shows interaction of an abiotic component with a biotic component in an ecosystem?

- Ans**
- ☐ A. A frog feeding on a grasshopper
  - ☐ B. Tap water running into a stream
  - ☒ C. An earthworm making a burrow in the soil
  - ☐ D. Two birds fighting with each other for food

**Q.73** In Newlands' octaves, which of the following pairs of elements were placed in the same column along with H, F, Cl and Br?

- Ans**
- ☒ A. Co and Ni
  - ☐ B. P and S
  - ☐ C. Cr and Zr
  - ☐ D. C and K

**Q.74** In the displacement reaction between iron metal and copper sulphate solution \_\_\_\_\_.

**Ans** ☒ A.

iron displaces copper from copper sulphate solution because it is more reactive than copper

☐ B.

iron displaces sulphate from copper sulphate solution because it is more reactive than sulphate

☐ C.

iron displaces copper from copper sulphate solution because it is less reactive than copper

☐ D.

iron displaces sulphate from copper sulphate solution because it is less reactive than sulphate

**Q.75** Which of the following compounds does NOT belong to the homologous series of alcohols?

**Ans** ☐ A.  $C_2H_5OH$

☐ B.  $C_3H_7OH$

☒ C.  $C_4H_{10}OH$

☐ D.  $CH_3OH$

**Q.76** In which year, were the total faecal coliform levels from Gangotri to Diamond harbour, high?

**Ans** ☐ A. 2020

☐ B. 2014

☐ C. 2007

☒ D. 2011

**Q.77** Which of the following was considered as a limitation of Mendeleev's periodic table?

**Ans** ☐ A.

Resemblance of hydrogen to alkali metals as well as halogens and a specific position was assigned to hydrogen.

☐ B.

Resemblance of hydrogen to alkaline earth metals as well as halogens and no specific position was assigned to hydrogen

☒ C.

Resemblance of hydrogen to alkali metals as well as halogens and no specific position was assigned to hydrogen

☐ D.

Resemblance of hydrogen to alkaline earth metals as well as halogens and a specific position was assigned to hydrogen

**Q.78** Consider two coils A and B. Suppose coil A is replaced with coil B that has the number of loops 2 times as that of loop A and the rate of change of magnetic flux is constant. Determine the ratio of the initial to the final induced EMF.

**Ans** ☒ A. 1 : 2

☐ B. 2 : 1

☐ C. 2 : 3

☐ D. 3 : 2

**Q.79** When parallel beam of light rays are incident on the concave mirror of radius of curvature 0.8 m, reflected rays:

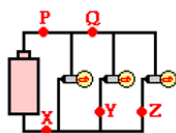
**Ans** ☐ A. appear to diverge from a point at a distance 0.8 m behind the mirror

☐ B. appear to diverge from a point at a distance 0.4 m behind the mirror

☐ C. converge to a point at a distance 0.8 m from the concave surface

☒ D. converge to a point at a distance 0.4 m from the concave surface

- Q.80** Three identical light bulbs are connected to a battery as shown below. P, Q, X, Y and Z represent several points in the circuit. Which of the following holds true for this circuit?



- Ans**
- ☒ A. The current at P is greater than the current at Q.
  - ☐ B. The current at Q is greater than the current at P.
  - ☐ C. The current is the same at all locations.
  - ☐ D. Only the currents at P and Q are the same.

#### Section : General Awareness and Current Affairs

- Q.81** Which of the following committees was constituted by RBI to study issues and concerns in the Micro Finance Institutions sector?

- Ans**
- ☒ A. Y H Malegam committee
  - ☐ B. Kelkar committee
  - ☐ C. Abid Hussain committee
  - ☐ D. Malhotra committee

- Q.82** As of August 2022, the objective of the Maulana Azad Fellowship Scheme (MANF) is to provide \_\_\_\_\_ fellowships in the form of financial assistance to students from six notified minority communities, namely Buddhist, Christian, Jain, Muslim, Parsi and Sikh, notified by the Central Government, to pursue M.Phil. and Ph.D.

- Ans**
- ☐ A. 2-year
  - ☐ B. 3-year
  - ☐ C. 4-year
  - ☒ D. 5-year

- Q.83** \_\_\_\_\_ was among the 7 Recipients of the 2020 Tenzing Norgay National Award for land adventure, and received the award from then President Ram Nath Kovind during the 2021 National Sports Awards function.

- Ans**
- ☒ A. Priyanka Mangesh Mohite
  - ☐ B. Srikaanth Viswanathan
  - ☐ C. Lt. Col. Servesb Dhadwal
  - ☐ D. Jai Kishan

- Q.84** In the year 2022, which of the following chess champions was beaten by a 16-year old Indian chess player Rameshbabu Pragganandhaa?

- Ans**
- ☐ A. Anatoly Karpov
  - ☐ B. Bobby Fischer
  - ☒ C. Magnus Carlsen
  - ☐ D. Garry Kasparov

- Q.85**  $\text{Change in savings} \div \text{Change in Income} = \underline{\hspace{2cm}}$ .

- Ans**
- ☐ A. Average propensity to save
  - ☒ B. Marginal propensity to save
  - ☐ C. Marginal propensity to consume
  - ☐ D. Average propensity to consume

**Q.86** The tenure of the Village Panchayat is for how many years?

- Ans**
- ☐ A. 2
  - ☐ B. 3
  - ☐ C. 4
  - ☒ D. 5

**Q.87** What is the name of India's first indigenous aircraft carrier?

- Ans**
- ☐ A. INS Vijaya
  - ☐ B. INS Virat
  - ☐ C. INS Vishakhapatnam
  - ☒ D. INS Vikrant

**Q.88** Nuakhai is an agricultural or harvesting festival mainly observed by people of which state in India?

- Ans**
- ☒ A. Odisha
  - ☐ B. Kerala
  - ☐ C. Manipur
  - ☐ D. Madhya Pradesh

**Q.89** The SAFE (SIDBI Assistance to Facilitate Emergency response against Corona Virus) scheme, launched by SIDBI (Small Industries Development Bank of India) in March 2020, provided loans at an interest rate of \_\_\_\_\_ per annum.

- Ans**
- ☐ A. 2%
  - ☐ B. 3%
  - ☒ C. 5%
  - ☐ D. 4%

**Q.90** Which of the following State's police introduced 'Pink Beat' patrols for enhancing the safety for women and children in public places?

- Ans**
- ☐ A. Odisha
  - ☒ B. Kerala
  - ☐ C. Maharashtra
  - ☐ D. Karnataka

**Q.91** When was Coal India Limited came into existence?

- Ans**
- ☒ A. 1975
  - ☐ B. 1976
  - ☐ C. 1977
  - ☐ D. 1978

**Q.92** Which Vedic God falls under the category of 'Prithivisthana'(Terrestrial God)?

- Ans**
- ☒ A. Brihaspati
  - ☐ B. Indra
  - ☐ C. Varuna
  - ☐ D. Vishnu

**Q.93** Which of the following is the longest range in the lesser Himalayas?

- Ans**
- ✓ **A. Pir Panjal Range**
  - ✗ B. Zaskar Range
  - ✗ C. Karakoram Range
  - ✗ D. Ladakh Range

**Q.94** Prohibition of discrimination on grounds of religion, race, caste, sex or place of birth, has been laid under \_\_\_\_\_ of the Fundamental Rights in the Constitution of India.

- Ans**
- ✗ A. Article 14
  - ✓ **B. Article 15**
  - ✗ C. Article 16
  - ✗ D. Article 17

**Q.95** Which Indian state has the largest reserves of Bauxite as per Indian Minerals Yearbook 2017?

- Ans**
- ✗ A. Andhra Pradesh
  - ✓ **B. Odisha**
  - ✗ C. Jharkhand
  - ✗ D. Madhya Pradesh

**Q.96** The Hindu Widows' Remarriage Act was passed in the year \_\_\_\_\_ legalising the remarriage of widows in all jurisdictions of India under East India Company rule.

- Ans**
- ✓ **A. 1856**
  - ✗ B. 1857
  - ✗ C. 1858
  - ✗ D. 1859

**Q.97** Which of the following conditions is NOT required by a candidate to become the President of India?

- Ans**
- ✗ A. Should be a citizen of India
  - ✗ B. Should have completed the age of 35 years
  - ✓ **C. Should have 10 years of experience in the parliament**
  - ✗ D. Should not hold any office of profit

**Q.98** On 28 March 2022, Minister of Information and Broadcasting of India, Anurag Thakur launched a scheme called TEJAS at Dubai Expo, which is an initiative under the Skill India International Project to train Indians so that they can get employed overseas. What is the full form of TEJAS?

- Ans**
- ✓ **A. Training for Emirates Jobs and Skills**
  - ✗ B. Training for Eccentric Jobs and Skills
  - ✗ C. Technology for Emirates Jobs and Skills
  - ✗ D. Training for Empowering Jobs and Skills

**Q.99** Kangri language is mostly spoken in which of the following states of India?

- Ans**
- ✗ A. Karnataka
  - ✗ B. Kerala
  - ✓ **C. Himachal Pradesh**
  - ✗ D. Madhya Pradesh



**Q.100** Along its course, River \_\_\_\_\_ passes through Tibet, where it is known as Tsangpo, and also passes through the Indian states of Arunachal Pradesh, Assam and Bangladesh.

- Ans**
- ☒ A. Mahanadi
  - ☒ B. Brahmani
  - ☒ C. Ramganga
  - ☒ D. Brahmaputra



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 19/09/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

Q.1 The value of  $\frac{\sin(90^\circ - \theta) \cos(90^\circ - \theta) \cot(90^\circ - \theta)}{\cos^2 \theta - 1}$  is \_\_\_\_\_.

- Ans
- ☒ A.  $2\sin\theta\cos\theta$
  - ☒ B.  $-1$
  - ☒ C.  $0$
  - ☒ D.  $\tan \theta$

Q.2 What kind of roots does the quadratic equation  $5x^2 + 7x + 4 = 0$  have?

- Ans
- ☒ A. Real and equal roots
  - ☒ B. Real and unequal roots
  - ☒ C. No real roots
  - ☒ D. Only one real root

Q.3 The price of a laptop in a shop is decreased by 35%, as a result of which the sales increased by 20%. What is the effect on the total revenue of the shop from the sale of laptops?

- Ans
- ☒ A. 10% decrease
  - ☒ B. 22% decrease
  - ☒ C. 10% increase
  - ☒ D. 18% increase

Q.4 Two adjacent angles of a parallelogram are such that one is two-thirds the other. Find the measure of the smaller angle.

- Ans
- ☒ A.  $18^\circ$
  - ☒ B.  $108^\circ$
  - ☒ C.  $72^\circ$
  - ☒ D.  $36^\circ$



**Q.5** Which of the following pairs of numbers are co-prime?

- Ans** ☒ A. 59, 97  
☐ B. 65, 91  
☐ C. 51, 119  
☐ D. 133, 171

**Q.6** The radius of the base of a cylinder is increased from 4 cm to 16 cm, but its curved surface area remains unchanged. If the initial height of the cylinder was 4 cm, what will be its new height?

- Ans** ☐ A. 4 cm  
☒ B. 1 cm  
☐ C. 2 cm  
☐ D. 3 cm

**Q.7** If the ratio of the areas of two squares is 2: 3, then the ratio of the perimeters of these two squares, in the order mentioned, is \_\_\_\_\_.

- Ans** ☐ A. 4 : 9  
☐ B.  $\sqrt{2} : 3$   
☐ C.  $2 : \sqrt{3}$   
☒ D.  $\sqrt{2} : \sqrt{3}$

**Q.8** The median of the observations below, given in ascending order, is  $n - 1$ .

4, 8,  $n - 14$ , 17,  $n + 5$ , 30, 32 and 35

What is the value of  $n$ ?

- Ans** ☐ A. 19  
☐ B. 17  
☐ C. 18  
☒ D. 24

**Q.9** The distance between two stations, Delhi and Amritsar is 450 km. A train starts at 4 p.m. from Delhi and moves towards Amritsar at an average speed of 60 km/h. Another train starts from Amritsar at 3:20 p.m. and moves towards Delhi at an average speed of 80 km/h. At what distance from Delhi will the two trains meet?

- Ans** ☒ A. 170 km  
☐ B. 160 km  
☐ C. 180 km  
☐ D. 165 km

**Q.10** If  $\text{₹}3.50 : \text{₹}7.50 :: \text{₹}8.26 : x$ , then what is the value of  $x$ ?

- Ans** ☒ A. ₹17.70  
☐ B. ₹17.00  
☐ C. ₹18.10  
☐ D. ₹17.85

**Q.11** The lengths of corresponding sides of two similar triangles are in the ratio 5 : 6. The areas of these triangles are in the ratio:

- Ans**
- ☒ A. 3 : 4
  - ☒ B. 25 : 36
  - ☒ C. 16 : 42
  - ☒ D. 36 : 25

**Q.12** Seven toy cars and five toy bikes together cost ₹600. Five toy cars and three toy bikes together cost ₹400. The cost of each toy car is:

- Ans**
- ☒ A. ₹200
  - ☒ B. ₹150
  - ☒ C. ₹100
  - ☒ D. ₹50

**Q.13** Simplify the given expression.

$$11.4\overline{565} \div 2.\overline{67}$$

- Ans**
- ☒ A.  $4\frac{2}{25}$
  - ☒ B.  $3\frac{7}{25}$
  - ☒ C.  $4\frac{7}{25}$
  - ☒ D.  $3\frac{4}{25}$

**Q.14** The compound interest in 2 years on ₹30,000 at 7% interest per annum, compounded annually, is \_\_\_\_\_.

- Ans**
- ☒ A. ₹4,437
  - ☒ B. ₹4,347
  - ☒ C. ₹4,447
  - ☒ D. ₹4,777

**Q.15** Anand bought a car for ₹8,00,000 and sold it at a profit of 5% to Dhiraj. Dhiraj sold it at a loss of 4% to Anil. What is the amount paid by Anil for the car?

- Ans**
- ☒ A. ₹8,06,400
  - ☒ B. ₹8,40,000
  - ☒ C. ₹8,60,000
  - ☒ D. ₹8,73,600

**Q.16** Factorise  $(64x^6 - y^6)$ .

- Ans**
- ☒ A.  $(2x - y)(2x + y)(4x^2 + 2xy + y^2)(4x^2 - 2xy + y^2)$
  - ☒ B.  $(2x - y)(2x + y)(4x^2 + 2xy + y^2)(4x^2 - 2xy - y^2)$
  - ☒ C.  $(2x - y)(2x + y)(4x^2 - 2xy + y^2)(4x^2 - 2xy - y^2)$
  - ☒ D.  $(2x - y)(2x + y)(4x^2 + 2xy - y^2)(4x^2 - 2xy + y^2)$

**Q.17** Which of the following is the standard representation of quadratic equation  $(x - 4)(x + 1) = 2$ ?

- Ans**
- ☒ A.  $x^2 - 3x - 4 = 0$
  - ☒ B.  $x^2 - 4x - 2 = 0$
  - ☒ C.  $x^2 - 3x - 6 = 0$
  - ☒ D.  $x^2 - x - 2 = 0$

**Q.18** Two consecutive numbers are such that one-fourth of the smaller number exceeds one-fifth of the larger number by 3. The larger number is \_\_\_\_\_.

- Ans**
- ☒ A. 25
  - ☒ B. 45
  - ☒ C. 65
  - ☒ D. 75

**Q.19** The greatest number which on dividing 50, 58 and 69 leaves remainders of 1, 2 and 6, respectively, is:

- Ans**
- ☒ A. 0
  - ☒ B. 8
  - ☒ C. 6
  - ☒ D. 7

**Q.20** Simplify the given expression.

$$11 - \{7 - 56 \div (2 \times 3 + 1)\}$$

- Ans**
- ☒ A. 12
  - ☒ B. 11
  - ☒ C. 10
  - ☒ D. 9

**Q.21** If 10: 16:: 30: y, then find the value of y.

- Ans**
- ☒ A. 40
  - ☒ B. 42
  - ☒ C. 48
  - ☒ D. 54

Q.22 Which of the following expressions is correct?

1. Mode – median = 2 (median – mean)

2. Median =  $\frac{\text{Mode} + \text{median}}{2}$

3. Mode = 2 Median – mean

4. Mean =  $\frac{2\text{Median} - \text{mode}}{2}$

Ans ☒ A. 1

☐ B. 2

☐ C. 4

☐ D. 3

Q.23 The value of  $0.8\bar{7}$  is \_\_\_\_\_.

Ans ☐ A.  $\frac{87}{9}$

☐ B.  $\frac{8}{90}$

☒ C.  $\frac{79}{90}$

☐ D.  $\frac{7}{90}$

Q.24 The total amount payable for completing a piece of work is ₹800. C can do it alone in 24 days, while B can do it alone in 8 days. With the help of A, they complete this work in 3 days. What is the sum of money received by A as his share in completing the work?

Ans ☐ A. ₹450

☐ B. ₹350

☒ C. ₹400

☐ D. ₹300

Q.25 The cost of a pen is twice the cost of a pencil. If the cost of the pencil is ₹1, the cost of 3 pens and 2 pencils is:

Ans ☐ A. ₹2

☐ B. ₹7

☒ C. ₹8

☐ D. ₹10

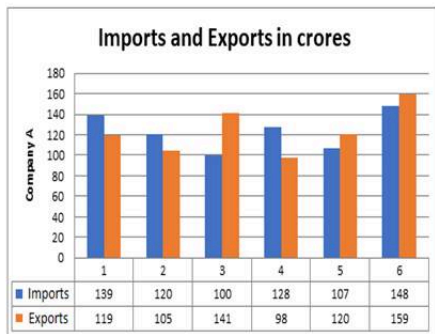
Section : General Intelligence and Reasoning

**Q.26** In a queue, Rahul is 21<sup>st</sup> from the front end and Ankit is 10<sup>th</sup> from the rear end, and there are 4 people between them. How many people are there in the queue if Ankit is standing somewhere behind Rahul in the queue?

- Ans**
- ✓ A. 35
  - ✗ B. 36
  - ✗ C. 37
  - ✗ D. 38

**Q.27** The given bar graph shows the exports and imports of Company A over a period of time. Study the bar graph and answer the question that follows.

The numbers 1 to 6 in the graph represent the years from 2001 to 2006.



What is the average of the imports for the period 2001 to 2006 (in crores)?

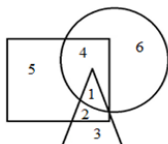
- Ans**
- ✗ A. 80.24
  - ✗ B. 172.40
  - ✓ C. 123.66
  - ✗ D. 56.61

**Q.28** Each of the six graduate students, Anudeep, Yamuna, Chinmayi, Divija, Esha and Guna, has an online PG entrance exam on a different day of a week, starting from Monday and ending on Saturday of the same week, but not necessarily in the same order. None of them have the exam before Chinmayi and after Yamuna. Guna has the exam immediately after Anudeep and immediately before Divija. Esha has the exam on Tuesday and immediately before Anudeep.

Who among the following has the exam on Friday?

- Ans**
- ✗ A. Guna
  - ✓ B. Divija
  - ✗ C. Anudeep
  - ✗ D. Yamuna

**Q.29** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons. The circle represents 'men', the square represents 'photographers', and the triangle represents 'musicians'. How many men are there who are NEITHER photographers NOR musicians?



- Ans**
- ✗ A. 4
  - ✓ B. 6
  - ✗ C. 5
  - ✗ D. 2

**Q.30** If 1 is added to each odd digit and 2 is subtracted from each even digit in the number 5613743658, which of the following digits will be second from the left?

- Ans**
- ☒ A. 6
  - ☒ B. 4
  - ☒ C. 2
  - ☒ D. 3

**Q.31** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. EXAMPLE: 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

3 : 25 :: 8 : 100 :: 12 : ?

- Ans**
- ☒ A. 144
  - ☒ B. 169
  - ☒ C. 225
  - ☒ D. 196

**Q.32** Read the given statement and the arguments carefully and select the appropriate answer from the given options.

Statement:

Education is the backbone of human society.

Arguments:

- I. Schools are learning centres of societal norms and regulations.
- II. Any society with less concern about education, cannot grow and develop in present times.

- Ans**
- ☒ A. I weakens while II strengthens the statement.
  - ☒ B. II weakens while I strengthens the statement.
  - ☒ C. Both I and II weaken the statement.
  - ☒ D. Both I and II strengthen the statement.

**Q.33** The position of how many letters will remain unchanged if each of the letters in the word 'SHIRT' is arranged in alphabetical order?

- Ans**
- ☒ A. One
  - ☒ B. Two
  - ☒ C. Three
  - ☒ D. Four

**Q.34** Each of six friends has a different height. Anant is taller than Gagan. Manoj is shorter than Janak. Parth is taller than Janak but shorter than Gagan. If Anurag is the shortest, then who is the tallest among them?

- Ans**
- ☒ A. Parth
  - ☒ B. Anant
  - ☒ C. Janak
  - ☒ D. Manoj

**Q.35** Which of the following letter-clusters will replace the question mark (?) in the given series to make it logically complete?

MON 4, QSR 10, UWV 16, YAZ 22, ?

- Ans**
- ☒ A. AED 24
  - ☒ B. DED 25
  - ☒ C. CED 28
  - ☒ D. CFD 28

**Q.36** Which of the following numbers will replace the question mark (?) in the given series?

8    13    17    20    22    ?

- Ans**
- ✓ A. 23
  - ✗ B. 24
  - ✗ C. 22
  - ✗ D. 25

**Q.37** In this question, a group of letters is coded using symbols as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Letters | D | T | V | O | I | A | P  | E |
|---------|---|---|---|---|---|---|----|---|
| Codes   | @ | > | ^ | % | = | # | \$ | + |

Conditions:

- i. If both the first and the last letters of the word are vowels, then both these letters will be coded as '&'.
- ii. If both the first and the last letters of the word are consonants, then both these letters will be coded as '\*'.

What will be the code for the word 'ADOPTIVE'?

- Ans**
- ✗ A. # @ % \$ > = ^ &
  - ✗ B. & @ % \$ > = ^ +
  - ✗ C. # @ % \$ > = ^ +
  - ✓ D. & @ % \$ > = ^ &

**Q.38** In a queue, Mahima is 28<sup>th</sup> from the front end and Anshul is 22<sup>th</sup> from the rear end, and there are 5 people between them. How many people are there in the queue if Anshul is standing somewhere behind Mahima in the queue?

- Ans**
- ✗ A. 53
  - ✗ B. 54
  - ✓ C. 55
  - ✗ D. 56

**Q.39** Three statements are given, followed by three conclusions numbered I, II and III. You have to consider these statements to be true, even if they seem at variance from commonly known facts. Decide which of the given conclusions logically follow/s from the given statements.

**Statements:**

All sachets are bags.  
Some bags are clocks.  
No clock is a toaster.

**Conclusions:**

- I. Some toasters are clocks.
- II. No sachet is a toaster.
- III. Some bags are sachets.

- Ans**
- ✗ A. Only conclusions I and II follow.
  - ✗ B. Only conclusions II and III follow.
  - ✗ C. Only conclusion I follows.
  - ✓ D. Only conclusion III follows.

**Q.40** In a certain code language, 'BOY' is written as 'ACNPXZ' and 'TOY' is written as 'SUNPXZ'. How will 'JOY' be written in that code language?

- Ans**
- ✗ A. XZNPIK
  - ✗ B. IKXZNP
  - ✗ C. ZXPNKI
  - ✓ D. IKNPXZ

**Q.41** If '+' means '-', '-' means '×', '×' means '÷', '÷' means '+', what will come in place of the question mark (?) in the following equation?

$$44 \div 120 \times 5 - 2 + 10 \times 2 = ?$$

- Ans**
- ☒ A. 84
  - ☒ B. 85
  - ☒ C. 86
  - ☒ D. 87

**Q.42** If in the word 'BOARD' all the letters are arranged in alphabetical order from left to right, then the position of how many letters will remain unchanged?

- Ans**
- ☒ A. One
  - ☒ B. None
  - ☒ C. Three
  - ☒ D. Four

**Q.43** Six doctors are sitting in a row facing north. Omprakash is sitting third to the left of Tanvi, who is sitting second to the right of Matank. Yadhu is sitting to the immediate right of Sunil, who is sitting somewhere to the left of Omprakash. Neither Yadhu nor Karuna sit at the extreme ends. What is Karuna's position with respect to Yadhu?

- Ans**
- ☒ A. Third to the left
  - ☒ B. Third to the right
  - ☒ C. Fourth to the right
  - ☒ D. Fourth to the left

**Q.44** Rohit started on his bicycle from his home and travelled a distance of 5 km in the south direction. He then turned towards the right and travelled a distance of 2.5 km, and again took a turn towards the right and travelled a distance of 5 km. Finally, after taking a left turn, he travelled a distance of 5 km. What is the shortest distance between his present location and his home? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 9.5 km
  - ☒ B. 8.5 km
  - ☒ C. 7.5 km
  - ☒ D. 6.5 km

**Q.45** Which of the following numbers will replace the question mark (?) in the given series?  
15, 16, 32, 35, 140, ?

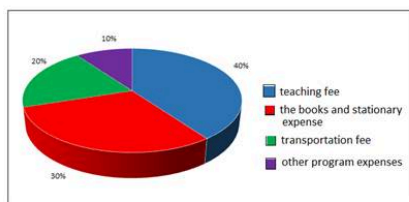
- Ans**
- ☒ A. 144
  - ☒ B. 142
  - ☒ C. 145
  - ☒ D. 700

**Q.46** If 14 April 2005 is a Thursday, then what will be the day of the week on 10 May 2017?

- Ans**
- ☒ A. Thursday
  - ☒ B. Tuesday
  - ☒ C. Friday
  - ☒ D. Wednesday



- Q.47** The percentage expenditure of a school is shown in the following pie-chart. Blue represents the teaching fee, red represents the books and stationary expense, green represents transportation fee, and purple represents other program expenses. Study the pie-chart and answer the question.



The total income is ₹27,00,000. What is the amount spent on teaching fee and transportation fee if the total school expense is one-third of the total income?

- Ans**
- ☒ A. ₹9,00,000
  - ☒ B. ₹4,30,000
  - ☒ C. ₹7,50,000
  - ☒ D. ₹5,40,000

- Q.48** Select the option that is related to the seventh number in the same way as the second number is related to the first number, the fourth number is related to the third number and the sixth number is related to the fifth number.

25 : 4 :: 49 : 6 :: 9 : 2 :: 100 : ?

- Ans**
- ☒ A. 9
  - ☒ B. 6
  - ☒ C. 4
  - ☒ D. 7

- Q.49** If '+' means '×', '-' means '+', '×' means '+', '+' means '-', what will come in place of the question mark (?) in the following equation?

$81 \div 3 - 14 \div 7 \times 6 + 6 - 5 = ?$

- Ans**
- ☒ A. 37
  - ☒ B. 43
  - ☒ C. 50
  - ☒ D. 55

- Q.50** Refer to the letter and symbol series, and answer the question that follows.

(Left) G H T % K & L M # S T \* Q @ N O (Right)

How many symbols are there between the seventh element from the right end and the fifth element from the left end of the given series?

- Ans**
- ☒ A. 4
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 1

- Q.51** Pallavi starts walking towards the north and after covering a distance, she turns to the right, then again to the right and after covering some more distance, she again turns to the right. Now, in which direction is she facing? (All turns are 90 degree turns only)

- Ans**
- ☒ A. South
  - ☒ B. North
  - ☒ C. West
  - ☒ D. East

**Q.52** Anu, Dilip, Eshwar, Jahnavi, Komal, Pallavi, Riya, and Tara are sitting around a square table facing the centre of the table (but not necessarily in the same order). Some of them are sitting at the corners, while some are sitting at the exact centre of the sides. Tara is to the immediate right of Komal and to the immediate left of Jahnavi. Anu is to the immediate left of Riya. Dilip and Jahnavi have only one person between them. Eshwar is sitting at the exact centre of one of the sides and has Riya to the immediate left and Komal to the immediate right.

Who is sitting to the immediate right of Pallavi?

- Ans**
- ☒ A. Anu
  - ☒ B. Dilip
  - ☒ C. Jahnavi
  - ☒ D. Tara

**Q.53** In this question, a statement is followed by two conclusions. Which of the two conclusions is/are true with respect to the statement?

Statement:  $E < T = D \leq Q > Z = G$

Conclusions:

I.  $T < G$

II.  $Z > D$

- Ans**
- ☒ A. Only conclusion I is true
  - ☒ B. Only conclusion II is true
  - ☒ C. Both conclusions I and II are true
  - ☒ D. Neither conclusion I nor II is true

**Q.54** Given below are two letter-cluster pairs in which the second letter-cluster is related to the first letter-cluster following a certain logic. Select the letter-cluster pair from among the options that follows the same logic.

NZF : FAN

HSE : EHH

- Ans**
- ☒ A. CPN : NQC
  - ☒ B. CPN : NKC
  - ☒ C. CPN : NEC
  - ☒ D. CPN : NFC

**Q.55** Three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

All anklets are printers.

Some printers are birds.

Some birds are cherries.

**Conclusions:**

I. Some birds are printers.

II. All printers are anklets.

III. Some cherries are birds.

- Ans**
- ☒ A. Only conclusion I follows.
  - ☒ B. Only conclusion II follows.
  - ☒ C. Both conclusions I and III follow.
  - ☒ D. None of the conclusions follow.

Section : General Science

**Q.56** What happens during menstruation?

- Ans**
- ☐ A. A mature egg is released from an ovary
  - ☐ B. The wall of the uterus becomes vascular
  - ☐ C. There is failure of fertilisation of the ovum
  - ☒ D. The uterine lining is shed.

**Q.57** Adolescence begins around the age of 11 and lasts upto:

- Ans**
- ☒ A. 18 or 19 years of age
  - ☐ B. 16 or 17 years of age
  - ☐ C. 19 or 20 years of age
  - ☐ D. 15 or 16 years of age

**Q.58** What happens when we exhale during normal breathing?

- Ans**
- ☐ A. The diaphragm is flattened
  - ☐ B. The lungs are contracted
  - ☐ C. All carbon dioxide is expelled from the body
  - ☒ D. A residual amount of air remains in the lungs

**Q.59** In an electrical circuit four identical bulbs are connected in parallel to each other to a battery of 10 V (negligible internal resistance). When all the four bulbs glow, a current of 4 A is recorded. Then the power dissipated in the circuit and the resistance of each bulb are \_\_\_\_\_ and \_\_\_\_\_, respectively.

- Ans**
- ☐ A. 22.4 W, 1.4  $\Omega$
  - ☐ B. 24 W, 1.5  $\Omega$
  - ☒ C. 25.6 W, 1.6  $\Omega$
  - ☐ D. 27.2 W, 1.7  $\Omega$

**Q.60** Which of the following is a heterotrophic organism?

- Ans**
- ☒ A. Tiger
  - ☐ B. Neem tree
  - ☐ C. Grass
  - ☐ D. Algae

**Q.61** Which of the following compounds gets precipitated when lead nitrate solution is mixed with sodium iodide solution?

- Ans**
- ☐ A. Sodium nitrite
  - ☒ B. Lead iodide
  - ☐ C. Lead nitrite
  - ☐ D. Sodium nitrate

**Q.62** Suppose Sita has kept a needle in front of a concave mirror of focal length  $f$  at a distance  $(f+x)$  and a real image of the needle is seen on a screen at a distance  $(f+y)$ . Then the focal length  $f$  can be expressed as:

- Ans**
- ☒ A.  $f = -2\sqrt{xy}$
  - ☒ B.  $f = 2\sqrt{xy}$
  - ☒ C.  $f = \sqrt{xy}$
  - ☒ D.  $f = -\sqrt{xy}$

**Q.63** Which of the following is INCORRECT regarding the flow of energy between various components of the environment?

- Ans**
- ☒ A. Green plants capture about 10% of the solar energy that falls on leaves.
  - ☒ B. The amount of organic matter present at each trophic level is 10%.
  - ☒ C. Energy flow is unidirectional.
  - ☒ D. Every trophic level loses some energy as heat to the environment.

**Q.64** Which of the following statements is correct for saturated carbon compounds?

- Ans**
- ☒ A. They have carbon-carbon single bond only.
  - ☒ B. They have carbon-carbon double bond only.
  - ☒ C. They have carbon-carbon triple bond only.
  - ☒ D. They have both double and triple bond.

**Q.65** Which group in the Modern Periodic Table has only one non-metallic element?

- Ans**
- ☒ A. 14
  - ☒ B. 15
  - ☒ C. 16
  - ☒ D. 17

**Q.66** If a pin is placed in front of the converging lens at a distance of 20 cm, the converging lens forms an image that is real, inverted and equal to the size of the object. Then the power of the lens is:

- Ans**
- ☒ A. +10 D
  - ☒ B. -10 D
  - ☒ C. -5D
  - ☒ D. +5D

**Q.67** The radius of curvature of a spherical mirror is the distance between:

- Ans**
- ☒ A. pole and principal focus
  - ☒ B. principal focus and centre of curvature
  - ☒ C. centre of curvature and pole
  - ☒ D. centre of curvature and infinity

**Q.68** Carbon shows greater tendency for catenation than silicon.

Which of the following statements is the correct explanation for the given assertion?

**Ans** ☒ A.

Carbon-carbon bond is weaker than Si-Si bond due to the smaller size of carbon as compared to silicon.

☒ B.

Carbon-carbon bond is stronger than Si-Si bond due to the smaller size of carbon as compared to silicon.

☒ C.

Carbon-carbon bond is stronger than Si-Si bond due to the larger size of carbon as compared to silicon.

☒ D.

Carbon-carbon bond is weaker than Si-Si bond due to the larger size of carbon as compared to silicon.

**Q.69** A salt is dissolved in water and the pH of this salt solution is measured with a universal indicator paper. If the pH of solution is more than 7, the salt is most likely to be

**Ans** ☒ A.  $\text{Na}_2\text{SO}_4$

☒ B.  $\text{K}_2\text{CO}_3$

☒ C.  $\text{KCl}$

☒ D.  $\text{NH}_4\text{Cl}$

**Q.70** Who among the following is popularly known as 'Waterman of India'?

**Ans** ☒ A. Dr. MS Swaminathan

☒ B. Dr. Hiralal Chaudhuri

☒ C. Dr. Rajendra Singh

☒ D. Dr. Arun Krishnsnan

**Q.71** Which of the following statements about conductivity of electricity in ionic compounds is correct?

**Ans** ☒ A. Ionic compounds conduct electricity in both solid as well as in molten state.

☒ B. Ionic compounds conduct electricity in molten state but not in solid state.

☒ C. Ionic compounds conduct electricity in solid state but not in molten state.

☒ D.

Ionic compounds are bad conductors of electricity in both solid as well as in molten state.

**Q.72** Which of the following forms the lining of kidney tubules and ducts of salivary glands?

**Ans** ☒ A. Cuboidal epithelium

☒ B. Squamous epithelium

☒ C. Columnar epithelium

☒ D. Glandular epithelium

**Q.73** Suppose a proton moves towards the east by entering a uniform magnetic field in the downward direction. The direction of the force acting on the proton will be:

**Ans** ☒ A. towards the east

☒ B. towards the west

☒ C. towards the north

☒ D. towards the south

**Q.74** A  $10\ \Omega$  resistor is connected across a battery. The heat produced in the resistor in 5 seconds is 200 J. The potential difference across the resistor is:

- Ans**
- ☐ A. 10 V
  - ☒ B. 20 V
  - ☐ C. 30 V
  - ☐ D. 40 V

**Q.75** Ferrous sulphate on heating gives a solid product and two different gases. Select the gases evolved during the reaction.

- Ans**
- ☒ A. Sulphur dioxide and sulphur trioxide
  - ☐ B. Sulphur trioxide and oxygen
  - ☐ C. Sulphur dioxide and oxygen
  - ☐ D. Oxygen and disulphur

**Q.76** Which of the following elements is a metal?

- Ans**
- ☒ A. Sodium
  - ☐ B. Germanium
  - ☐ C. Bromine
  - ☐ D. Neon

**Q.77** Due to \_\_\_\_\_ phenomena, when light is passed through suspended particles in a medium, some portion of light is absorbed and emitted in all directions.

- Ans**
- ☐ A. reflection of light
  - ☐ B. refraction of light
  - ☐ C. dispersion of light
  - ☒ D. scattering of light

**Q.78** Which of the following statements is INCORRECT about AIDS?

- Ans**
- ☐ A. The virus can pass on to a normal person from an infected person by sharing the syringes used for injecting drugs.
  - ☐ B. The virus can be transmitted to an infant from the infected mother through her milk.
  - ☐ C. The virus can be transmitted through sexual contact with a person infected with HIV.
  - ☒ D. The virus can be transmitted by shaking hands with a person infected with HIV.

**Q.79** 1 commercial unit of electrical energy is equal to \_\_\_\_\_ joules.

- Ans**
- ☐ A.  $3.6 \times 10^8$
  - ☐ B.  $3.6 \times 10^7$
  - ☒ C.  $3.6 \times 10^6$
  - ☐ D.  $3.6 \times 10^5$

**Q.80** The direction of the magnetic field produced by the current carrying solenoid is:

- Ans**
- ☐ A. parallel to the direction of the current
  - ☐ B. perpendicular to the axis of the solenoid
  - ☒ C. parallel to the axis of the solenoid
  - ☐ D. parallel to the diameter of the solenoid



**Q.81** In November 2021, Manisha Kalyan scored India's first-ever goal against \_\_\_\_\_ in senior level football.

- Ans**
- ☒ A. Germany
  - ☒ B. France
  - ☒ C. Brazil
  - ☒ D. Sweden

**Q.82** Doddabetta peak, which means a big mountain, is the highest mountain peak in the \_\_\_\_\_

- Ans**
- ☒ A. Shevaroy Hills
  - ☒ B. Nilgiri Hills
  - ☒ C. Cardamom Hills
  - ☒ D. Ananthagiri Hills

**Q.83** In the reference of Constitution of India, who was the elected president of the Constituent Assembly from following?

- Ans**
- ☒ A. Dr. Rajendra Prasad
  - ☒ B. Dr. BR Ambedkar
  - ☒ C. Lal Bahadur Shastri
  - ☒ D. Jawahar Lal Nehru

**Q.84** Lala Lajpat Rai was associated with the \_\_\_\_\_ since 1921.

- Ans**
- ☒ A. Chinmaya Mission
  - ☒ B. Satyashodhak Samaj
  - ☒ C. Sarbatatyadipika Sabha
  - ☒ D. Servants of the People Society

**Q.85** Islam is a major world religion promulgated by the Prophet Muhammad in Arabia in the:

- Ans**
- ☒ A. 4<sup>th</sup> century
  - ☒ B. 5<sup>th</sup> century
  - ☒ C. 6<sup>th</sup> century
  - ☒ D. 7<sup>th</sup> century

**Q.86** Which Lok Sabha was constituted after the General Elections to Lok Sabha, 2019?

- Ans**
- ☒ A. 15<sup>th</sup>
  - ☒ B. 16<sup>th</sup>
  - ☒ C. 17<sup>th</sup>
  - ☒ D. 18<sup>th</sup>

**Q.87** In the psychology of motivation, balance theory is a theory of attitude change, proposed by \_\_\_\_\_.

- Ans**
- ☒ A. Milton Friedman
  - ☒ B. Adam Smith
  - ☒ C. John A List
  - ☒ D. Fritz Heider

**Q.88** The Government of India, on January 2022, approved the Production Linked Incentive (PLI) Scheme 'National Programme on Advanced Chemistry Cell (ACC) Battery Storage with a budgetary outlay of \_\_\_\_\_.

- Ans**
- ☐ A. ₹21,100 crore
  - ☐ B. ₹20,100 crore
  - ☒ C. ₹18,100 crore
  - ☐ D. ₹19,100 crore

**Q.89** At which of these places is the thickness of the troposphere the greatest?

- Ans**
- ☐ A. South Pole
  - ☒ B. Equator
  - ☐ C. North Pole
  - ☐ D. Above Mountains

**Q.90** Sangam literature was composed in which classical language?

- Ans**
- ☐ A. Sanskrit
  - ☐ B. Malayalam
  - ☒ C. Tamil
  - ☐ D. Odiya

**Q.91** Which of the following is NOT an elected functionary?

- Ans**
- ☒ A. Executive Officer - Municipal Board
  - ☐ B. Chairman - Municipal Board
  - ☐ C. Chairman - District Board
  - ☐ D. Chairman - Municipal Corporation

**Q.92** Majuli, in the \_\_\_\_\_, is the largest inhabited riverine island in the world.

- Ans**
- ☐ A. Ganga river
  - ☒ B. Brahmaputra river
  - ☐ C. Yamuna river
  - ☐ D. Godavari river

**Q.93** What is the primary function of money?

- Ans**
- ☐ A. It is the basis of distribution of income
  - ☒ B. It is a medium of exchange
  - ☐ C. It is the basis of debit
  - ☐ D. It is a store house of goods



**Q.94** On entering Amrit Kaal, the 25 year long lead up to India @100, the Union Budget 2022-23 provides impetus for growth along \_\_\_\_\_ priorities.

- Ans**
- ☐ A. Two
  - ☐ B. Three
  - ☐ C. Six
  - ☒ D. Four

**Q.95** \_\_\_\_\_ of trade refers to the type of goods and services a country exports and imports.

- Ans**
- ☐ A. Value
  - ☐ B. Volume
  - ☒ C. Composition
  - ☐ D. Gain

**Q.96** Buhsu Jiba is a festival celebrated in the state of \_\_\_\_\_.

- Ans**
- ☐ A. Odisha
  - ☐ B. Himachal Pradesh
  - ☒ C. Nagaland
  - ☐ D. Sikkim

**Q.97** Which of the following parts is responsible to give a specific colour to the eyes?

- Ans**
- ☒ A. Iris
  - ☐ B. Retina
  - ☐ C. Lens
  - ☐ D. Cornea

**Q.98** Dipika Pallikal and Joshna Chinappa won the doubles title at the World Championships in which sport on 9 April 2022?

- Ans**
- ☐ A. Badminton
  - ☐ B. Table Tennis
  - ☒ C. Squash
  - ☐ D. Lawn tennis

**Q.99** The e-PGPathshala scheme of the Government of India is related to which of the following?

- Ans**
- ☐ A. Nursery education
  - ☐ B. Primary education
  - ☐ C. Secondary education
  - ☒ D. Higher education

**Q.100** Which Union Territory launched two women's squads headed by Khalida Parveen, for ensuring the safety and security of women in February 2022?

- Ans**
- ☐ A. Chandigarh
  - ☒ B. Jammu And Kashmir
  - ☐ C. Ladakh
  - ☐ D. Puducherry



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 19/09/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

Q.1 The equation  $(x + 1)^3 - (x - 1)^3 = 0$  is:

- Ans
- ☒ A. a quadratic equation with real roots
  - ☒ B. a quadratic equation with non-real roots
  - ☒ C. a linear equation with real roots
  - ☒ D. a linear equation with non-real roots

Q.2 A father is four times as old as his son. After 10 years the father's age will be 2.5 times that of his son. Find the son's present age.

- Ans
- ☒ A. 40 years
  - ☒ B. 10 years
  - ☒ C. 15 years
  - ☒ D. 60 years

Q.3 The circum-centre of a triangle is the:

- Ans
- ☒ A. point of concurrence of its altitudes
  - ☒ B. point of concurrence of its medians
  - ☒ C. point of concurrence of bisectors of angles
  - ☒ D. point of concurrence of perpendicular bisectors of its sides

Q.4 If  $x + \frac{1}{x} = 8$ , then the value of  $x^3 + \frac{1}{x^3}$  is:

- Ans
- ☒ A. 688
  - ☒ B. 588
  - ☒ C. 488
  - ☒ D. 388

Q.5 The following observations are arranged in ascending order.

29, 32, 48, 50,  $x$ ,  $x + 2$ , 72, 78, 84, 95

If the median is 63, then the value of  $x$  is:

Ans ☒ A. 62

☐ B. 31

☐ C. 63

☐ D. 50

Q.6 If three taps are opened together, a tank is filled in 12 hrs. One of the taps can fill it in 10 hrs and another in 15 hrs, whereas the third pipe is a drainpipe that empties the tank. In how much time can the third pipe empty the filled tank when no other pipe is open?

Ans ☐ A. 11 hrs

☒ B. 12 hrs

☐ C. 10 hrs

☐ D. 9 hrs

Q.7 Find the scale with the greatest possible length which can measure poles of length 3 m 96 cm, 5 m 28 cm, and 7 m 92 cm exact number of times.

Ans ☒ A. 1 m 32 cm

☐ B. 3 m 21 cm

☐ C. 66 cm

☐ D. 33 cm

Q.8 The HCF and the LCM of two numbers are 15 and 300, respectively. If the difference of the two numbers is 15, find the sum of those two numbers.

Ans ☒ A. 135

☐ B. 140

☐ C. 130

☐ D. 145

Q.9 A watch passes through three hands and each gains 25%. If the third seller sells the watch for ₹1,250, the cost price of the watch to the first seller is:

Ans ☐ A. ₹540

☐ B. ₹740

☒ C. ₹640

☐ D. ₹840

Q.10 The area (in  $\text{cm}^2$ ) of a triangle, the lengths of whose sides are 5 cm, 7 cm and 8 cm, is \_\_\_\_\_.

Ans ☐ A. 280

☐ B. 140

☒ C.  $10\sqrt{3}$

☐ D.  $60\sqrt{3}$

Q.11 If  $\alpha, \beta$  are the roots of  $px^2 + qx + r = 0$ , then  $\alpha^2 + \beta^2 = \underline{\hspace{2cm}}$ .

- Ans
- ☒ A.  $2pq$
  - ☒ B.  $\frac{q^2 - 2pr}{p^2}$
  - ☒ C.  $\frac{q^2 + 2pr}{p^2}$
  - ☒ D.  $-2pq$

Q.12 If the curved surface area of a solid right circular cylinder is  $2310 \text{ cm}^2$  and its radius of base is  $21 \text{ cm}$ , then the total surface area (in  $\text{cm}^2$ ) of the given cylinder is  $\underline{\hspace{2cm}}$ .

(Take  $\pi = \frac{22}{7}$ )

- Ans
- ☒ A. 3696
  - ☒ B. 5082
  - ☒ C. 4250
  - ☒ D. 5892

Q.13 If  $a \sec A + b \tan A + c = 0$  and  $a' \sec A + b' \tan A + c' = 0$ , then  $(bc' - b'c)^2 - (ca' - c'a)^2$  is equal to:

- Ans
- ☒ A.  $(ab' - a'b)^2$
  - ☒ B.  $(a'b + ab')^2$
  - ☒ C.  $(ab + a'b')^2$
  - ☒ D.  $(ab - a'b')^2$

Q.14 The value of  $216^{\frac{2}{3}} + \frac{1}{256^{-\frac{3}{4}}} + 32^{\frac{1}{5}} - \frac{1}{10^{-2}} - 2$  is  $\underline{\hspace{2cm}}$ .

- Ans
- ☒ A. 0
  - ☒ B. 1
  - ☒ C. -1
  - ☒ D. -2

Q.15 If  $a^2 - 4a + 1 = 0$ , find  $a^2 + \frac{1}{a^2}$ .

- Ans
- ☒ A. 12
  - ☒ B. 14
  - ☒ C. 16
  - ☒ D. 18

Q.16

If  $a = \frac{x}{2x+y+z} = \frac{y}{x+2y+z} = \frac{z}{x+y+2z}$ , then find the value of a.

Ans

☐ A.  $\frac{1}{2}$

☒ B.  $\frac{1}{4}$

☐ C.  $\frac{2}{5}$

☐ D.  $\frac{3}{2}$

Q.17

At a health club, 80% of the members are men and the remaining 20% are women. The average age of the male members is 30 years and the average age of the female members is 40 years. The combined average age of all the members of this health club is \_\_\_\_\_ years.

Ans

☐ A. 35

☐ B. 31

☒ C. 32

☐ D. 33

Q.18

The value of  $[x^{m(n-p)} \cdot x^{n(p-m)} \cdot x^{p(m-n)}][\sqrt[4]{625} - \sqrt{25}]$  is \_\_\_\_\_.

Ans

☐ A. 1

☐ B. 5

☒ C. 0

☐ D. 2

Q.19

The value of  $326.\overline{786} - 10.19\overline{3}$  is:

Ans

☐ A.  $316.49\overline{575}$

☒ B.  $316.59\overline{345}$

☐ C.  $316.50\overline{365}$

☐ D.  $316.65\overline{345}$

Q.20

The product of  $(x - 5)$  and  $(x + 3)$  is:

Ans

☒ A.  $x^2 - 2x - 15$

☐ B.  $x^2 + 3x - 15$

☐ C.  $x^2 + 2x + 15$

☐ D.  $x^2 + 3x + 15$

Q.21

The price of a TV set increases by 20% in the first year and again by 5% in the next year. The net effect on the price of the TV set after two years compared to its initial price is a:

Ans

☐ A. 25% increase

☐ B. 20% increase

☐ C. 15% increase

☒ D. 26% increase

**Q.22** A shopkeeper sells pulses at ₹100 per kg that he purchased for ₹80 per kg. While selling, he cheats and gives 800 g instead of 1 kg. What is his actual profit?

- Ans**
- ☒ A. 64.00%
  - ☒ B. 58.00%
  - ☒ C. 56.25%
  - ☒ D. 62.75%

**Q.23** If the principal amount is ₹13,000, then the simple interest for 4 years at a rate of 5% per annum is \_\_\_\_\_.

- Ans**
- ☒ A. ₹1,300
  - ☒ B. ₹2,600
  - ☒ C. ₹2750
  - ☒ D. ₹5,200

**Q.24** If each interior angle of a regular polygon measures  $108^\circ$ , that polygon has \_\_\_\_\_ sides.

- Ans**
- ☒ A. 4
  - ☒ B. 5
  - ☒ C. 6
  - ☒ D. 10

**Q.25** Two pipes A and B can fill a tank completely in 5 hours and 8 hours, respectively. Pipe C can empty the tank completely in 10 hours. If all the three pipes are opened simultaneously in an empty tank, then how much time will it take to fill the tank completely?

- Ans**
- ☒ A. 6 hours
  - ☒ B.  $4\frac{2}{9}$  hours
  - ☒ C. 3 hours
  - ☒ D.  $4\frac{4}{9}$  hours

#### Section : General Intelligence and Reasoning

**Q.26** This question is based on the five, four-digit numbers given below.

(Left) 6338 5345 4127 7253 6176 (Right)

(Example: 697 – first digit = 6, second digit = 9, third digit = 7)

(NOTE: All operations to be done from left to right)

If 3 is subtracted from the first digit of every number, in how many numbers will the first digit be exactly divisible by 3?

- Ans**
- ☒ A. Two
  - ☒ B. Three
  - ☒ C. Four
  - ☒ D. Five

**Q.27** Refer to the following number series and answer the question.

(Left) 7 5 3 3 9 1 4 6 2 7 8 3 7 5 6 8 9 1 3 9 5 3 (Right)

Find the sum of all the odd numbers in the above number series.

- Ans**
- ☒ A. 100
  - ☒ B. 90
  - ☒ C. 80
  - ☒ D. 70

**Q.28** Sakshi got 18<sup>th</sup> rank from the top and Ravina got 13<sup>th</sup> rank from the bottom. Only three students have rank in between the ranks of Sakshi and Ravina. Sakshi got higher rank than Ravina. Find the number of students in the class.

- Ans**
- ☒ A. 33
- ☒ B. 34
- ☒ C. 35
- ☒ D. 32

**Q.29** A statement is given below, followed by four conclusions given in the options. Find out which conclusion is true based on the given statement.

Statement:  $K \geq L > T \geq Z > V \leq X < R$

- Ans**
- ☒ A.  $K \geq T > Z$
- ☒ B.  $R > V > K$
- ☒ C.  $L > Z > V$
- ☒ D.  $X = T = K$

**Q.30** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/<br>Symbol | 6 | 8 | 4 | + | 5 | # | % | 2 | \$ | 1 | ^ | 7 | 9 | * | @ |
|-------------------|---|---|---|---|---|---|---|---|----|---|---|---|---|---|---|
| Code              | S | U | T | W | N | P | V | D | A  | Z | J | M | O | M | Y |

**Conditions:**

- (i) If the first and last elements are numbers, then the last element will be replaced by the symbol @.
- (ii) If the first element is a symbol, then the first element will be coded as ©.
- (iii) If both the first and second elements are numbers, then the third element will be coded as \*.

What will be the code for the following?

% 5 6 7 @

- Ans**
- ☒ A. ©NSMY
- ☒ B. YMSN©
- ☒ C. AYNSM
- ☒ D. NSMYV

**Q.31** एक कथन और उसके बाद दो धारणाएं I और II दी गई हैं। आपको कथन में दी गई जानकारी को सत्य मानते हुए यह बताना है कि दी गई धारणाओं में से कौन सी कथन में निहित हैं?

**कथन:**

कवीस जयंती वर्ष मनाने हेतु आयोजित एक कला प्रदर्शनी, गर्मियों में एक महीने तक लगी रहेगी, और यह जनता के लिए खुली रहेगी।

**धारणाएं:**

- I. कलाकृतियां रानी के जीवन और उनकी विरासत के इर्द-गिर्द केंद्रित हैं।
- II. प्रदर्शनी में भाग लेना, सभी के लिए निःशुल्क है।

- Ans**
- ☒ A. Only assumption I is implicit
- ☒ B. Only assumption II is implicit
- ☒ C. Neither assumptions I nor II is implicit
- ☒ D. Both assumptions I and II are implicit

**Note:** For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

- Q.32** Following table shows the marks of five students in 5 different subjects in a school examination. Each subject carries a maximum of 100 marks. Study the table and answer the question.

| Students \ Subject | Rohan | Mohan | Radha | Ali | Johan |
|--------------------|-------|-------|-------|-----|-------|
| Mathematics        | 70    | 88    | 70    | 90  | 95    |
| Statistics         | 74    | 78    | 75    | 70  | 85    |
| Hindi              | 65    | 78    | 76    | 53  | 50    |
| English            | 60    | 64    | 70    | 65  | 85    |
| Social Science     | 58    | 54    | 62    | 46  | 66    |

Who among them has achieved the second highest aggregated marks?

- Ans**
- ☒ A. Johan
  - ☒ B. Radha
  - ☒ C. Mohan
  - ☒ D. Rohan

- Q.33** All 30 students of a class are standing in a straight row facing the north. Komal is 8<sup>th</sup> from the right end while Priya is 14<sup>th</sup> from the left end. How many students are standing between Komal and Priya?

- Ans**
- ☒ A. 7
  - ☒ B. 9
  - ☒ C. 8
  - ☒ D. 10

- Q.34** This question is based on the following 3-letter words.

AID, BAD, CAT, DOG, EAT

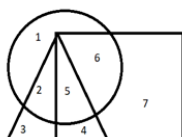
If in each of the words, each letter is changed to the next letter in the English alphabetical order, how many words (not necessarily meaningful) thus formed will have no vowel?

- Ans**
- ☒ A. Three
  - ☒ B. Two
  - ☒ C. One
  - ☒ D. None

- Q.35** In a certain code language, 'LALIT' is written as 'ODOLW' and 'MOHIT' is written as 'PRKLW'. How will 'SUMIT' be written in that code language?

- Ans**
- ☒ A. VXLPW
  - ☒ B. VXPLW
  - ☒ C. LPWVX
  - ☒ D. XVPWL

- Q.36** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons. 'Hindi speakers' are represented by the circle, 'Urdu speakers' are represented by the square, and 'Tamil speakers' are represented by the triangle. How many people can speak all the three languages?



- Ans**
- ☒ A. 2
  - ☒ B. 3
  - ☒ C. 4
  - ☒ D. 5



**Q.37** Select the option that is related to the fifth term in the same way as the second term is related to the first term and the fourth term is related to the third term.

A3E7S21 : 1C5G19U :: B4I11U23 : 2D9K21W :: C5H10L14 : ?

- Ans**
- ☒ A. 3E8J12O
  - ☒ B. 3E8J13N
  - ☒ C. 3E8J13O
  - ☒ D. 3E8J12N

**Q.38** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. EXAMPLE: 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

62 : 50 :: 72 : 60 :: 82 : ?

- Ans**
- ☒ A. 70
  - ☒ B. 72
  - ☒ C. 74
  - ☒ D. 76

**Q.39** What will come in the place of the question mark (?) in the following equation, if '+' and '-' are interchanged and also '×' and '÷' are interchanged?

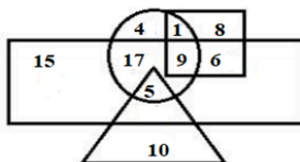
$160 \times 8 - 22 \times 11 \div 180 \times 6 - 4 = ?$

- Ans**
- ☒ A. 64
  - ☒ B. 74
  - ☒ C. 84
  - ☒ D. 94

**Q.40** Aakash starts from Point O and drives 3 km towards the north. He then takes a right turn, drives 5 km, turns right and drives 10 km. He then takes a right turn and drives 5 km. He takes a final right turn, drives 3 km and stops at Point Z. How far and towards which direction should he drive in order to reach Point O from Point Z? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 4 km towards the north
  - ☒ B. 2 km towards the east
  - ☒ C. 3 km towards the east
  - ☒ D. 2 km towards the west

**Q.41** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons. The triangle represents 'motivational speakers', the circle represents 'women', the square represents 'scientists', and the rectangle represents 'married'. Find the number of married women who are scientists but NOT motivational speakers.



- Ans**
- ☒ A. 17
  - ☒ B. 6
  - ☒ C. 9
  - ☒ D. 5

**Q.42** If all the directions are moved 135 degrees clockwise, then which new direction does the original south point to?

- Ans**
- ✓ A. North-West
  - ✗ B. South-East
  - ✗ C. South-West
  - ✗ D. North-East

**Q.43** Which of the following terms will replace the question mark (?) in the given series to make it logically complete?

WXN13, UVL19, STJ25, QRH31, ?

- Ans**
- ✓ A. OPF37
  - ✗ B. OFP27
  - ✗ C. PFO36
  - ✗ D. FPO37

**Q.44** Eight politicians, Prudhvi, Samrat, Rajesh, Unadkat, Narayan, Vimal, Tapasvi and Wazid, are standing in a straight line facing north, but not necessarily in the same order. Rajesh and Wazid are the immediate neighbours of Samrat. Vimal is an immediate neighbour of Unadkat and Wazid. Tapasvi and Narayan are the immediate neighbours of Prudhvi. Neither Tapasvi nor Rajesh is at the extreme ends of the line. Unadkat is somewhere to the right of Tapasvi.

Who among the following is standing second to the right of Prudhvi?

- Ans**
- ✗ A. Tapasvi
  - ✓ B. Rajesh
  - ✗ C. Wazid
  - ✗ D. Vimal

**Q.45** Seven friends, Monika, Janak, Pawan, Lokesh, Rupesh, Sohan and Anand, are sitting in a straight line facing north but not necessarily in the same order. Anand is sitting to the immediate right of Rupesh. Rupesh is sitting fourth to the right of Sohan. Pawan is an immediate neighbour of Janak and Lokesh. Lokesh is third to the right of Sohan, who is sitting at one of ends.

What is the position of Monika with respect to Lokesh?

- Ans**
- ✗ A. Immediate neighbour
  - ✗ B. Third to the left
  - ✗ C. Second to the left
  - ✓ D. Third to the right

**Q.46** Which of the following numbers will replace the question mark (?) in the given series?

45, 50, 60, 75, 95, ?

- Ans**
- ✗ A. 130
  - ✗ B. 115
  - ✓ C. 120
  - ✗ D. 125

**Q.47** If 12 April 2010 is a Monday, then what will be the day of the week on 8 March 2022?

- Ans**
- ✓ A. Tuesday
  - ✗ B. Friday
  - ✗ C. Sunday
  - ✗ D. Wednesday

**Q.48** Which of the following numbers will replace the question mark (?) in the given series?

6, 3, 13, 7, 20, 11, 27, 15, 34, ?

- Ans**
- ☒ A. 20
  - ☒ B. 19
  - ☒ C. 18
  - ☒ D. 17

**Q.49** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. EXAMPLE: 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

32 : 150 :: 22 : 100 :: 12 : ?

- Ans**
- ☒ A. 50
  - ☒ B. 55
  - ☒ C. 60
  - ☒ D. 65

**Q.50** Five film makers, Pragati, Ratan, Tomar, Vihari and Ujwala, live on five different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it number 2, and so on till the topmost floor is numbered 5. Vihari lives on the floor immediately below Ujwala. Pragati lives on the floor immediately above Tomar. Ratan lives on the floor immediately above Pragati. Ujwala lives on the floor immediately below Tomar.

Who lives on the third floor?

- Ans**
- ☒ A. Ratan
  - ☒ B. Pragati
  - ☒ C. Tomar
  - ☒ D. Ujwala

**Q.51** In the following question, the statement is followed by two conclusions. Which of the two conclusion(s) is/are true based on the given statement?

Statement:  $F \leq I < G > J \geq H > L$

Conclusions: I.  $G > F$

II.  $L < J$

- Ans**
- ☒ A. Only conclusion I is true
  - ☒ B. Only conclusion II is true
  - ☒ C. Neither conclusion I nor II is true
  - ☒ D. Both conclusions I and II are true

**Q.52** What approximate value should come in place of the question mark (?) in the following equation

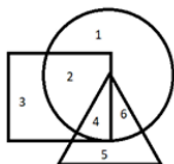
$55.98 \div 7.09 \times 5.05 + 33.98 - 26.99 \div 2.97 = ?$

- Ans**
- ☒ A. 65
  - ☒ B. 64
  - ☒ C. 63
  - ☒ D. 62

**Q.53** Each of the digits in the number 1428935 is arranged in ascending order from left to right. The position of how many digits will remain unchanged as compared to that in the original number?

- Ans**
- ☒ A. One
  - ☒ B. Two
  - ☒ C. Three
  - ☒ D. None

- Q.54** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons. The circle represents 'healthy people', the square represents 'men', and the triangle represents 'graduates'. How many men are there who are healthy but NOT graduates?



- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

- Q.55** The table given shows the total number of students of a college and the number of girls who are studying in four different courses – Data science, Cloud computing, Statistics and Image processing in 3 different years.

| Year/Courses     | 2016                     |                       | 2017                     |                       | 2018                     |                       |
|------------------|--------------------------|-----------------------|--------------------------|-----------------------|--------------------------|-----------------------|
|                  | Total number of students | Total number of girls | Total number of students | Total number of girls | Total number of students | Total number of girls |
| Data science     | 800                      | 500                   | 900                      | 450                   | 760                      | 400                   |
| Cloud computing  | 1600                     | 400                   | 1800                     | 1000                  | 1500                     | 700                   |
| Statistics       | 1400                     | 600                   | 1500                     | 700                   | 1040                     | 400                   |
| Image processing | 1200                     | 600                   | 1300                     | 600                   | 800                      | 200                   |

What is the average number of boys studying in all the four courses in the year 2017?

- Ans**
- ☒ A. 586.5
  - ☒ B. 687.5
  - ☒ C. 734.5
  - ☒ D. 492.5

#### Section : General Science

- Q.56** Name the physico-chemical process by which plants convert light energy into chemical energy.

- Ans**
- ☒ A. Physical synthesis
  - ☒ B. Physico-chemical conversions
  - ☒ C. Photosynthesis
  - ☒ D. Starch synthesis

- Q.57** Why should plastic cups be replaced by paper cups for selling tea in public places?

- Ans**
- ☒ A. Plastic cups are cheaper
  - ☒ B. Paper cups are biodegradable
  - ☒ C. Paper cups are stronger
  - ☒ D. Paper cups keep things safe

- Q.58** Which of the following statement is INCORRECT?

- Ans**
- ☒ A. Sex is determined by different factors in various species.
  - ☒ B. All human chromosomes are not paired.
  - ☒ C. All children will inherit a Y chromosome from their mother.
  - ☒ D. Animals, such as snails, individuals can change sex.

**Q.59** Which of the following compounds is used as a raw material for making plaster of Paris?

- Ans**
- ☒ A.  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$
  - ☐ B.  $\text{CuSO}_4 \cdot 2\text{H}_2\text{O}$
  - ☐ C.  $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$
  - ☐ D.  $\text{MgSO}_4 \cdot 2\text{H}_2\text{O}$

**Q.60** A student measured the magnification of a spherical lens and a spherical mirror. He found that both are +3.0. He would conclude that:

- Ans**
- ☐ A. the lens and the mirror both are concave
  - ☐ B. the lens and the mirror both are convex
  - ☐ C. the lens is concave but the mirror is convex
  - ☒ D. the lens is convex but the mirror is concave

**Q.61** When you put a plant cell, fungal cell or a bacterial cell in a very dilute external medium, the plant cell or fungal cell will absorb water but will not burst, whereas an animal cell will burst. Which part of the plant cell helps it to withstand the pressure of incoming water?

- Ans**
- ☐ A. Plasma membrane
  - ☒ B. Cell wall
  - ☐ C. Nucleus
  - ☐ D. Cytoplasm

**Q.62** If the induced EMF in the coil of a conductor of resistance  $10\ \Omega$  is  $-2\ \text{V}$ , then the induced current in the coil is:

- Ans**
- ☐ A.  $0.2\ \text{A}$
  - ☐ B.  $-2\ \text{A}$
  - ☐ C.  $2\ \text{A}$
  - ☒ D.  $-0.2\ \text{A}$

**Q.63** Which of the following is the least reactive metal in the reactivity series?

- Ans**
- ☐ A. Cu
  - ☐ B. Ag
  - ☒ C. Au
  - ☐ D. Hg

**Q.64** Which of the following methods is used to prevent STDs to some extent?

- Ans**
- ☐ A. Vasectomy
  - ☐ B. Tubectomy
  - ☐ C. Copper-T
  - ☒ D. Condoms

**Q.65** A ball of diameter  $10\ \text{cm}$  is placed at a distance of  $40\ \text{cm}$  in front of a lens with a power of  $+5.0\ \text{D}$ . The diameter of the image of the ball will be:

- Ans**
- ☐ A.  $6\ \text{cm}$
  - ☐ B.  $8\ \text{cm}$
  - ☒ C.  $10\ \text{cm}$
  - ☐ D.  $12\ \text{cm}$

**Q.66** The correct relation between  $v$ ,  $u$ , and  $f$  for a spherical mirror is:

**Ans** ☒ A.  $v = u + f$

☒ B.  $\frac{1}{f} = \frac{1}{v} - \frac{1}{u}$

☒ C.  $\frac{1}{f} = \frac{1}{u} + \frac{1}{v}$

☒ D.  $\frac{1}{f} + \frac{1}{u} = \frac{1}{v}$

**Q.67** Out of the following options, which is the best strategy to avoid acquiring HIV?

**Ans** ☒ A. Simply by avoiding sex with people who have AIDS

☒ B. Only restrict sex with prostitutes

☒ C. Only avoid sex with drug addicts

☒ D. Restrict sex to a single known healthy person

**Q.68** Which of the following is the general formula of alkene?

**Ans** ☒ A.  $C_nH_{2n+2}$

☒ B.  $C_nH_{2n}$

☒ C.  $C_nH_{2n-2}$

☒ D.  $C_nH_{2n+4}$

**Q.69** Metals are electropositive in nature.

Which of the following is the correct explanation for the given assertion?

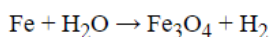
**Ans** ☒ A. Metals lose electrons to form anions.

☒ B. Metals gain electrons to form anions.

☒ C. Metals gain electrons to form cations.

☒ D. Metals lose electrons to form cations.

**Q.70** Which of the following is the correct balanced equation for the given chemical reaction?



**Ans** ☒ A.  $3Fe(s) + 4H_2O(g) \rightarrow Fe_3O_4(s) + 4H_2(g)$

☒ B.  $Fe(s) + 4H_2O(g) \rightarrow Fe_3O_4(s) + 2H_2(g)$

☒ C.  $3Fe(s) + H_2O(g) \rightarrow 3Fe_3O_4(s) + H_2(g)$

☒ D.  $Fe(s) + 4H_2O(g) \rightarrow 3Fe_3O_4(s) + H_2(g)$

**Q.71** The correct relation between  $\rho$ ,  $R$ ,  $l$  and  $A$  is:

**Ans** ☒ A.  $R = \rho l A$

☒ B.  $\rho = \frac{Rl}{A}$

☒ C.  $\rho = \frac{RA}{l}$

☒ D.  $R = \frac{\rho A}{l}$

**Q.72** Who among the following was first to find that every eighth element had properties similar to that of the first element?

**Ans** ☒ A. Dmitri Ivanovich Mendelée

☒ B. Johann Wolfgang Döbereiner

☒ C. John Newlands

☒ D. Henry Moseley

**Q.73** The only thing that we do not get from natural resources but directly from outside the earth is \_\_\_\_\_.

**Ans** ☒ A. Coal

☒ B. Natural gases

☒ C. Minerals

☒ D. Energy

**Q.74** A current of 15 mA is flowing through an electronic device when the voltage across the device is 0.3 mV. The resistance of the device is:

**Ans** ☒ A. 0.2 m $\Omega$

☒ B. 2.0 m $\Omega$

☒ C. 20 m $\Omega$

☒ D. 200 m $\Omega$

**Q.76** In an electric circuit 2 lamps of resistances 10  $\Omega$  and 20  $\Omega$  are in parallel and a battery of 20 V is applied. If power, voltage, current and resistance are represented by P, V, I and R, respectively, then which of the following relations holds true?

**Ans** ☒ A.  $P = V^2 R$

☒ B.  $P = \frac{V^2}{R}$

☒ C.  $P = \frac{V}{R^2}$

☒ D.  $P = IR^2$

**Q.77** What is the percentage of oxygen in air normally inhaled and exhaled by human beings?

**Ans** ☒ A. Around 18% in inhaled air and 10% in exhaled air

☒ B. Around 19% in inhaled air and 17% in exhaled air

☒ C. Around 20% in inhaled air and 2% in exhaled air

☒ D. Around 21% in inhaled air and 16% in exhaled air



**Q.78** What happens when concentrated hydrochloric acid is added to manganese dioxide?

- Ans**
- ☐ A. Hydrogen gas is liberated.
  - ☐ B. Hydrochloric acid is reduced to chlorine gas.
  - ☒ C. Manganese dioxide is reduced to manganese (II) chloride.
  - ☐ D. Hydrochloric acid is reduced while  $\text{MnO}_2$  is oxidised.

**Q.79** Which of the following compounds reacts with carbon dioxide to form lime stone?

- Ans**
- ☐ A. Calcium carbide
  - ☐ B. Calcium
  - ☐ C. Calcium oxide
  - ☒ D. Calcium hydroxide

**Q.80** Suppose a ball is placed in front of a concave mirror and a real image that is twice the size of the ball is formed on a screen. The ball and the screen are then moved until the image is five times the size of the object. If the shift of the screen is  $d$ , then the shift in the object is:

- Ans**
- ☒ A.  $\frac{d}{10}$
  - ☐ B.  $\frac{d}{12}$
  - ☐ C.  $\frac{d}{15}$
  - ☐ D.  $\frac{d}{18}$

Section : General Awareness and Current Affairs

**Q.81** Which of the following depict the characteristics of the Reserve Bank of India?

- A. It issues the currency of the country.
- B. It controls money supply of the country through various methods.
- C. It acts as a banker to the government.
- D. It accepts deposits from the public and lends out part of these funds to those who want to borrow.

- Ans**
- ☐ A. A, B and D
  - ☐ B. B, C and D
  - ☐ C. A, C and D
  - ☒ D. A, B and C

**Q.82** Which of the following lies under the jurisdiction of the Central Government?

- Ans**
- ☐ A. District Board
  - ☐ B. Municipal Board
  - ☒ C. Cantonment Board
  - ☐ D. Town Area



**Q.83** The Bhakhra Nangal dam is built on which river?

- Ans**
- ☐ A. Godavari
  - ☐ B. Brahmaputra
  - ☒ C. Sutlej
  - ☐ D. Jhelum

**Q.84** Which agency coordinates with various federal and state government agencies and departments to collect and compile the data required to calculate the GDP in India?

- Ans**
- ☐ A. Ministry of Commerce and Industry
  - ☐ B. Reserve Bank of India
  - ☐ C. Indian Statistical Institute
  - ☒ D. National Statistical Office

**Q.85** The words Socialist, Secular and Integrity were added in the preamble of Indian Constitution by which amendment?

- Ans**
- ☐ A. 72<sup>nd</sup>
  - ☐ B. 44<sup>th</sup>
  - ☒ C. 42<sup>nd</sup>
  - ☐ D. 52<sup>nd</sup>

**Q.86** Who is the Chairperson of the National Commission for Women as on 1 April 2022?

- Ans**
- ☐ A. Mohini Giri
  - ☒ B. Rekha Sharma
  - ☐ C. Swati Maliwal
  - ☐ D. Jayanti Patnaik

**Q.87** The registry of The Supreme Court is headed by who among the following?

- Ans**
- ☒ A. Secretary General
  - ☐ B. Attorney General
  - ☐ C. President
  - ☐ D. Chief Justice of India

**Q.88** In July 2022, the 17<sup>th</sup> campus of the National Institute of Fashion Technology (NIFT) was inaugurated by the Union Textile Minister Sri Piyush Goyal at which place?

- Ans**
- ☐ A. Patna
  - ☒ B. Panchkula
  - ☐ C. Shillong
  - ☐ D. Rae Bareli

**Q.89** Who gave the concept of the Grameen Bank Model, which has inspired the creation of Regional Rural Banks (RRBs) in India?

- Ans**
- ☒ A. Ziaur Rahman
  - ☒ B. Rejwan Ahammad Taufiq
  - ☒ C. Abdul Hamid
  - ☒ D. Muhammad Yunus

**Q.90** Who among the following was widely remembered for hoisting the Indian National flag at the Gowalia Tank maidan, Bombay during a Quit India Movement in 1942?

- Ans**
- ☒ A. Aruna Asaf Ali
  - ☒ B. Durgavati Devi
  - ☒ C. Rani Gaidinliu
  - ☒ D. Velu Nachiyar

**Q.91** The Ancient Indian Epic '\_\_\_\_\_' Stands as the longest epic poem known, and has been described as 'the longest poem ever written'.

- Ans**
- ☒ A. The Ramayana
  - ☒ B. The Mahabharata
  - ☒ C. The Bhagawad Gita
  - ☒ D. The Buddhacharita

**Q.92** Tata Iron and Steel Company (TISCO) was incorporated in which of the following years?

- Ans**
- ☒ A. 1905
  - ☒ B. 1906
  - ☒ C. 1907
  - ☒ D. 1908

**Q.93** Where was the latest Regional Centre of the Sports Authority of India opened on 2 November 2020?

- Ans**
- ☒ A. Zirakpur
  - ☒ B. Sonipat
  - ☒ C. Imphal
  - ☒ D. Bhopal

**Q.94** The part of the Himalayas lying between Satluj and Kali rivers is known as:

- Ans**
- ☒ A. Purvanchal
  - ☒ B. Assam Himalayas
  - ☒ C. Nepal Himalayas
  - ☒ D. Kumaun Himalayas

**Q.95** Who won the Men's Single title at the 2022 Australian Open tennis tournament?

- Ans**
- ☒ A. Roger Federer
  - ☒ B. Novak Djokovic
  - ☒ C. Daniil Medvedev
  - ☒ D. Rafael Nadal

**Q.96** Which IIT, along with Visual Quest and Youth4Jobs, developed India's first AI-based job portal for persons with disabilities called 'Swarajability'?

- Ans**
- ☒ A. IIT-Kharagpur
  - ☒ B. IIT-Delhi
  - ☒ C. IIT-Bombay
  - ☒ D. IIT-Hyderabad

**Q.97** The 8th Schedule of the Constitution of India recognises a total of \_\_\_\_\_ languages as the official languages.

- Ans**
- ☒ A. 20
  - ☒ B. 21
  - ☒ C. 22
  - ☒ D. 23

**Q.98** The SVAMITVA (Survey of Villages Abadi and Mapping with Improvised Technology in Village Areas) Scheme, implemented by the Ministry of Panchayati Raj, uses \_\_\_\_\_ for mapping of land parcels.

- Ans**
- ☒ A. drones
  - ☒ B. earth- orbiting satellites
  - ☒ C. rockets
  - ☒ D. helicopters

**Q.99** Which sanctuary has the largest number of one-horned Rhinoceros as on June 2022?

- Ans**
- ☒ A. Sariska
  - ☒ B. Kaziranga
  - ☒ C. Mudumalai
  - ☒ D. Kanha

**Q.100** Mayurbhanj Chhau dance is native to which state?

- Ans**
- ☒ A. Jharkhand
  - ☒ B. Odisha
  - ☒ C. Manipur
  - ☒ D. Bihar



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 19/09/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** Sony and Mary can complete a painting in 4 days and 6 days, respectively. They work on same painting on alternate days starting with Mary. In how many days will they together complete the painting?

- Ans**
- ☒ A. 4.5
  - ☒ B. 5
  - ☐ C. 5.25
  - ☐ D. 4.75

**Q.2** If  $m = -9$  and  $n = 13$ , find the value of  $25m^2 + 40mn + 16n^2$ .

- Ans**
- ☒ A. 49
  - ☐ B. 64
  - ☐ C. 81
  - ☐ D. 100

**Q.3** Which of the options given below correctly describes the nature of the roots of the quadratic equation  $x^2 + 4\sqrt{3}x + 3 = 0$ ?

- Ans**
- ☐ A. irrational and equal
  - ☐ B. rational and equal
  - ☐ C. rational and unequal
  - ☒ D. irrational and unequal

**Q.4** The number  $0.3\overline{35}$  can be represented in the form of  $\frac{P}{Q}$  (where P and Q are natural numbers) as:

- Ans**
- ☐ A.  $\frac{332}{995}$
  - ☐ B.  $\frac{332}{895}$
  - ☒ C.  $\frac{332}{990}$
  - ☐ D.  $\frac{332}{980}$

**Q.5** A shopkeeper allows 18% discount on the marked price of an article and still makes a profit of 23%. If he gains ₹1,840 on the sale of the article, then what is the marked price of the article?

- Ans**
- ✓ A. ₹12,000
  - ✗ B. ₹10,000
  - ✗ C. ₹15,000
  - ✗ D. ₹9,840

**Q.6** Johnny borrows ₹7,000 from a bank at simple interest. After 3 years he pays ₹4,000 to the bank, this amount being entirely adjusted as repayment of part of the principal borrowed. At the end of 5 years from the date of borrowing he pays ₹4,350 to the bank to settle the account. Find the rate of interest.

- Ans**
- ✗ A. 4%
  - ✓ B. 5%
  - ✗ C. 6%
  - ✗ D. 7%

**Q.7** The expression  $(3.7)^3 - 3 \times (3.7)^2 \times (0.7) + 3(3.7) \times (0.7)^2 - (0.7)^3$  is equal to:

- Ans**
- ✗ A. 30
  - ✗ B. 10
  - ✗ C. 35
  - ✓ D. 27

**Q.8** If  $x \neq y, z > 0$ , and  $(x + z)^2 : (y + z)^2 :: x : y$ , then find  $a$ , where  $a > 0$ , such that  $x : a :: a : y$ .

- Ans**
- ✗ A.  $x^2 y^2$
  - ✗ B.  $x - y$
  - ✗ C.  $-z$
  - ✓ D.  $z$

**Q.9** The ratio of the present ages of A to B is 7 : 3. The ratio of A's age 4 years ago to B's age 4 years hence is 2 : 1. The difference between A's age 4 years hence and B's age 4 years ago is:

- Ans**
- ✗ A. 46 years
  - ✓ B. 56 years
  - ✗ C. 88 years
  - ✗ D. 36 years

**Q.10** The total cost price of 100 apples is ₹700. They are sold at a rate of ₹96 per dozen. The profit percentage is \_\_\_\_\_.

- Ans**
- ✗ A.  $8\frac{2}{3}\%$
  - ✓ B.  $14\frac{2}{7}\%$
  - ✗ C.  $13\frac{1}{7}\%$
  - ✗ D.  $24\frac{1}{7}\%$

**Q.11** The volume (in  $\text{cm}^3$ ) of a right circular cone, whose slant height is 28 cm and radius of base is 21 cm, is \_\_\_\_\_. (Take

$$\pi = \frac{22}{7})$$

- Ans**
- ☒ A. 38808
  - ☒ B.  $3234\sqrt{7}$
  - ☒ C.  $1617\sqrt{7}$
  - ☒ D. 30808

**Q.12** Raju's age after 30 years will be 2 times his age 4 years ago. The present age of Raju is:

- Ans**
- ☒ A. 42 years
  - ☒ B. 40 years
  - ☒ C. 38 years
  - ☒ D. 36 years

**Q.13** Five years ago the sum of the ages of A and B was 58 years. The difference between B's age 8 years ago and A's age 8 years hence is 16 years. The ratio of the present ages of A and B is:

- Ans**
- ☒ A. 9 : 25
  - ☒ B. 25 : 9
  - ☒ C. 36 : 52
  - ☒ D. 5 : 13

**Q.14** For a certain number of observations the median is 55 and the mean is 58. Find the mode.

- Ans**
- ☒ A. 50
  - ☒ B. 49
  - ☒ C. 51
  - ☒ D. 52

**Q.15** The measures of three angles of a quadrilateral are given as  $110^\circ$ ,  $55^\circ$  and  $125^\circ$ . The measure of its fourth angle is \_\_\_\_\_.

- Ans**
- ☒ A.  $110^\circ$
  - ☒ B.  $60^\circ$
  - ☒ C.  $90^\circ$
  - ☒ D.  $70^\circ$

**Q.16** Two trains start at the same time from A and B and proceed towards each other at speeds of 85 km per hour and 105 km per hour, respectively. When they meet, it is found that train from B has travelled 200 km more than the train from A. The distance between A and B is:

- Ans**
- ☒ A. 1950 km
  - ☒ B. 1800 km
  - ☒ C. 1900 km
  - ☒ D. 2000 km

**Q.17** The value of  $40 - [3 - \{4 - (6 - \overline{6-4})\}]$  is \_\_\_\_\_.

- Ans**
- ☒ A. 300
  - ☒ B. 100
  - ☒ C. 37
  - ☒ D. 47

**Q.18** The length of each edge of a cube is increased by 50%. The percentage increase in the surface area is:

- Ans**
- ☒ A. 25 %
  - ☒ B. 125%
  - ☒ C. 150%
  - ☒ D. 225%

**Q.19** The product of the HCF and the LCM of 4, 20, 28 is:

- Ans**
- ☒ A. 560
  - ☒ B. 140
  - ☒ C. 564
  - ☒ D. 136

**Q.20** A hollow cylinder of height  $h$  has inner and outer radii of base given as  $r$  and  $R$ , respectively. The ratio of the curved surface area to the total surface area of this cylinder is:

- Ans**
- ☒ A.  $h : (h + R - r)$
  - ☒ B.  $(R + r - h) : h$
  - ☒ C.  $(R - r - h) : r$
  - ☒ D.  $h : (R - r - h)$

**Q.21** Which of the numbers below is exactly divisible by 33?

- Ans**
- ☒ A. 19679
  - ☒ B. 27441
  - ☒ C. 73205
  - ☒ D. 25080

**Q.22** A train travels at a speed of 30 km/h for 6 hours and at 45 km/h for 4 hours. What is the average speed of the train during these 10 hours?

- Ans**
- ☒ A. 35 km/h
  - ☒ B. 36 km/h
  - ☒ C. 40 km/h
  - ☒ D.  $37\frac{1}{2}$  km/h

**Q.23** If  $\cot A + \cos A = m$  and  $\cot A - \cos A = n$ , then:

- Ans**
- ☒ A.  $m^2 - n^2 = 16 mn$
  - ☒ B.  $(m^2 - n^2)^2 = 4 mn$
  - ☒ C.  $(m^2 - n^2)^2 = 16 mn$
  - ☒ D.  $m^2 + n^2 = 4 mn$

**Q.24** If one angle of a quadrilateral measures  $120^\circ$  and its remaining three angles are equal in measure to one another, then the measure of each of these three remaining angles is equal to \_\_\_\_\_.

- Ans**
- ☒ A.  $110^\circ$
  - ☒ B.  $80^\circ$
  - ☒ C.  $60^\circ$
  - ☒ D.  $90^\circ$

Q.25

The roots of  $2^{2x} - 10 \times 2^x + 16 = 0$  are:

Ans

✗ A. 2, 8

✓ B. 1, 3

✗ C. 1, 8

✗ D. 2, 3

### Section : General Intelligence and Reasoning

Q.26

Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(7, 127, 6)

(8, 129, 5)

Ans

✗ A. (9, 168, 3)

✗ B. (11, 144, 9)

✓ C. (10, 156, 4)

✗ D. (13, 131, 5)

Q.27

In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

ON : NPMO

IN : HIMO

Ans

✗ A. GO : ARED

✓ B. TO : SUNP

✗ C. AT : CDUV

✗ D. DO : ACMN

Q.28

Mohan drives 6 km towards the south and takes a turn to the right at  $90^\circ$ . After driving a distance of 3 km, he turns to the right and drives further 3 km. Now, in which direction is he from the starting place? (All turns are 90 degree turns only)

Ans

✗ A. North

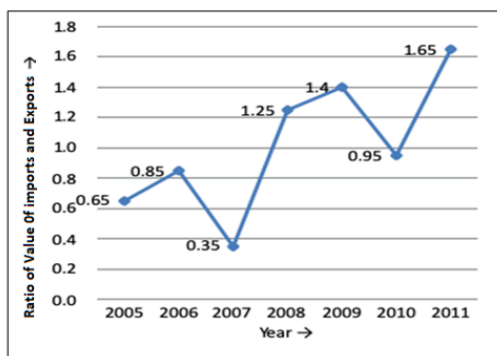
✗ B. South

✗ C. South-East

✓ D. South-West



- Q.29** The following graph shows the ratio of the imports and exports of an industry during the period from 2005 to 2011. Study the graph and answer the question that follows.



If the imports of the company in 2009 were 420 crore, then how much were the exports?

- Ans**
- ☒ A. 250 crore
  - ☒ B. 300 crore
  - ☒ C. 350 crore
  - ☒ D. 400 crore

- Q.30** Three statements are given, followed by two conclusions numbered I and II. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

All jugs are cans.

All cans are engines.

Some jugs are stoves.

**Conclusions:**

I. Some engines are stoves.

II. Some cans are jugs.

- Ans**
- ☒ A. Only conclusion I follows.
  - ☒ B. Only conclusion II follows.
  - ☒ C. Neither conclusion I nor II follows.
  - ☒ D. Both conclusions I and II follow.

- Q.31** Seven friends, Chandan, Aman, Falak, Manoj, Mahima, Bony and Fatima, are standing in a line facing east but not necessarily in the same order. Chandan is to the immediate right of Fatima. Fatima is fourth to the right of Falak. Manoj is an immediate neighbour of both Aman and Bony. Falak, who is third to the left of Aman, is standing at one of the extreme end.

What is the correct position of Mahima?

- Ans**
- ☒ A. To the immediate left of Chandan
  - ☒ B. To the immediate left of Bony
  - ☒ C. Immediate neighbour of Bony and Fatima
  - ☒ D. Fourth to the right of Manoj

- Q.32** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/<br>Symbol | 6 | 8 | 4 | + | 5 | # | % | 2 | \$ | 1 | ^ | 7 | 9 | * | @ |
|-------------------|---|---|---|---|---|---|---|---|----|---|---|---|---|---|---|
| Code              | S | U | T | W | N | P | V | D | A  | Z | J | M | O | M | Y |

**Conditions:**

- (i) If the first and last elements are numbers, then the last element will be replaced by the symbol @.
- (ii) If the first element is a symbol, then the first element will be coded as ©.
- (iii) If both the first and second elements are numbers, then the third element will be coded as \*.

What will be the code for the following?

6 % \$ 8 5

- Ans**
- ☒ A. SVAU©
  - ☒ B. SVAU@
  - ☒ C. ©UAV@
  - ☒ D. SUAV©

- Q.33** The given statements are followed by two conclusions. Find out which conclusion is true based on the given statements.

**Statements:**

$J > K = L, M \geq N < K, O < J < P, N > Q > R$

**Conclusions:**

- I.  $P > M$
- II.  $N < P$

- Ans**
- ☒ A. Only conclusion I is true
  - ☒ B. Only conclusion II is true
  - ☒ C. Neither conclusion I nor II is true
  - ☒ D. Both conclusions I and II are true

- Q.34** A statement is given followed by two conclusions numbered I and II. You have to assume everything in the statement to be true and decide which of the conclusions logically follow(s) beyond a reasonable doubt from the information given in the statement.

**Statement:**

It is reported that heavy and erratic rainfall has destroyed many agricultural crops and farmers are in debt.

**Conclusions:**

- I. Farmers need not repay the debt.
- II. Prices of groceries and other essential food items such as lentils and grains will surge.

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Neither conclusion I nor II follows
  - ☒ D. Both conclusions I and II follow

- Q.35** Select the option that represents the letters that, when placed from left to right in the blanks below, will complete the letter series.

K P \_ L Z \_ P \_ M Z K \_ B \_ Z \_ P B \_ Z

- Ans**
- ☒ A. B K B P N P O
  - ☒ B. B K B P N K P
  - ☒ C. B K P P O K P
  - ☒ D. B K B P N K O

**Q.36** The position of how many letters will remain unchanged if each of the letters in the word GERMANY is arranged in alphabetical order?

- Ans**
- ☐ A. 2
  - ☐ B. 4
  - ☐ C. 5
  - ☒ D. 3

**Q.37** What will come in the place of the question mark (?) in the following equation, if '+' and '-' are interchanged and also '×' and '÷' are interchanged?

$$160 \times 8 + 12 - 6 \div 180 \times 6 - 4 = ?$$

- Ans**
- ☐ A. 172
  - ☐ B. 182
  - ☒ C. 192
  - ☐ D. 202

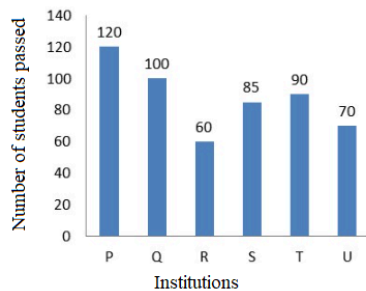
**Q.38** Which of the following numbers will replace the question mark (?) in the given series?

100, 90, 81, 73, 66, 60, 55, ?

- Ans**
- ☐ A. 50
  - ☒ B. 51
  - ☐ C. 52
  - ☐ D. 53

**Q.39** Study the graph and answer the question that follows.

The following bar graph shows the number of students passed in class XII board exam from six different institutions.



Students passed from institutions U, T, P and Q together is how much more than that of institutes S and R together?

- Ans**
- ☐ A. 234
  - ☒ B. 235
  - ☐ C. 265
  - ☐ D. 225

**Q.40** Each of the six security guards, L, M, N, O, P and Q, have their night shift duties on six different days of a week, starting from Monday and ending on Saturday of the same week, but not necessarily in the same order. L's nightshift duties are on the day immediately after N. O's nightshift duties are on the day immediately before P but it is not on Monday. M's nightshift duty is on Saturday. Q's nightshift duty is on Wednesday.

Who among the following has nightshift duties on Tuesday?

- Ans**
- ☐ A. O
  - ☐ B. N
  - ☒ C. L
  - ☐ D. P

**Q.41** Select the option that is related to the seventh number in the same way as the second number is related to the first number, the fourth number is related to the third number and the sixth number is related to the fifth number.

6 : 36 :: 13 : 169 :: 17 : 289 :: 23 : ?

- Ans**
- ☒ A. 578
  - ☒ B. 533
  - ☒ C. 521
  - ☒ D. 529

**Q.42** If 1 is added to each odd digit and 2 is subtracted from each even digit in the number 5613742678, what will be the sum of the digits which are third from the left and second from the right, in the number thus formed?

- Ans**
- ☒ A. 8
  - ☒ B. 9
  - ☒ C. 10
  - ☒ D. 11

**Q.43** If '+' means '-', '-' means '×', '×' means '÷', '÷' means '+', what will come in place of the question mark (?) in the following equation?

$38 \div 10 \times 5 - 7 + 10 \times 2 = ?$

- Ans**
- ☒ A. 47
  - ☒ B. 45
  - ☒ C. 48
  - ☒ D. 50

**Q.44** Five students are sitting in a straight row facing the north. A and B are sitting at the extreme left and the extreme right end of the row, respectively. D is an immediate neighbour of B. C is an immediate neighbour of D and second to the right of A. E is an immediate neighbour of A. Who among the following is sitting in the third position from the extreme right end?

- Ans**
- ☒ A. E
  - ☒ B. C
  - ☒ C. D
  - ☒ D. B

**Q.45** Three statements are given, followed by four conclusions numbered I, II, III and IV. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

Some pouches are combs.

All combs are reds.

All reds are sticks.

**Conclusions:**

I. All pouches are sticks.

II. All combs are sticks.

III. Some reds are combs.

IV. Some sticks are pouches.

- Ans**
- ☒ A. Only conclusions I, II and III follow.
  - ☒ B. Only conclusions II, III and IV follow.
  - ☒ C. Only conclusions I, III and IV follow.
  - ☒ D. All the conclusions follow.

**Q.46** In a class of 100 students, 24 students score more marks than Sharmistha whereas 18 students score lesser marks than Amit. How many students score lesser marks than Sharmistha but more marks than Amit?

- Ans**
- ☒ A. 54
  - ☒ B. 55
  - ☒ C. 56
  - ☒ D. 57

**Q.47** Ajay is driving in the east direction and covers a distance of 2.5 km and then takes a turn in the left direction and travels a distance of 3 km. Further, he turns to the right and travels a distance of 4.5 km. Lastly, he turns to his right and travels a distance of 3 km. How far is he from the starting point? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 5 km
  - ☒ B. 6 km
  - ☒ C. 7 km
  - ☒ D. 8 km

**Q.48** Each vowel in the word FLOWER is changed to the letter following it in the English alphabetical order and each consonant is changed to the letter preceding it in the English alphabetical order. If each letter, thus formed, is arranged in alphabetical order, which letter will be second from the right?

- Ans**
- ☒ A. K
  - ☒ B. P
  - ☒ C. Q
  - ☒ D. E

**Q.49** Three statements are given followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

Statements:

All creepers are vegetables.

All vegetables are fruits.

Some fruits are flowers.

Conclusions:

I. Some creepers are flowers.

II. Some fruits are creepers.

III. All vegetables are flowers.

- Ans**
- ☒ A. Only conclusions I and II follow
  - ☒ B. Only conclusions I and III follow
  - ☒ C. Only conclusions II and III follow
  - ☒ D. Only conclusion II follows

**Q.50** Amongst six friends P, Q, R, S, T and U, each has a different height. S is taller than only two other friends. R is shorter than only one friend. P is shorter than S but taller than Q. T is shorter than U. Who is the shortest among all the friends?

- Ans**
- ☒ A. P
  - ☒ B. T
  - ☒ C. Q
  - ☒ D. R

**Q.51** Refer to the following letter, symbol series and answer the question.

(Left) D # Y \* C S O A T U @ I & E % N F P % & L # Z (Right)

How many such symbols are there which are immediately preceded and immediately followed by a vowel?

- Ans**
- ☒ A. Four
  - ☒ B. Three
  - ☒ C. Two
  - ☒ D. One

**Q.52** In a queue, Manish is 18<sup>th</sup> from the front end and Aman is 12<sup>th</sup> from the rear end, and there are 8 people between them. How many people are there in the queue if Aman is standing somewhere behind Manish in the queue?

- Ans**
- ☒ A. 37
  - ☒ B. 38
  - ☒ C. 39
  - ☒ D. 40

**Q.53** Which of the following numbers will replace the question mark (?) in the given series?

2, 3, 4, 4, 6, 8, 6, 9, 12, 8, 12, 16, ?

- Ans**
- ☒ A. 12
  - ☒ B. 10
  - ☒ C. 15
  - ☒ D. 20

**Q.54** How many such pairs of letters are there in the word REPUBLICAN (in both forward and backward directions) which have as many letters between them in the word as there are in the English alphabetical order?

- Ans**
- ☒ A. 2
  - ☒ B. 4
  - ☒ C. 5
  - ☒ D. 6

**Note: For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.**

**Q.55** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/<br>Symbols | 2 | @ | 9 | 5 | \$ | & | 3 | % | # | 7 | + | 4 | 8 | 6 |
|--------------------|---|---|---|---|----|---|---|---|---|---|---|---|---|---|
| Code               | T | F | A | J | L  | E | W | Q | D | P | R | B | U | S |

Conditions:

- (i) If the first element is a symbol and the last is a number, the codes for these two (the first and the last elements) are to be interchanged.
- (ii) If the first element is an odd number and the last is an even number, the first and the last elements are to be coded as ©
- (iii) If both the second and the third elements are perfect squares, the third element is to be coded as the code for the second element.

Question: + # 7 & 6

- Ans**
- ☒ A. SDPER
  - ☒ B. RDPRS
  - ☒ C. PERDS
  - ☒ D. DEPSR

- Q.56** Which of the following is produced when baking powder is heated?
- Ans** ☒ A. Carbon monoxide and sodium salt of tartaric acid is produced.  
☒ B. Carbon dioxide and sodium carbonate is produced.  
☒ C. Carbon dioxide and sodium salt of tartaric acid is produced.  
☒ D. Carbon monoxide and sodium carbonate is produced.
- Q.57** The most essential difference between a DC and an AC generator is \_\_\_\_\_.
- Ans** ☒ A. Higher voltages are generated by DC generator only  
☒ B. Higher Voltages are generated by AC generator Only  
☒ C. DC generator uses a commutator and AC generator uses Slip rings  
☒ D. DC generator has permanent magnet and AC has an electromagnet
- Q.58** Suppose in a circuit, several electric lamps are required to be used on a 220 V electric supply line, and they are rated as 20 W. If the maximum allowable current is 10 A, then the number of lamps that can be connected in parallel with each other across the two wires of the 220 V line is:
- Ans** ☒ A. 55  
☒ B. 110  
☒ C. 165  
☒ D. 220
- Q.59** Consider two circuits, A and B, each of which has six resistors and each Circuit of resistance  $R_A$  and  $R_B$  respectively. In each circuit, the resistors are in such a way that the net resistance of each circuit is the minimum. Now a 20 V battery with negligible internal resistance is connected across each circuit separately, and the current drawn by circuit A and circuit B are 6 A and 8 A, respectively. Then  $R_A$  and  $R_B$  will be:
- Ans** ☒ A.  $R_A = 15 \Omega$  and  $R_B = 20 \Omega$   
☒ B.  $R_A = 20 \Omega$  and  $R_B = 15 \Omega$   
☒ C.  $R_A = 30 \Omega$  and  $R_B = 15 \Omega$   
☒ D.  $R_A = 15 \Omega$  and  $R_B = 30 \Omega$
- Q.60** Precipitation reactions occur when cation of one reactant and anion of second reactant, found in an aqueous solution, combine to form \_\_\_\_\_.
- Ans** ☒ A. a soluble acid  
☒ B. a soluble ionic solid  
☒ C. an insoluble acid  
☒ D. an insoluble ionic solid
- Q.61** The HIV-AIDS virus CANNOT be transmitted by:
- Ans** ☒ A. shaking hand  
☒ B. blood transfusion  
☒ C. sexual contact  
☒ D. breast feeding



**Q.62** Which of the following gases are evolved at the anode and the cathode, respectively, during electrolytic decomposition of aqueous sodium chloride?

- Ans**
- ☒ A.  $\text{H}_2$  gas at the anode and  $\text{Cl}_2$  gas at the cathode.
  - ☒ B.  $\text{Cl}_2$  gas at the anode and  $\text{H}_2$  gas at the cathode.
  - ☒ C.  $\text{H}_2$  gas at the anode and  $\text{O}_2$  gas at the cathode.
  - ☒ D.  $\text{O}_2$  gas at the anode and  $\text{H}_2$  gas at the cathode.

**Q.63** When an object is placed at a point 21 cm in front of a convex mirror, the image is formed at 7 cm behind the mirror. Now, someone moves the object to a distance of 14 cm in front of the mirror. The distance of the image from the mirror (in cm) now is:

- Ans**
- ☒ A. +6
  - ☒ B. -6
  - ☒ C. -3
  - ☒ D. +3

**Q.64** Which of the following organelles are present only in plants?

- Ans**
- ☒ A. Mitochondria
  - ☒ B. Plastids
  - ☒ C. Vacuoles
  - ☒ D. Lysosomes

**Q.65**  $6\text{CO}_2(\text{aq}) + 12\text{H}_2\text{O}(\text{l}) \xrightarrow{\quad ? \quad} \text{C}_6\text{H}_{12}\text{O}_6(\text{aq}) + 6\text{O}_2(\text{aq}) + 6\text{H}_2\text{O}(\text{l})$  Select correct reaction conditions for given reaction.

- Ans**
- ☒ A. Sunlight and chlorophyll
  - ☒ B. High pressure
  - ☒ C. High temperature
  - ☒ D. Inert atmosphere

**Q.66** In the Modern Periodic Table, atomic size increases down the group because:

- Ans**
- ☒ A. number of shells increases
  - ☒ B. valency increases
  - ☒ C. tendency to lose electrons decreases
  - ☒ D. nuclear charge increases

**Q.67** What is the unit of magnification?

- Ans**
- ☒ A. Dioptre
  - ☒ B. cm
  - ☒ C. Newton
  - ☒ D. It has no unit



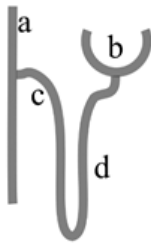
**Q.68** What happens when aqueous silver nitrate is added to sodium chloride solution?

- Ans**
- ☐ A. Brown precipitate of silver chloride is produced.
  - ☐ B. Yellow precipitate of silver chloride is produced.
  - ☒ C. White precipitate of silver chloride is produced.
  - ☐ D. No precipitate of silver chloride is produced.

**Q.69** Saturated carbon compounds are normally:

- Ans**
- ☐ A. less stable than unsaturated compounds
  - ☒ B. less reactive than unsaturated compounds
  - ☐ C. having electrostatic force of attraction
  - ☐ D. having a double bond between carbon atoms

**Q.70** The following figure shows a human nephron. Which part is the collecting duct?



- Ans**
- ☒ A. Region a
  - ☐ B. Region b
  - ☐ C. Region c
  - ☐ D. Region d

**Q.71** Many groups like the 'Narmada Bachao Andolan' oppose building of big dams. What is the negative social impact of a big dam that such groups oppose?

- Ans**
- ☐ A. People have to wait for many years (decades) to get benefits.
  - ☐ B. It causes flash floods in the downstream area.
  - ☒ C. It displaces people in the upstream reservoir area.
  - ☐ D. It leads to conflicts between people of different States.

**Q.72** The term 'triads' was used by:

- Ans**
- ☐ A. Mendeleev
  - ☒ B. Johann Wolfgang Döbereiner
  - ☐ C. John Newlands
  - ☐ D. Henry Moseley

**Q.73** Which of the following develops into a seedling under appropriate conditions?

- Ans**
- ☐ A. Cotyledons
  - ☐ B. Endosperm
  - ☐ C. Seed coat
  - ☒ D. Embryo

**Q.74** Which of the following dams was constructed on river Ganga?

- Ans**
- ☒ A. Tehri dam
  - ☐ B. Rihand dam
  - ☐ C. Koyna dam
  - ☐ D. Chamera dam

**Q.75** Name the process through which gaseous exchange takes place across the cell membrane.

- Ans**
- ☒ A. Diffusion
  - ☐ B. Osmosis
  - ☐ C. Endocytosis
  - ☐ D. Absorption

**Q.76** The sky appears blue due to:

- Ans**
- ☐ A. scattering of light of higher wave length
  - ☒ B. scattering of light of lower wave length
  - ☐ C. dispersion of light of higher wave length
  - ☐ D. dispersion of light of lower wave length

**Q.77** A needle of height 4 cm is placed at a distance of 45 cm in front of a concave lens of focal length 30 cm. The height of the image of the needle will be:

- Ans**
- ☒ A. 1.6 cm
  - ☐ B. 1.9 cm
  - ☐ C. 2.2 cm
  - ☐ D. 2.5 cm

**Q.78** What is the heat energy produced in a resistance of  $10\ \Omega$  when 5 A current flows through it for 5 minutes?

- Ans**
- ☐ A.  $7.5 \times 10^3\text{ J}$
  - ☒ B.  $7.5 \times 10^4\text{ J}$
  - ☐ C.  $7.5 \times 10^5\text{ J}$
  - ☐ D.  $7.5 \times 10^6\text{ J}$

**Q.79** Bone cells are embedded in a hard matrix that is composed of:

- Ans**
- ☐ A. phosphorus and potassium
  - ☐ B. potassium and calcium
  - ☐ C. fluoride and calcium
  - ☒ D. calcium and phosphorus

**Q.80** If coil A of resistance  $15\ \Omega$  and coil B of resistance  $5\ \Omega$  are subjected to time varying magnetic field, then the current induced in these coils are:

- Ans**
- ☐ A. same
  - ☒ B. different
  - ☐ C. in the ratio 1 : 2
  - ☐ D. in the ratio 1 : 1

**Q.81** Which of the following functions does NOT fall under the jurisdiction of local bodies?

- Ans**
- ☒ A. Public Health
  - ☒ B. Sanitation
  - ☒ C. Registration of Births and Deaths
  - ☒ D. Law and Order

**Q.82** In which state is the 'Solung' festival celebrated?

- Ans**
- ☒ A. Arunachal Pradesh
  - ☒ B. Uttar Pradesh
  - ☒ C. Madhya Pradesh
  - ☒ D. Himachal Pradesh

**Q.83** Which sportsperson among the following was honoured with the Padma Bhushan in 2022?

- Ans**
- ☒ A. Avani Lekhara
  - ☒ B. Sumit Antil
  - ☒ C. Pramod Bhagat
  - ☒ D. Devendra Jhajharia

**Q.84** Whom did PV Sindhu beat to win the women's singles title at the Swiss Open Super 300 Badminton Tournament in Basel on 27 March 2022?

- Ans**
- ☒ A. Chen Yu Fei
  - ☒ B. Busanan Ongbamrungphan
  - ☒ C. Kristy Gilmour
  - ☒ D. Michelli Li

**Q.85** \_\_\_\_\_ is the leading manganese ore producing State of India and accounted for 33% of the total production in 2018-19.

- Ans**
- ☒ A. Odisha
  - ☒ B. Maharashtra
  - ☒ C. Karnataka
  - ☒ D. Madhya Pradesh

**Q.86** In Economics, which of the following curves is 'inverse U-shaped'?

- Ans**
- ☒ A. Average variable cost curve
  - ☒ B. Short run marginal cost curve
  - ☒ C. Long run average cost curve
  - ☒ D. Marginal product curve

**Q.87** Which social reformer founded the Satyashodhak Samaj?

- Ans**
- ☒ A. Narayan Guru
  - ☒ B. Dayananad Saraswati
  - ☒ C. Keshab Chandra Sen
  - ☒ D. Jyotirao Phule

**Q.88** Article 123 of the Constitution of India gives the power of enacting Ordinances to who among the following?

- Ans**
- ☒ A. President
  - ☐ B. Prime Minister
  - ☐ C. Vice-President
  - ☐ D. Speaker of the Lok Sabha

**Q.89** \_\_\_\_\_ was launched in January 2021 to conceptualise innovative toys based on the Indian value system which will inculcate the positive behaviour and good value among the children.

- Ans**
- ☐ A. Smart India Hackathon
  - ☐ B. Code Gladiators
  - ☒ C. Toycathon
  - ☐ D. Great Indian Alexa Hackathon

**Q.90** Of the options listed below, \_\_\_\_\_ is considered the most important contribution of the British rule in India in terms of infrastructural development.

- Ans**
- ☒ A. railways
  - ☐ B. ports
  - ☐ C. airways
  - ☐ D. highways

**Q.91** What is the term used for pricing strategy in which a firm charges different customers different prices for the same product?

- Ans**
- ☐ A. Two Part Pricing
  - ☐ B. Price mechanism
  - ☒ C. Price discrimination
  - ☐ D. Price elasticity

**Q.92** Which of the following rivers is NOT a tributary of the Yamuna?

- Ans**
- ☐ A. Chambal
  - ☒ B. Gandak
  - ☐ C. Betwa
  - ☐ D. Ken

**Q.93** In which North Eastern City will you find The Christ Church which is regarded as the oldest Church of North East India?

- Ans**
- ☐ A. Aizawl
  - ☒ B. Guwahati
  - ☐ C. Kohima
  - ☐ D. Itanagar

**Q.94** In which place of Tamil Nadu will you find 'The Tamil University'?

- Ans**
- ☐ A. Salem
  - ☐ B. Madurai
  - ☐ C. Erode
  - ☒ D. Thanjavur

**Q.95** What is the age limit for a judge of the Supreme Court of India?

- Ans**
- ☒ A. 70 years
  - ☒ B. 65 years
  - ☒ C. 60 years
  - ☒ D. 62 years

**Q.96** In March 2022, the Reserve Bank of India (RBI) increased the eligibility criteria for microfinance loans to a household having an annual income of up to \_\_\_\_\_.

- Ans**
- ☒ A. ₹3 lakhs
  - ☒ B. ₹3.25 lakhs
  - ☒ C. ₹4 lakhs
  - ☒ D. ₹3.5 lakhs

**Q.97** Identify the states from following which are related to Pre-Monsoon shower 'Nor westers'

- Ans**
- ☒ A. Kerala and Karnataka
  - ☒ B. West Bengal and Assam
  - ☒ C. Rajasthan and Punjab
  - ☒ D. Gujarat and Maharashtra

**Q.98** According to Economic Survey Report of 2021-22, as on September 2021, what percentage of people have opted for ₹1,000 pension per month under the Atal Pension Yojana?

- Ans**
- ☒ A. 78%
  - ☒ B. 80%
  - ☒ C. 85%
  - ☒ D. 90%

**Q.99** Under the NITI Aayog SDG India Index, overall State and UT scores are generated from goal-wise scores to measure aggregate performance of the sub-national unit based on its performance across the 16 SDGs. Based on these scores, States/UTs are categorised in four categories. Which of the following is NOT one of the categories?

- Ans**
- ☒ A. Aspirant
  - ☒ B. Performer
  - ☒ C. Front Runner
  - ☒ D. Excellent

**Q.100** Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP) kendras added nutraceuticals to their product basket in March 2022. Which of the following is NOT included under nutraceuticals?

- Ans**
- ☒ A. Protein powder
  - ☒ B. Immunity bars
  - ☒ C. Vitamin supplements
  - ☒ D. Dry fruits



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 20/09/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** The ratio of the present ages of Shinjan and Aamyia is 3 : 4. After 10 years this ratio will become 5 : 6. The present age (in years) of Aamyia is:

- Ans**
- ☒ A. 18
  - ☒ B. 60
  - ☒ C. 20
  - ☒ D. 65

**Q.2** In a rectangle PQRS, if  $m\angle QPR = 26^\circ$ , then  $m\angle SQR = \underline{\hspace{2cm}}$ .

- Ans**
- ☒ A.  $26^\circ$
  - ☒ B.  $52^\circ$
  - ☒ C.  $64^\circ$
  - ☒ D.  $74^\circ$

**Q.3** Bina and Neena together weave one dozen sweaters in 8 days working for 10 hours per day. If they have to finish the work in 5 days, for how many hours should they work per day?

- Ans**
- ☒ A. 16
  - ☒ B. 12
  - ☒ C. 14
  - ☒ D. 11

**Q.4** First find the median of 46, 64, 87, 41, 58, 77, 35, 90, 55, 92, and 33. If 92 is replaced with 99 and 41 is replaced with 43 in the data, then find the new median. What is the difference between the old median and the new median?

- Ans**
- ☒ A. 6
  - ☒ B. 3
  - ☒ C. 2
  - ☒ D. 0

**Q.5** Arindam purchased a coat for ₹2,100 after getting a discount of 20% and but then paying GST at a rate of 5% on the discounted price. Find the marked price of the coat.

- Ans**
- ☐ A. ₹2,490
  - ☐ B. ₹2,520
  - ☐ C. ₹2,480
  - ☒ D. ₹2,500

**Q.6** Each side of an equilateral triangle is 6 cm long. What is its area (in  $\text{cm}^2$ )?

- Ans**
- ☐ A. 210
  - ☐ B.  $6\sqrt{3}$
  - ☐ C.  $21\sqrt{3}$
  - ☒ D.  $9\sqrt{3}$

**Q.7** The marked price of an article is ₹7,200. Two successive discounts of 9% and 15% are offered. Find the selling price of the article.

- Ans**
- ☐ A. ₹5,472.00
  - ☐ B. ₹6,400.00
  - ☒ C. ₹5,569.20
  - ☐ D. ₹5,600.00

**Q.8** Let  $r$  be the greatest number which when divides 41, 71 and 91 leaves the same remainder. Find the LCM of  $r$  and 45.

- Ans**
- ☐ A. 45
  - ☒ B. 90
  - ☐ C. 10
  - ☐ D. 75

**Q.9** If  $x = a \sec^n \theta$ ,  $y = b \tan^n \theta$ , then:

- Ans**
- ☒ A.  $\left(\frac{x}{a}\right)^{2/n} - \left(\frac{y}{b}\right)^{\frac{2}{n}} = 1$
  - ☐ B.  $\left(\frac{a}{x}\right)^{2/n} - \left(\frac{b}{y}\right)^{\frac{2}{n}} = 1$
  - ☐ C.  $\left(\frac{x}{a}\right)^{2/n} + \left(\frac{y}{b}\right)^{\frac{2}{n}} = 1$
  - ☐ D.  $\left(\frac{a}{x}\right)^{2/n} + \left(\frac{b}{y}\right)^{\frac{2}{n}} = 1$

**Q.10** The positive root of  $4x^2 - 1 = 0$  is:

- Ans**
- ☐ A. 2
  - ☐ B.  $\frac{1}{4}$
  - ☒ C.  $\frac{1}{2}$
  - ☐ D. 1



**Q.11** Study the given table and answer the question that follows.

The table shows the percentage of marks obtained by a candidate in five subjects and the weightage given to the subjects, in an examination.

| Subject               | English | Hindi | Maths | Social Studies | Science |
|-----------------------|---------|-------|-------|----------------|---------|
| Marks                 | 90      | 92    | 93    | 78             | 86      |
| Percentage            |         |       |       |                |         |
| Weightage to subjects | 2       | 2     | 3     | 1              | 2       |

Find the difference between the weighted average and the average if all subjects had equal weightage.

- Ans**
- ☐ A. 2%
  - ☐ B. 1%
  - ☒ C. 1.5%
  - ☐ D. 0.5%

**Q.12** If  $\sqrt{21} = 4.58$ , then the value of  $\sqrt{\frac{7}{3}}$ , correct to 3 decimal places, is:

- Ans**
- ☐ A. 1.520
  - ☐ B. 1.521
  - ☐ C. 1.523
  - ☒ D. 1.527

**Q.13** If one of the roots of a quadratic equation with rational coefficients is  $2 + \sqrt{3}$ , then the quadratic equation is given as \_\_\_\_\_.

- Ans**
- ☐ A.  $x^2 - 2 = 0$
  - ☐ B.  $x^2 = 2 - \sqrt{3}$
  - ☒ C.  $x^2 - 4x + 1 = 0$
  - ☐ D.  $x^2 + 4x - 1 = 0$

**Q.14** If  $(x + y + z) = 0$  and  $x^2 + y^2 + z^2 = 36$ , then the value of  $xy + yz + zx$  is:

- Ans**
- ☐ A. 18
  - ☐ B. -28
  - ☐ C. -6
  - ☒ D. -18

**Q.15** If  $a + \frac{1}{a} = 9$ , then the value of  $a^3 + \frac{1}{a^3}$  is:

- Ans**
- ☐ A. 732
  - ☒ B. 702
  - ☐ C. 729
  - ☐ D. 726

**Q.16** What is the smallest natural number by which 217800 must be multiplied so that the product is a perfect square?

- Ans**
- ☒ A. 2
  - ☐ B. 3
  - ☐ C. 4
  - ☐ D. 5



**Q.17** When a man travels equal distances at speeds of  $V_1$  and  $V_2$  km/h, his average speed is 5 km/h. But when he travels at these speeds for equal time periods, his average speed is 5.5 km/h. Find the positive difference between the two speeds.

- Ans**
- ☒ A.  $\sqrt{10}$  km/h
  - ☒ B. 10 km/h
  - ☒ C. 11 km/h
  - ☒ D.  $\sqrt{11}$  km/h

**Q.18** The value of  $(x^{\frac{2}{3}} - x^{\frac{1}{3}}y^{\frac{1}{3}} + y^{\frac{2}{3}})(x^{\frac{1}{3}} + y^{\frac{1}{3}})$  is \_\_\_\_\_.

- Ans**
- ☒ A.  $x - y$
  - ☒ B.  $\frac{1}{x} + \frac{1}{y}$
  - ☒ C.  $x + y$
  - ☒ D.  $\frac{1}{x} - \frac{1}{y}$

**Q.19** ₹3,903 is divided between A and B, so that A's share at the end of 7 years will be equal to B's share at the end of 9 years, with interest being compounded annually at the rate of 4% per annum. The share of A is:

- Ans**
- ☒ A. ₹2,028
  - ☒ B. ₹1,875
  - ☒ C. ₹1,828
  - ☒ D. ₹2,075

**Q.20** A field is in the form of a triangle. Its area is  $25000 \text{ m}^2$  and the length of the base is 500 m. Its height (in m), corresponding to the given base, is \_\_\_\_\_.

- Ans**
- ☒ A. 50
  - ☒ B. 100
  - ☒ C. 175
  - ☒ D. 200

**Q.21** If the monthly salary of a person is ₹28,000 and the expenditure for the month is 92% of his salary, then the remaining amount from that month's salary is \_\_\_\_\_.

- Ans**
- ☒ A. ₹2,200
  - ☒ B. ₹2,240
  - ☒ C. ₹2,340
  - ☒ D. ₹2,400

**Q.22** What is the smallest positive fraction that must be added to the fraction  $\frac{3}{5} \times \frac{16}{21} \times \frac{7}{10} \times \frac{3}{4}$  to make it a whole number?

- Ans**
- ☒ A.  $\frac{20}{5}$
  - ☒ B.  $\frac{23}{2}$
  - ☒ C.  $\frac{19}{25}$
  - ☒ D.  $\frac{19}{16}$

**Q.23** The ratio of the present ages of Monu and Sonu is 3 : 4. The ratio of the age of Monu 5 years ago and that of Sonu 5 years hence is 2 : 5. Find Monu's present age.

- Ans**
- ✓ A. 15 years
  - ✗ B. 20 years
  - ✗ C. 18 years
  - ✗ D. 66 years

**Q.24** The measures of three angles of a quadrilateral are given as  $90^\circ$ ,  $96^\circ$  and  $88^\circ$ . The measure of its fourth angle is \_\_\_\_\_.

- Ans**
- ✗ A.  $82^\circ$
  - ✓ B.  $86^\circ$
  - ✗ C.  $88^\circ$
  - ✗ D.  $96^\circ$

**Q.25** Which of the following statements is NOT correct?

1. There are only four single-digit prime numbers.
2. There are infinitely many prime numbers.
3. A prime number has only two factors.
4. All prime numbers are odd.

- Ans**
- ✗ A. 1
  - ✗ B. 2
  - ✗ C. 3
  - ✓ D. 4

#### Section : General Intelligence and Reasoning

**Q.26** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

81 : 49 :: 36 : 16 :: 64 :: ?

- Ans**
- ✗ A. 32
  - ✓ B. 36
  - ✗ C. 25
  - ✗ D. 49

**Q.27** Refer to the following number series and answer the question.

7 2 9 6 3 7 3 9 7 7 3 9 7 3 2 2 1 3 3 9 3 7 3 9 3 9

How many 3s are there that are immediately preceded by 7 and immediately followed by 9?

- Ans**
- ✗ A. Five
  - ✗ B. Two
  - ✓ C. Three
  - ✗ D. Four

**Q.28** Select the option that is related to the fifth letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster and the fourth letter-cluster is related to the third letter-cluster.

ADJUST : BEKWUV :: BACKED : CBDMGF :: PACKUP : ?

- Ans**
- ☐ A. QBDMWQ
  - ☐ B. QBDMWS
  - ☒ C. QBDMWR
  - ☐ D. QBDMVR

**Q.29** Three statements are given, followed by four conclusions numbered I, II, III and IV. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

All carpets are scholars.

All scholars are trip advisors.

No hat is a trip advisor.

**Conclusions:**

I. No trip advisor is a scholar.

II. All carpets are trip advisors.

III. Some trip advisors are scholars.

IV. No carpet is a hat.

- Ans**
- ☐ A. Only conclusion I follows.
  - ☐ B. Only conclusion I and II follow.
  - ☒ C. Only conclusions II, III and IV follow.
  - ☐ D. All the conclusions follow.

**Q.30** A certain number of class I students are sitting in a row on their graduation day, facing north. Ruchi is ninth to the right of Pranavi. No student is to the left of Pranavi. Tanya is fifth to the right of Ruchi. Vipanchi is seventh to the right of Tanya. If no other student is sitting in the row, what is the total number of students seated?

- Ans**
- ☐ A. 19
  - ☐ B. 20
  - ☐ C. 21
  - ☒ D. 22

**Q.31** Each of the six professors of same department, Jayanth, Kiran, Lasya, Mythili, Nischal and Omprakash, have their classes on six different days of a week, starting from Monday and ending on Saturday of the same week, but not necessarily in the same order. Only two professors have classes before Mythili's class. Jayanth has the class on Tuesday and Omprakash has the class on Saturday. Only one professor has the class after the class of Kiran. The class of Nischal is not on any of the days between the classes of Kiran and Mythili.

Who among the following has the class on Monday?

- Ans**
- ☐ A. Kiran
  - ☒ B. Nischal
  - ☐ C. Mythili
  - ☐ D. Lasya

- Q.32** Three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

All eggs are millets.  
All millets are balloons.  
All balloons are prisoners.

**Conclusions:**

I. All balloons are eggs.  
II. Some prisoners are millets.  
III. All prisoners are balloons.

- Ans** ☒ A. Only conclusion I follows.  
☒ B. Only conclusion III follows.  
☒ C. Only conclusion II follows.  
☒ D. All the conclusions follow.

- Q.33** If 2 is added to each odd digit and 1 is subtracted from each even digit in the number 5317846, what will be the sum of the digits which are second from the left and second from the right, in the number thus formed?

- Ans** ☒ A. 8  
☒ B. 10  
☒ C. 11  
☒ D. 12

- Q.34** A statement is followed by two conclusions. Find out which conclusion is true based on the given statement.

**Statement:**

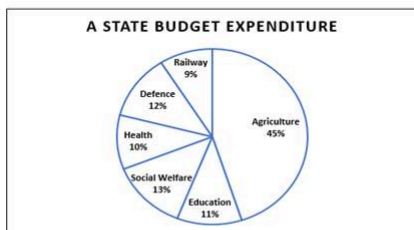
$H > L \geq M \geq N > O \leq P \leq Q$

**Conclusions:**

I.  $L > P$   
II.  $M \leq Q$

- Ans** ☒ A. Only conclusion I is true  
☒ B. Only conclusion II is true  
☒ C. Neither conclusion I nor II is true  
☒ D. Both conclusions I and II are true

- Q.35** The following pie chart represents the percentage distribution of expenditure of a state's budget. Study the pie chart and answer the question that follows.



Approximately how many degrees should be there in the central angle of the sector for agriculture expenditure?

- Ans** ☒ A.  $142^\circ$   
☒ B.  $152^\circ$   
☒ C.  $162^\circ$   
☒ D.  $172^\circ$

**Q.36** Rohini walked for 2 kilometres on a straight road, facing North. Then she took a right turn and walked for 1 kilometre. Then she again took a right turn and walked 2 kilometres. In which direction is she facing now? (All turns are 90 degree turns only)

- Ans**
- ☒ A. North
  - ☒ B. South
  - ☒ C. East
  - ☒ D. West

**Q.37** If each vowel in the word 'SCIENCE' is changed to the letter preceding it in the English alphabetical order and each consonant is changed to the letter following it in the English alphabetical order, which letter will occur maximum times in the newly formed word?

- Ans**
- ☒ A. T
  - ☒ B. H
  - ☒ C. O
  - ☒ D. D

**Q.38** Refer to the following letter series and answer the question.  
(Left) J B I S O E Z I L U B O P A R D I H O M A K O (Right)

How many such consonants are there, each of which is immediately preceded by a vowel and also immediately followed by a vowel?

- Ans**
- ☒ A. Eight
  - ☒ B. Six
  - ☒ C. Three
  - ☒ D. Four

**Q.39** Select the option that represents the letters that, when placed from left to right in the same sequence in the blanks below, will complete the letter series.

D \_ B \_ A \_ C \_ \_ G F \_ E \_ \_ H

- Ans**
- ☒ A. CABDHEFG
  - ☒ B. BACDHEFG
  - ☒ C. CABDEFGH
  - ☒ D. BACDEFGH

**Q.40** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. EXAMPLE: 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(16, 64, 5)

(9, 27, 4)

- Ans**
- ☒ A. (11, 56, 7)
  - ☒ B. (10, 50, 5)
  - ☒ C. (13, 91, 10)
  - ☒ D. (21, 126, 7)

- Q.41** A statement is given followed by two arguments I and II. Read the statement and the arguments carefully and select the appropriate answer from the given options.

Statement:

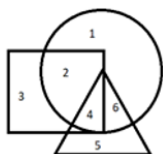
Reclaimed land should be avoided as it only has disadvantages.

Arguments:

- I. Many countries have no option but to reclaim land to provide for the increasing population.
- II. Land that is reclaimed has long lasting effect on nature as it deteriorates ecosystems and biodiversity.

- Ans** ☒ **A.** I weakens, while II strengthens the statement
- ☐ **B.** II weakens, while I strengthens the statement
- ☐ **C.** Both I and II weaken the statement
- ☐ **D.** Both I and II strengthen the statement

- Q.42** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons. The circle represents 'actors', the square represents 'directors', and the triangle represents 'producers'. How many actors are there who are directors and also producers?



- Ans** ☐ **A.** 1
- ☐ **B.** 2
- ☐ **C.** 3
- ☒ **D.** 4

- Q.43** Which of the following numbers will replace the question mark (?) in the given series?

14, 27, 40, 53, 66, 79, 92, ?

- Ans** ☒ **A.** 105
- ☐ **B.** 104
- ☐ **C.** 102
- ☐ **D.** 103

- Q.44** Each of the six students, Pavan, Vinay, Reshma, Sunayana, Tarun and Unmukth, has an engineering entrance exam on a different day of a week, starting from Monday and ending on Saturday of the same week, but not necessarily in the same order. Reshma has the exam on Tuesday. Only one student has the exam between Pavan and Reshma. Vinay has the exam on the day immediately after Pavan. None of them have the exam before Unmukth. Sunayana has the exam on the day immediately after Reshma.

On which day does Tarun have the exam?

- Ans** ☐ **A.** Friday
- ☒ **B.** Saturday
- ☐ **C.** Wednesday
- ☐ **D.** Thursday

- Q.45** Each vowel in the word MAJESTY is changed to the letter following it in the English alphabetical order and each consonant is changed to the letter preceding it in the English alphabetical order. If each letter, thus formed, is arranged in alphabetical order, which letter will be third from the left?

- Ans** ☐ **A.** L
- ☒ **B.** I
- ☐ **C.** B
- ☐ **D.** F

**Q.46** Study the following table and answer the question.

| Name of the Student | Marks   |          |           |
|---------------------|---------|----------|-----------|
|                     | Paper I | Paper II | Paper III |
| Anushri             | 83      | 79       | 83        |
| Jay                 | 71      | 90       | 60        |
| Vinay               | 64      | 93       | 72        |
| Pooja               | 81      | 88       | 87        |

An exam consists of three papers. If each paper was of 100 marks, then who scored the highest percentage in the exam?

- Ans**
- ☒ A. Jay
- ☒ B. Anushri
- ☒ C. Pooja
- ☒ D. Vinay

**Q.47** Rishabh starts from his house and walks 14 m southwards. Then, he turns left and walks 30 m. Then, he turns left and walks 50 m. Then, he turns left and walks 10 m. He then turns left and walks 36 m. In which direction and how many meters away is he now from his house?

- Ans**
- ☒ A. 68 m, South-east
- ☒ B. 30 m, West
- ☒ C. 20 m, East
- ☒ D. 10 m, South

**Q.48** A group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number /symbol | 2 | & | 5 | ^ | @ | 6 | 4 | * | 3 | + | # | 7 | % | 9 |
|----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code Letter    | A | O | B | Q | T | D | J | G | L | M | K | S | N | R |

Conditions:

- (i) If the first element is a symbol and the last element is a number, the codes for these two (the first and the last elements) are to be interchanged.
- (ii) If the first element is an odd number and the last element is an even number, the first and last elements are to be coded as ©.
- (iii) If both the second and third elements are perfect squares, the third element is to be coded as the code for the second element.

What will be the code for 3 \* 6 2 ?

- Ans**
- ☒ A. ©GDC©
- ☒ B. ©GDA
- ☒ C. LGDA
- ☒ D. LGDC©

**Q.49** Seven friends, Anmol, Bhawna, Komal, Diksha, Ekta, Falak and Gopi, are sitting in a row facing north (but not necessarily in the same order). Falak is sitting to the immediate right of Ekta. Ekta is sitting fourth of the right to Gopi. Komal is an immediate neighbour of Bhawna and Diksha. The person who is sitting third to the left of Diksha is at one of the extreme ends.

Who among the following is an immediate neighbour of Gopi and Komal?

- Ans**
- ☒ A. Bhawna
- ☒ B. Ekta
- ☒ C. Falak
- ☒ D. Diksha

**Q.50** What will come in the place of the question mark (?) in the following equation, if '+' and '-' are interchanged and also '×' and '÷' are interchanged?

$$120 \times 4 + 2 - 8 + 10 = ?$$

- Ans**
- ✓ A. 58
  - ✗ B. 68
  - ✗ C. 78
  - ✗ D. 48

**Q.51** In a certain code language, 'TALCUM' is written as 'LSZHVN' and 'GRAINS' is written as 'RLFWMA'. How will 'LOWER' be written in that language?

- Ans**
- ✗ A. QCTKH
  - ✗ B. QDTKH
  - ✗ C. PCTKG
  - ✓ D. QCTKG

**Q.52** Mona, Rahul, Vikas, Kavita, Poonam and Khushi, each has a different height. They are standing in a line according to their heights in an increasing order. Vikas is taller than only one person. Only Rahul is standing between Khushi and Vikas. Mona is shorter than only one person. Exactly two people are standing between Poonam and Rahul. Who is the shortest person in this group?

- Ans**
- ✗ A. Rahul
  - ✗ B. Vikas
  - ✗ C. Poonam
  - ✓ D. Kavita

**Q.53** Which of the following numbers will replace the question mark (?) in the given series?

1, 5, 13, 29, 61, ?

- Ans**
- ✗ A. 131
  - ✗ B. 128
  - ✗ C. 253
  - ✓ D. 125

**Q.54** A, C, E, G, J, L, N and O are sitting around a square table facing the centre of the table (but not necessarily in the same order). Some of them are sitting at the corners while some are sitting at the exact centre of the sides. 'E' has 'A' and 'G' as immediate neighbours. The 'A' is immediately left to 'C'. The 'O' is at the immediate right of 'J'. 'L' has 'J' and 'N' as immediate neighbours.

Who is sitting to the immediate left of G?

- Ans**
- ✗ A. N
  - ✗ B. C
  - ✗ C. E
  - ✓ D. O

**Q.55** Which two mathematical operators should be interchanged to make the given equation correct?

$$18 \times 6 + 12 - 7 \div 2 = 1$$

- Ans**
- ✓ A. × and ÷
  - ✗ B. ÷ and -
  - ✗ C. - and +
  - ✗ D. + and ×



**Q.56** If the focal length of a spherical mirror increases to double, then the radius of curvature of the mirror will:

- Ans**
- ☒ A. remain the same
  - ☒ B. increase to double
  - ☒ C. decrease to half
  - ☒ D. increase to four times

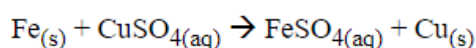
**Q.57** Which of the following organisations in India advises people how to save petrol/diesel while driving?

- Ans**
- ☒ A. PCRA
  - ☒ B. PRCA
  - ☒ C. ACRP
  - ☒ D. PARC

**Q.58** Which nitrogenous waste produced in the body is removed by the human kidney?

- Ans**
- ☒ A. Urea and uric acid
  - ☒ B. Urea and ammonia
  - ☒ C. Only ammonia
  - ☒ D. Ammonia and uric acid

**Q.59** Which of the following explanations regarding the given reaction is correct?



- Ans**
- ☒ A. Iron displaces copper because iron is more reactive than copper.
  - ☒ B. Iron displaces copper because the atomic number of iron is less than copper.
  - ☒ C. Iron displaces copper because the atomic mass of iron is less than copper.
  - ☒ D. Iron displaces copper because iron is less reactive than copper.

**Q.60** The reproductive parts of a flower are:

- Ans**
- ☒ A. sepals and petals
  - ☒ B. stamens and pistil
  - ☒ C. stamens and petals
  - ☒ D. pistil and sepals

**Q.61** A compound with molecular formula  $\text{C}_3\text{H}_4$  belongs to the homologous series of \_\_\_\_\_.

- Ans**
- ☒ A. alkane only
  - ☒ B. alkene only
  - ☒ C. alkyne only
  - ☒ D. alcohol

**Q.62** Which of the following is a hydrate of sodium carbonate containing ten molecules of water of crystallisation?

- Ans**
- ☒ A. Baking soda
  - ☒ B. Baking powder
  - ☒ C. Washing soda
  - ☒ D. Bleaching powder

**Q.63** Which of the following reactions produces water insoluble salts?

- Ans**
- ☐ A. Addition reaction
  - ☐ B. Displacement reaction
  - ☐ C. Catalytic reaction
  - ☒ D. Precipitation reaction

**Q.64** Suppose in a circuit, a silver wire of length  $L$  and cross-sectional area  $A$  is replaced by an aluminium wire of length  $5L$  and cross-sectional area  $9A$ . The resistance of the circuit will \_\_\_\_\_.

(Given that  $\rho_{\text{silver}} = 1.6 \times 10^{-8} \Omega \text{ m}$  and  $\rho_{\text{Aluminium}} = 2.6 \times 10^{-8} \Omega \text{ m}$ )

- Ans**
- ☐ A. increase to 1.1 times of itself
  - ☐ B. increase to 1.2 times of itself
  - ☒ C. decrease to 0.9 times of itself
  - ☐ D. decrease to 0.8 times of itself

**Q.65** Which of the following statements about the gradation of boiling point in a homologous series is correct?

- Ans**
- ☒ A. The boiling points increase with increasing molecular mass.
  - ☐ B. The boiling points decrease with increasing molecular mass.
  - ☐ C. The boiling point does not depend on molecular mass.
  - ☐ D. The boiling points increase with decreasing molecular mass.

**Q.66** What type of nutrition is observed in mushrooms?

- Ans**
- ☐ A. Autotrophic
  - ☒ B. Saprotrophic
  - ☐ C. Chemotrophic
  - ☐ D. Symbiotic

**Q.67** What is the trend for the atomic number while moving across a period in the modern periodic table?

- Ans**
- ☒ A. The atomic number increases by one unit.
  - ☐ B. The mass number increases by one unit.
  - ☐ C. The atomic number increases by two units.
  - ☐ D. The atomic number decreases by one unit.

**Q.68** Which of the following statements is correct?

- Ans**
- ☐ A. Plastics and paper are biodegradable.
  - ☐ B. Plastic cannot be recycled.
  - ☒ C. Paper is biodegradable.
  - ☐ D. Paper cannot be recycled.

Q.69 Plaster of Paris should be stored in sealed containers.

Which of the following is the correct explanation for the given assertion?

- Ans
- ✓ A. It turns into a hard solid after reacting with moisture present in air.
  - ✗ B. It decomposes in the presence of sunlight.
  - ✗ C. It turns into hard solid after reacting with oxygen present in the air.
  - ✗ D. It decomposes in the presence of oxygen.

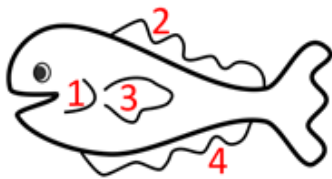
Q.70 When a car is moving through a dusty road during night, a path of beam from the headlight is clearly visible due to \_\_\_\_\_ effect.

- Ans
- ✗ A. dispersion
  - ✗ B. immersion
  - ✗ C. refraction
  - ✓ D. scattering

Q.71 Consider a wire of resistance  $10\ \Omega$ . If there is another wire of the same material and the same length as the previous one, but the cross-sectional area is double, then the resistance of the new wire is:

- Ans
- ✗ A.  $20\ \Omega$
  - ✗ B.  $10\ \Omega$
  - ✗ C.  $7.5\ \Omega$
  - ✓ D.  $5\ \Omega$

Q.72 In the following figure of a fish, where are the gills located?



- Ans
- ✓ A. Position 1
  - ✗ B. Position 2
  - ✗ C. Position 3
  - ✗ D. Position 4

Q.73 Which hormone is particularly high in fruits?

- Ans
- ✗ A. Gibberellins
  - ✗ B. Auxins
  - ✓ C. Cytokinin
  - ✗ D. Absciscic acid

Q.74 In Mendel's cross, a pure tall plant (TT) is crossed with a dwarf plant (tt). The Phenotypic ratio in  $F_2$  generation is:

- Ans
- ✗ A. 1 : 1
  - ✗ B. 2 : 1
  - ✗ C. 3 : 1
  - ✗ D. 1 : 3

Note: For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

**Q.75** A house is supplied electricity through a 15 A fuse. The number of 100 W lamps that can be used simultaneously along with a 2KW AC is: (The AC and lamps both are rated for 220 V Supply)

- Ans**
- ☒ A. 23
  - ☒ B. 18
  - ☒ C. 15
  - ☒ D. 13

**Q.76** How many elements occur naturally?

- Ans**
- ☒ A. 92
  - ☒ B. 93
  - ☒ C. 94
  - ☒ D. 95

**Q.77** In order to obtain an inverted and magnified image of an object by a spherical mirror of radius of curvature 40 cm, the object should be placed:

- Ans**
- ☒ A. 20 cm from a convex mirror
  - ☒ B. between 20 cm and 40 cm from a concave mirror
  - ☒ C. between 20 cm and 40 cm from a convex mirror
  - ☒ D. at infinity from a Convex mirror

**Q.78** The resistance of a metal wire of length 1 m is  $50\ \Omega$  at  $30^\circ\text{C}$ . Suppose the diameter of the wire is 0.3 mm. Now another wire has the same material and the same length (at  $30^\circ\text{C}$ ), but the diameter is increased to 0.6 mm. The resistance of the new wire is:

- Ans**
- ☒ A.  $120.5\ \Omega$
  - ☒ B.  $20.5\ \Omega$
  - ☒ C.  $12.5\ \Omega$
  - ☒ D.  $2.5\ \Omega$

**Q.79** The strength of magnetic field inside a long current-carrying straight solenoid is:

- Ans**
- ☒ A. the maximum at the middle
  - ☒ B. the minimum at the centre
  - ☒ C. more at the end than the centre
  - ☒ D. uniform at all points inside the solenoid

**Q.80** A light ray enters from medium A to medium B, and as a result, it bends away from the normal in the medium B. The refractive index of medium B relative to medium A is:

- Ans**
- ☒ A. less than unity
  - ☒ B. greater than unity
  - ☒ C. equal to unity
  - ☒ D. equal to 2

Section : General Awareness and Current Affairs

**Q.81** Which of the following functions is NOT a part of District Administration?

- Ans**
- ☒ A. Postal Services
  - ☒ B. Revenue Collection
  - ☒ C. Rural Development
  - ☒ D. Civil Justice

- Q.82** Which academic institution in India has installed the most powerful supercomputer in the country named as Param Pravega, the supercomputer is also the largest in an Indian academic institution as on February 2022?
- Ans**
- ☒ A. Indian Institute of Technology-Delhi
  - ☒ B. Indian Institute of Science (IISc)-Bengaluru
  - ☒ C. Inter-University Centre for Astronomy and Astrophysics(IUCAA)-Pune
  - ☒ D. Indian Institutes of Science Education and Research(IISER)-Tirupati
- Q.83** Which of the following Ministries of India released draft National Air Sports Policy, 2022 (NASP) for public comments?
- Ans**
- ☒ A. Ministry of Civil Aviation
  - ☒ B. Ministry of Youth Affairs and Sports
  - ☒ C. Ministry of Culture
  - ☒ D. Ministry of Education
- Q.84** Under which ministry was Tele Counselling through SAMVEDNA started for children impacted by the Covid-19 pandemic in India in 2021?
- Ans**
- ☒ A. Ministry of Women and Child Development
  - ☒ B. Ministry of Health
  - ☒ C. Ministry of Education
  - ☒ D. Ministry of Ayush
- Q.85** Which of the following is an example of revenue expenditure?
- Ans**
- ☒ A. Financial help given to other country as loan
  - ☒ B. Construction of hospitals and school buildings
  - ☒ C. Repayment of loans by the government
  - ☒ D. Salaries of government employees
- Q.86** Which of the following rivers flows into India from Nepal?
- Ans**
- ☒ A. Son
  - ☒ B. Dhauliganga
  - ☒ C. Karnali
  - ☒ D. Bhilangana
- Q.87** The birth centenary of which famous Indian hockey captain was celebrated on 2 February 2022?
- Ans**
- ☒ A. Major Dhyan Chand
  - ☒ B. Balbir Singh Dosanjh
  - ☒ C. Kunwar Digvijay Singh 'Babu'
  - ☒ D. Leslie Claudius
- Q.88** In which year did the cyclone 'Tauktae' hit India?
- Ans**
- ☒ A. 2019
  - ☒ B. 2020
  - ☒ C. 2021
  - ☒ D. 2022

**Q.89** In which year did the Federal Court of India start functioning?

- Ans**
- ☐ A. 1935
  - ☒ B. 1937
  - ☐ C. 1947
  - ☐ D. 1950

**Q.90** The fundamental duties of citizens were added to the constitution of India by the 42<sup>nd</sup> amendment in:

- Ans**
- ☐ A. 1973
  - ☐ B. 1974
  - ☐ C. 1975
  - ☒ D. 1976

**Q.91** On 4 June 2021, India's first CAR-T cell therapy, which was done at Mumbai's Tata Memorial Centre, was for which of the following ailments?

- Ans**
- ☒ A. Blood cancer
  - ☐ B. AIDS
  - ☐ C. Bone Transplant
  - ☐ D. Lung Transplant

**Q.92** From which budget year in India was the Railway budget merged with the Union budget and was not presented separately?

- Ans**
- ☒ A. 2017 - 18
  - ☐ B. 2016 - 17
  - ☐ C. 2015 -16
  - ☐ D. 2014 - 15

**Q.93** The Cultural performances 'MILAN 2022' was organised by the Ministry of Culture as a part of Azadi ka Amrit Mahostav in which City?

- Ans**
- ☐ A. Mysuru
  - ☐ B. Madurai
  - ☐ C. Coimbatore
  - ☒ D. Visakhapatnam

**Q.94** Which of the following states is home to the Great Indian Bustard?

- Ans**
- ☐ A. Sikkim
  - ☐ B. Bihar
  - ☐ C. Uttar Pradesh
  - ☒ D. Rajasthan

**Q.95** In July 2021, which Union Territory of India launched 'Tejaswini' \_\_\_\_\_ an initiative centred around women empowerment and safety?

- Ans**
- ☐ A. Puducherry
  - ☐ B. Chandigarh
  - ☒ C. Delhi
  - ☐ D. Lakshadweep



**Q.96** On which of the following dates was Hindi adopted as the official language of the Indian Union?

- Ans**
- ☒ A. 14 September 1949
  - ☐ B. 15 August 1947
  - ☐ C. 26 January 1950
  - ☐ D. 30 November 1954

**Q.97** The 'Tripitaka' is a holy book of which religion from following-

- Ans**
- ☐ A. Zoroastrianism
  - ☐ B. Sikhism
  - ☐ C. Jainism
  - ☒ D. Buddhism

**Q.98** Which of the following is calculated as the percentage change in the demand for the goods divided by the percentage change in the price for the goods?

- Ans**
- ☐ A. Surplus
  - ☐ B. Product Cost
  - ☐ C. Total Utility
  - ☒ D. Elasticity of Demand

**Q.99** Who was the Chief Election Commissioner of India as on 1 April 2022?

- Ans**
- ☐ A. Sunil Arora
  - ☒ B. Sushil Chandra
  - ☐ C. Achal Kumar Jyoti
  - ☐ D. Om Prakash Rawat

**Q.100** Air India's journey begins in the year \_\_\_\_\_, when the distinguished entrepreneur J.R.D. Tata founded the company.

- Ans**
- ☐ A. 1930
  - ☒ B. 1932
  - ☐ C. 1942
  - ☐ D. 1947



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 20/09/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** A sum is borrowed for two years at the rate of 5% compound interest per annum, compounded annually. If it is paid back in two equal annual instalments of ₹882, then the sum borrowed is:

- Ans**
- ☒ A. ₹1,560
  - ☒ B. ₹1,740
  - ☒ C. ₹1,680
  - ☒ D. ₹1,640

**Q.2** Four years ago the ratio of the age of the son to that of his father was 2 : 7 and 10 years hence it will change to 3 : 7. The positive difference between their ages is:

- Ans**
- ☒ A. 60 years
  - ☒ B. 40 years
  - ☒ C. 50 years
  - ☒ D. 30 years

**Q.3** If  $\frac{y}{x} = \frac{5}{6}$ , then  $\frac{x^2 - y^2}{x^2 + y^2} = \underline{\hspace{2cm}}$ .

- Ans**
- ☒ A.  $\frac{25}{36}$
  - ☒ B.  $\frac{36}{25}$
  - ☒ C.  $\frac{11}{61}$
  - ☒ D.  $\frac{9}{61}$



**Q.4** Five years ago, Roshan was three times as old as Preethi. If the difference between their ages is 6 years, the present age (in years) of Preethi is \_\_\_\_\_.

- Ans**
- ☒ A. 4
  - ☒ B. 8
  - ☒ C. 7
  - ☒ D. 6

**Q.5** One pipe can fill a tank three times as fast another one. Both the pipes opened together can fill the tank completely in 36 minutes. In how many hours will the faster pipe alone fill the empty tank completely?

- Ans**
- ☒ A.  $\frac{1}{2}$
  - ☒ B.  $\frac{4}{5}$
  - ☒ C.  $\frac{12}{5}$
  - ☒ D.  $\frac{8}{5}$

**Q.6** Successive discounts of 10% and 20% are equivalent to a single percentage discount of:

- Ans**
- ☒ A. 22%
  - ☒ B. 30%
  - ☒ C. 28%
  - ☒ D. 27.5%

**Q.7** The product of two consecutive positive integers is 552. If the smaller of these two integers is represented by x, which of the options below will correspond to the equation for finding out the value of x?

- Ans**
- ☒ A.  $x^2 + x + 552 = 0$
  - ☒ B.  $x^2 + x - 552 = 0$
  - ☒ C.  $x^2 - x + 552 = 0$
  - ☒ D.  $x^2 - x - 552 = 0$

**Q.8** How many sides will a polygon have if the sum of the measures of its interior angles is  $900^\circ$ ?

- Ans**
- ☒ A. 6
  - ☒ B. 7
  - ☒ C. 54
  - ☒ D. 8

**Q.9** If  $\sqrt{6} = 2.45$ , then the value of  $\sqrt{6} + \sqrt{24} + \sqrt{54}$  is:

- Ans**
- ☒ A. 15.70
  - ☒ B. 14.70
  - ☒ C. 15.75
  - ☒ D. 13.75

**Q.10** If the radius of a sphere is 7 cm, then the surface area in (cm<sup>2</sup>) of the sphere is \_\_\_\_\_.

(Take  $\pi = \frac{22}{7}$ )

- Ans**
- ☒ A. 243
  - ☒ B. 616
  - ☒ C. 343
  - ☒ D. 729

**Q.11** Select the smallest natural number that should be added to or subtracted from the sum of the squares of 15 and 16 to make it a perfect square?

- Ans**
- ☒ A. 81
  - ☒ B. 3
  - ☒ C. 40
  - ☒ D. 19

**Q.12** The dimensions of a cuboidal storage space are 20 m, 25 m, and 10 m. How many boxes of dimension 2 m × 1.25 m × 1 m can be kept in it?

- Ans**
- ☒ A. 2000
  - ☒ B. 4000
  - ☒ C. 6000
  - ☒ D. 8000

**Q.13** If 8 – digit number 27x65y31 is divisible by 3, find the lowest possible positive value of  $x \times y$ .

- Ans**
- ☒ A. 1
  - ☒ B. 3
  - ☒ C. 4
  - ☒ D. 2

**Q.14** The ratio of the present ages of Somu and Ramu is 5 : 4 and the sum of their ages is 27 years. The ratio of their ages after 8 years will be \_\_\_\_\_.

- Ans**
- ☒ A. 3 : 4
  - ☒ B. 25 : 29
  - ☒ C. 23 : 20
  - ☒ D. 8 : 3

**Q.15** In a triangle, if the measure of one of its angles is twice the measure of the smallest angle of the same triangle, and the measure of the third angle of the triangle is three times the measure of the smallest angle of the same triangle, then the measure of the greatest angle of the given triangle is \_\_\_\_\_.

- Ans**
- ☒ A. 75°
  - ☒ B. 70°
  - ☒ C. 90°
  - ☒ D. 120°

**Q.16** ₹651 is divided among A, B, C in such a way that twice of A's share, thrice of B's and five times of C's share are equal. Find C's share.

- Ans**
- ☒ A. ₹126
  - ☒ B. ₹315
  - ☒ C. ₹210
  - ☒ D. ₹150

Q.18 The value of  $(\sin x + \sec x)^2 + (\operatorname{cosec} x + \cos x)^2$  is:

Ans

☐ A.  $(1 - \sec x \operatorname{cosec} x)^2$

☐ B.  $(2 - \sec x \operatorname{cosec} x)^2$

☒ C.  $(\sec x \operatorname{cosec} x + 1)^2$

☐ D.  $(2 + \sec x \operatorname{cosec} x)^2$

Q.19 Simplify the given expression.

$$\frac{76 \times 76 \times 76 - 74 \times 74 \times 74}{76 \times 76 + 76 \times 74 + 74 \times 74}$$

Ans

☒ A. 2

☐ B. 120

☐ C. 5

☐ D. 121

Q.20 Which of the numbers below is divisible by all the natural numbers from 1 to 10 (both inclusive)?

Ans

☐ A. 100

☐ B. 608

☒ C. 2520

☐ D. 10

Q.21 Mridul's working hours per day increased by 25% and his hourly wages increased by 20%. By how much per cent did his daily earnings increase?

Ans

☐ A. 46%

☒ B. 50%

☐ C. 40%

☐ D. 30%

Q.22 If the two roots of a quadratic equation are  $-3$  and  $3$ , then the quadratic equation is given as \_\_\_\_\_.

Ans

☐ A.  $x^2 + 5 = 0$

☒ B.  $x^2 - 9 = 0$

☐ C.  $9x^2 - 1 = 0$

☐ D.  $x^2 - 6 = 0$

**Q.23** Study the given table and answer the question that follows.

The table shows the demand of different shoe sizes as obtained in a survey.

| Shoe size | Number of pairs demanded |
|-----------|--------------------------|
| 5         | 44                       |
| 6         | 48                       |
| 7         | 58                       |
| 8         | 46                       |
| 9         | 39                       |
| 10        | 37                       |

Find the modal size of shoes demanded that one can obtain from the survey.

- Ans**
- ☒ A. 6
- ☒ B. 7
- ☒ C. 5
- ☒ D. 9

**Q.24** Two trains 240 m and 320 m long are travelling on parallel tracks in the same direction at speeds of 59 km/h and 50 km/h. How long will it take for the two trains to pass each other from the instant they meet?

- Ans**
- ☒ A. 2 min 24 sec
- ☒ B. 3 min 44 sec
- ☒ C. 3 min 24 sec
- ☒ D. 2 min 18 sec

**Q.25** Find the median age, given the ages of 10 persons (in years) are as follows:

22, 23.5, 26, 22.5, 24, 26, 23, 24.5, 25, 21

- Ans**
- ☒ A. 22.00
- ☒ B. 22.25
- ☒ C. 25.00
- ☒ D. 23.75

#### Section : General Intelligence and Reasoning

**Q.26** Read the given statement(s) and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statement(s).

**Statements:**

All boys are girls.  
All dancers are boys.  
No girl is a singer.

**Conclusions:**

1. Some boys are singers.
2. No singer is a dancer

- Ans**
- ☒ A. Only conclusion 1 follows.
- ☒ B. Only conclusion 2 follows.
- ☒ C. Both conclusions 1 and 2 follow.
- ☒ D. Neither conclusions 1 nor 2 follows.

**Q.27** Which of the following numbers will replace the question mark (?) in the given series?

20, 30, 18, 27, 16, 24, 14, 21, 12, 18, ?

**Ans** ☒ A. 10

☐ B. 15

☐ C. 14

☐ D. 12

**Q.28** If each of the digits in the number 8356427 is arranged in ascending order from left to right, then what will be the sum of the digits that are second from the left and second from the right in the new number thus formed?

**Ans** ☐ A. 9

☒ B. 10

☐ C. 11

☐ D. 12

**Q.29** Bindi, Moni, Saya, Arjun, Himesh and Pankaj are six different friends, each of a different age. Bindi is younger than Moni but older than Saya. Arjun is younger than only one person. Himesh is older than Pankaj but younger than Moni. Saya is older than Pankaj but younger than Bindi. Who among the six is the youngest?

**Ans** ☐ A. Saya

☒ B. Pankaj

☐ C. Himesh

☐ D. Moni

**Q.30** Garima walked 15 m towards the north and then turned to the right and walked 20 m. She further turned to the left and walked 5 m. Finally, she turned to the left again and walked 20 m. How many metres was she from the starting point and in which direction? (All turns are 90 degree turns only)

**Ans** ☐ A. 15 m, North

☒ B. 20 m, North

☐ C. 15 m, South

☐ D. 20 m, South

**Q.31** Each vowel in the word 'ABRUPT' is changed to the letter immediately following it in the English alphabetical order and each consonant is changed to the letter immediately preceding it in the English alphabetical order. If each letter thus formed is arranged in alphabetical order, which letter will be fourth from the right?

**Ans** ☒ A. O

☐ B. B

☐ C. Q

☐ D. S

**Q.32** Which of the following numbers will replace the question mark (?) in the given series?

289, 256, 225, 196, ?

**Ans** ☐ A. 121

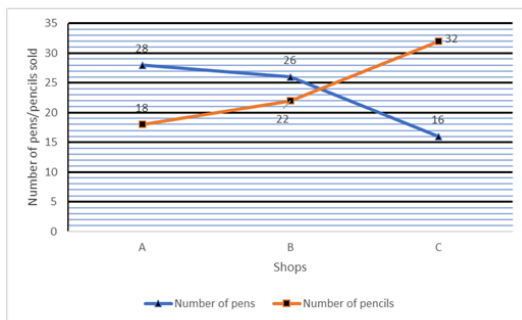
☐ B. 151

☐ C. 176

☒ D. 169

**Q.33** Study the given line graph and answer the following question.

The given line graph depicts the number of pens and pencils sold by three shops (A, B and C).



What is the difference between the total number of pens sold by shops A and B and the number of pencils sold by shop C?

- Ans**
- ✓ A. 22
  - ✗ B. 12
  - ✗ C. 24
  - ✗ D. 14

**Q.34** If '+' means '-', '-' means '×', '×' means '+', '+' means '+', what will come in place of the question mark (?) in the following equation?

$$30 - 2 + 4 + 12 \times 6 = ?$$

- Ans**
- ✗ A. 50
  - ✗ B. 58
  - ✓ C. 62
  - ✗ D. 64

**Q.35** DJ 15 is related to GM 20 in a certain way. In the same way, OW 25 is related to RZ 30. To which of the following is RM 35 related following the same logic?

- Ans**
- ✓ A. UP 40
  - ✗ B. PU 04
  - ✗ C. PU 40
  - ✗ D. UP 45

**Q.36** Read the given statements and conclusions carefully and decide which of the given conclusions logically follow(s) from the statements.

**Statements:**

1. R is older than I.
2. I is N's twin brother who is older than P.
3. Y is not younger than R who is older than K.

**Conclusions:**

- I. K is older than I.
- II. I is younger than Y.

- Ans**
- ✗ A. Conclusion I follows
  - ✓ B. Conclusion II follows
  - ✗ C. Both conclusions I and II follow
  - ✗ D. Neither conclusions I nor II follows

**Q.37** In a queue, Manoj is 10<sup>th</sup> from the front end and Ajay is 12<sup>th</sup> from the rear end, and there is no one between them. How many people are there in the queue if Ajay is standing behind Manoj in the queue?

- Ans**
- ☒ A. 20
  - ☒ B. 21
  - ☒ C. 22
  - ☒ D. 23

**Q.38** In a certain code language, 'BOAT' is written as 'DQCV' and 'PLAN' is written as 'RNCP'. How will 'PHONE' be written in that code language?

- Ans**
- ☒ A. JQPGR
  - ☒ B. RJQPG
  - ☒ C. QPGRJ
  - ☒ D. PGQST

**Q.39** Select the option that is related to the fifth number in the same way as the fourth number is related to the third number and the second number is related to the first number.

2 : 19 :: 6 : 57 :: 44 : ?

- Ans**
- ☒ A. 177
  - ☒ B. 399
  - ☒ C. 212
  - ☒ D. 418

**Q.40** Six persons are sitting around a circular table facing the centre. Saif is an immediate neighbour of both Raj and Sam. Kailash sits second to the left of Raj. Ankit sits second to the right of Saif. Kailash is an immediate neighbour of both Shiva and Ankit. Who is an immediate neighbour of both Raj and Kailash?

- Ans**
- ☒ A. Shiva
  - ☒ B. Ankit
  - ☒ C. Sam
  - ☒ D. Saif

**Q.41** Following table shows the distribution of marks obtained by 2 different set of 100 students who appeared for exams in Mathematics and statistics respectively. Study the table and answer the question.

| Marks out of 100 | 80 and Above | 60 and Above | 40 and Above | 20 and Above | 0 and above |
|------------------|--------------|--------------|--------------|--------------|-------------|
| Subject          | Above        | Above        | Above        | Above        | above       |
| Mathematics      | 11           | 32           | 70           | 90           | 100         |
| Statistics       | 9            | 21           | 64           | 81           | 100         |

The total number of students scoring less than 40% marks in their respective exams are:

- Ans**
- ☒ A. 33
  - ☒ B. 66
  - ☒ C. 64
  - ☒ D. 29

**Q.42** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

23 : 44 :: 35 : 56 :: 43 : ?

- Ans**
- ☒ A. 64
  - ☒ B. 66
  - ☒ C. 63
  - ☒ D. 70

**Q.43** Six people are sitting around a circular table facing the centre. Q is to the immediate left of S and third to the right of T while K is third to the left of O. K is to the immediate right of S and second to the left of M. Who is to the immediate left of M?

- Ans**
- ☒ A. Q
  - ☒ B. S
  - ☒ C. O
  - ☒ D. T

**Q.44** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/<br>Symbol | 6 | 8 | 4 | + | 5 | # | % | 2 | \$ | 1 | ^ | 7 | 9 | * | @ |
|-------------------|---|---|---|---|---|---|---|---|----|---|---|---|---|---|---|
| Code              | S | U | T | W | N | P | V | D | A  | Z | J | M | O | M | Y |

**Conditions:**

- (i) If the first and last elements are numbers, then the last element will be replaced by the symbol @.
- (ii) If the first element is a symbol, then the first element will be coded as ©.
- (iii) If both the first and second elements are numbers, then the third element will be coded as \*.

What will be the code for the following?

5 4 2 % @ 6

- Ans**
- ☒ A. NT\*VY@
  - ☒ B. NTDVYS
  - ☒ C. SNTDVY
  - ☒ D. NTDVYZ

**Q.45** Five employees of the same company, Jagruti, Krishna, Laxman, Maya and Nirupam, live on five different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it number 2, and so on till the topmost floor is numbered 5. Krishna and Nirupam live on the topmost and bottommost floors, respectively. Jagruti lives on the floor immediately above Laxman. Maya lives on the floor immediately above Nirupam.

Who lives on the second floor?

- Ans**
- ☒ A. Krishna
  - ☒ B. Jagruti
  - ☒ C. Maya
  - ☒ D. Laxman

**Q.46** Which of the following letter-clusters will replace the question mark (?) in the given series to make it logically complete?

MAN 7, PDQ 16, SGT 25, VJW 34, ?

- Ans**
- ☒ A. ZLU 36
  - ☒ B. YMZ 43
  - ☒ C. YNZ 43
  - ☒ D. ULZ 40

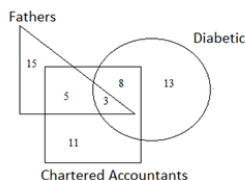
**Q.47** What will come in the place of the question mark (?) in the following equation, if '+' and '-' are interchanged and also '×' and '÷' are interchanged?

$4 \times 2 + 6 - 3 + 1 = ?$

- Ans**
- ☒ A. 14
  - ☒ B. 15
  - ☒ C. 12
  - ☒ D. 18



- Q.48** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



How many people are chartered accountants as well diabetic but NOT fathers?

- Ans** ☒ A. 3  
☒ B. 8  
☒ C. 11  
☒ D. 5

- Q.49** Each vowel in the word 'PREDICT' is changed to the letter immediately following it in the English alphabetical order and each consonant is changed to the letter immediately preceding it in the English alphabetical order. If each letter thus formed is arranged in alphabetical order, which letter will be third from the right?

- Ans** ☒ A. J  
☒ B. O  
☒ C. Q  
☒ D. F

- Q.50** Harbhajan is walking in the south direction and after covering a distance of 5 m, he takes a turn to the left and further walks a distance of 3 m. Finally, he turns to his right and walks a distance of 5 m. In which direction is Harbhajan facing now? (All turns are 90 degree turns only)

- Ans** ☒ A. East  
☒ B. West  
☒ C. South  
☒ D. North

- Q.51** This question is based on the five, three-digit numbers given below.

(Left) 438 645 327 153 276 (Right)

(Example: 697 – first digit = 6, second digit = 9, third digit = 7)

(NOTE: All operations to be done from left to right)

If 3 is added to the first digit of every number, in how many numbers will the first digit be exactly divisible by 2?

- Ans** ☒ A. Four  
☒ B. Three  
☒ C. Two  
☒ D. One

- Q.52** A statement is given followed by two arguments I and II. Read the statement and the arguments carefully and select the appropriate answer from the given options.

Statement:

More and more agricultural land should be sold for housing and industrialisation.

Arguments:

- I. Severe food shortage will be unavoidable if conversion of agricultural land into industrial land does not stop soon.  
 II. It has been proven that industrialisation in an area destroys its ecosystem and biodiversity.

- Ans** ☒ A. I weakens, while II strengthens the statement  
☒ B. II weakens, while I strengthens the statement  
☒ C. Both I and II weaken the statement  
☒ D. Both I and II strengthen the statement

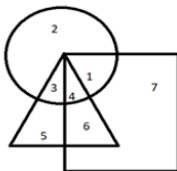
**Q.53** If 8 March 2009 is a Sunday, then what will be the day of the week on 1 February 2021?

- Ans**
- ☒ A. Sunday
  - ☒ B. Tuesday
  - ☒ C. Monday
  - ☒ D. Saturday

**Q.54** In a class Pallavi's rank is 25th from the top and 18th from the bottom. Find the number of students in the class?

- Ans**
- ☒ A. 41
  - ☒ B. 42
  - ☒ C. 43
  - ☒ D. 44

**Q.55** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons. 'Managers' are represented by the circle, 'B. Tech degree holders' are represented by the square, and 'MBA degree holders' are represented by the triangle. How many managers are there who are B. Tech degree holders but not MBA degree holders?



- Ans**
- ☒ A. 6
  - ☒ B. 1
  - ☒ C. 5
  - ☒ D. 2

#### Section : General Science

**Q.56** Match the columns.

| Group-I               | Group-II     |
|-----------------------|--------------|
| I. Mechanical barrier | A. Copper-T  |
| II. Chemical method   | B. Vasectomy |
| III. Device           | C. Condom    |
| IV. Surgical method   | D. Pill      |

- Ans**
- ☒ A. I-C; II-A; III-D; IV-B
  - ☒ B. I-C; II-D; III-A; IV-B
  - ☒ C. I-C; II-B; III-D; IV-A
  - ☒ D. I-C; II-A; III-B; IV-D

**Q.57** Dependence on the resistance  $R$  of a coil for the electromagnetically induced EMF and induced current in a coil follows:

- Ans**
- ☒ A. induced EMF depends on  $R$  but induced current does not
  - ☒ B. induced EMF does not depend on  $R$  but induced current does
  - ☒ C. both are independent of  $R$
  - ☒ D. Induced EMF and induced current both depend on  $R$

**Q.58** Which of the following structures is formed with a closed chain of carbon atoms?

- Ans**
- ☒ A. Straight chain structure
  - ☒ B. Branched chain structure
  - ☒ C. Ring structure
  - ☒ D. Acyclic structure

**Q.59** By which process do plants excrete excess water?

- Ans**
- ☒ A. Transportation
  - ☒ B. Translocation
  - ☒ C. Transpiration
  - ☒ D. Photosynthesis

**Q.60** Which of the following compounds is prepared when sodium chloride reacts with carbon dioxide in the presence of ammonia and water?

- Ans**
- ☒ A.  $\text{NaCO}_3$
  - ☒ B.  $\text{NaHCO}_3$
  - ☒ C.  $\text{Na}_2\text{SO}_4$
  - ☒ D.  $\text{CaCO}_3$

**Q.61** Which of the following statements regarding metals is NOT correct?

- Ans**
- ☒ A. Metals are electropositive in nature.
  - ☒ B. Metals display electron losing tendency during bond formation.
  - ☒ C. In general, metals form acidic oxides.
  - ☒ D. Metals are placed towards the left in the periodic table.

**Q.62** Two resistors of  $6\ \Omega$  and  $4\ \Omega$  in series combination are connected to a  $12\ \text{V}$  battery. The effective current of the circuit will be:

- Ans**
- ☒ A. 2 Amp
  - ☒ B. 0.5 Amp
  - ☒ C. 1.2 Amp
  - ☒ D. 0.8 Amp

**Q.63** Twinkling of stars occurs because:

- Ans**
- ☐ A. change in the density of different layers of air causes change in Tyndall effect continuously
  - ☐ B. change in the density of different layers of air causes change in scattering intensity continuously
  - ☒ C. change in the density of different layers of air causes change in refractive index continuously
  - ☐ D. change in the density of different layers of air causes change in colour of the sky continuously

**Q.64** The magnification of an image is +1.5 and the object distance is 30 cm from a spherical mirror. The image is formed at \_\_\_\_\_.

- Ans**
- ☐ A. 20 cm behind the mirror
  - ☒ B. 45 cm behind the mirror
  - ☐ C. 45 cm in front of the mirror
  - ☐ D. 20 cm in front of the mirror

**Q.65** Which of the following groups of elements were NOT discovered at the Mendeleev's periodic table?

- Ans**
- ☐ A. Alkali metals
  - ☐ B. Alkaline earth metals
  - ☒ C. Noble gases
  - ☐ D. Halogens

**Q.66** The power of a bulb is 40 W. Then the energy in SI units consumed by it in 100 s is:

- Ans**
- ☐ A. 40 J
  - ☐ B. 400 J
  - ☒ C. 4000 J
  - ☐ D. 40000 J

**Q.67** Which of the following statements is correct about non-biodegradable substances?

- Ans**
- ☐ A. Non-biodegradable substances take lesser time for degradation.
  - ☐ B. Non-biodegradable substances can easily be degraded by enzymes.
  - ☒ C. Non-biodegradable substances persist in the environment.
  - ☐ D. Non-biodegradable substances don't harm the members of the ecosystem.

**Q.68** Identify the correct sequential order of the excretory system in human beings.

- Ans**
- ☒ A. Kidney, ureters, urinary bladder, urethra
  - ☐ B. Kidney, urethra, ureters, urinary bladder
  - ☐ C. Kidney, ureters, urethra, urinary bladder
  - ☐ D. Kidney, urinary bladder, ureters, urethra

**Q.69** Why do plant cells have cell walls?

- Ans**
- ☐ A. They are required for photosynthesis
  - ☒ B. They protect the plant cells from various environmental factors
  - ☐ C. They are living beings
  - ☐ D. They do not have cell membrane

**Q.70** An object is placed at a distance of 10 cm from a projector to obtain an image with magnification of  $-60$ . The screen, to receive the projected image, should be placed at a distance of:

- Ans**
- ☐ A. 4.5 metres
  - ☒ B. 6.0 metres
  - ☐ C. 5.5 metres
  - ☐ D. 5.0 metres

**Q.71** Baking soda is NOT generally used:

- Ans**
- ☐ A. as an antacid
  - ☒ B. as a disinfectant
  - ☐ C. as baking powder
  - ☐ D. in fire extinguishers

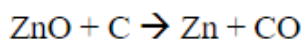
**Q.72** A shaving mirror is constructed in such way that a man at a distance of 30 cm from the mirror sees his image magnified 1.33 times. Then the radius of curvature of the mirror is:

- Ans**
- ☒ A. 34.25 cm
  - ☐ B. 30.4 cm
  - ☐ C. 28.6 cm
  - ☐ D. 27.5 cm

**Q.73** Stockholm water prize honours the persons who contributes to the:

- Ans**
- ☐ A. conservation and protection of soil
  - ☐ B. conservation and protection of wild life
  - ☒ C. conservation and protection of water resources
  - ☐ D. conservation and protection of forests

**Q.74** Which of the following is reduced in the given reaction?



- Ans**
- ☒ A. ZnO
  - ☐ B. Carbon
  - ☐ C. Zn
  - ☐ D. CO

**Q.75** Suppose an electric refrigerator of 500 W operates 12 hour/day. What is the cost of the energy to operate it for 30 days at ₹5.00 per kW h?

- Ans**
- ☐ A. ₹500/-
  - ☐ B. ₹700/-
  - ☒ C. ₹900/-
  - ☐ D. ₹1,000/-

Q.76 In reptiles, the sex of the offsprings is determined by the temperature at which:

- Ans
- ☐ A. ovum is kept
  - ☐ B. sperm is kept
  - ☒ C. fertilised egg is kept
  - ☐ D. unfertilised egg is kept

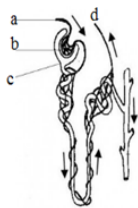
Q.77 Magnetic field lines appear to move inside a bar magnet from

- Ans
- ☐ A. middle to all sides
  - ☐ B. middle to the north pole only
  - ☒ C. south pole to north pole
  - ☐ D. north pole to south pole

Q.78 Select the functional group in five-carbon atom compound 'Pentanal'.

- Ans
- ☐ A. Ketone
  - ☐ B. Alcohol
  - ☐ C. Alkene
  - ☒ D. Aldehyde

Q.79 Given below is the diagram of a nephron. Select the option with the correct labelling for a, b, c and d parts.



- Ans
- ☐ A.  
a - Branch of renal vein, b – Bowman's capsule, c - Glomerulus, d - Branch of renal artery
  - ☐ B.  
a - Branch of renal artery, b – Bowman's capsule, c - Glomerulus, d - Branch of renal vein
  - ☐ C.  
a - Branch of renal vein, b - Glomerulus, c – Bowman's capsule, d - Branch of renal artery
  - ☒ D.  
a - Branch of renal artery, b - Glomerulus, c – Bowman's capsule, d - Branch of renal vein

Q.80 Which of the following are produced in a neutralisation reaction?

- Ans
- ☐ A. Salt and acid
  - ☐ B. Acid and water
  - ☒ C. Salt and water
  - ☐ D. Precipitate and base



**Q.81** When was SVAMITVA Scheme, which is a Central Sector Scheme of Ministry of Panchayati Raj launched?

- Ans**
- ☐ A. 2019
  - ☐ B. 2020
  - ☒ C. 2021
  - ☐ D. 2022

**Q.82** Which cricket team reached their historic milestone to become the first team to play 1000 One Day International (ODI) Matches in the month of Feb 2022?

- Ans**
- ☐ A. West Indies
  - ☐ B. Australia
  - ☒ C. India
  - ☐ D. England

**Q.84** The Brahmaputra marks the \_\_\_\_\_ boundary of the Himalayas.

- Ans**
- ☐ A. Northern-most
  - ☐ B. Southern-most
  - ☐ C. Western-most
  - ☒ D. Eastern-most

**Q.85** Which formula is used to calculate M3 (i.e. measure of money supply)?

- Ans**
- ☒ A.  $M3 = CU + DD + \text{Net time deposits of commercial banks}$
  - ☐ B.  $M3 = M2 + \text{Saving deposits with post office}$
  - ☐ C.  $M3 = M1 + \text{Total deposits with post office}$
  - ☐ D.  $M3 = M1 + \text{Total deposit with post office excluding National Saving Certificate}$

**Q.86** In which of the following years did the Reserve Bank of India introduce a comprehensive regulatory framework for Non-Banking Finance Company- Micro Finance Institutions?

- Ans**
- ☐ A. 2010
  - ☒ B. 2011
  - ☐ C. 2012
  - ☐ D. 2013

**Q.87** The Budhabalanga and Baitarini rivers have their source in \_\_\_\_\_.

- Ans**
- ☐ A. West Bangal
  - ☐ B. Chhattisgarh
  - ☒ C. Odisha
  - ☐ D. Jharkhand

**Q.88** Who among the following was the last viceroy in India?

- Ans**
- ☐ A. Lord Ripon
  - ☒ B. Lord Mountbatten
  - ☐ C. Lord Wavell
  - ☐ D. Lord Curzon

**Q.89** The Zoological Survey of India (ZSI), with its headquarters in \_\_\_\_\_, and having presence in 16 regional stations, is responsible for surveying the faunal resources of India.

- Ans**
- ☒ A. Karnataka
  - ☒ B. Kolkata
  - ☒ C. Kerela
  - ☒ D. Andhra Pradesh

**Q.90** As per Article \_\_\_\_\_ of the Constitution of India, a person cannot be convicted for an act that was not an offence at the time of its commission.

- Ans**
- ☒ A. 30
  - ☒ B. 27
  - ☒ C. 20
  - ☒ D. 23

**Q.91** Identify the timeline of Twelfth Five Year Plan in India?

- Ans**
- ☒ A. 2010 to 2015
  - ☒ B. 2013 to 2018
  - ☒ C. 2012 to 2017
  - ☒ D. 2011 to 2016

**Q.92** What is the full form of INSPIRE scheme, which is one of the flagship programmes of the Department of Science & Technology (DST), Government of India?

- Ans**
- ☒ A. Innovation in Science Pursuit for Indian Research
  - ☒ B. Innovation in Science Pursuit for Indigenous Research
  - ☒ C. Innovation in Science Pursuit for Inspired Research
  - ☒ D. Innovation in Science Pursuit for Interdisciplinary Research

**Q.93** What is the full name of The POCSO Act?

- Ans**
- ☒ A. The Protection of Children from Sexual Offences Act
  - ☒ B. The Prevention of Children from Sexual Offences Act
  - ☒ C. The Protection of Children from Sensual Offences Act
  - ☒ D. The Prevention of Children from Serious Offences Act

**Q.94** The risk coverage on accidental death in the Pradhan Mantri Suraksha Bima Yojana (PMSBY) is \_\_\_\_\_ (As of July 2022).

- Ans**
- ☒ A. ₹2 lakh
  - ☒ B. ₹5 lakh
  - ☒ C. ₹10 lakh
  - ☒ D. ₹15 lakh

**Q.95** NEP 2020 recommends to establish which of the following institutes/organisations to accelerate the research and innovation in India?

- Ans**
- ☒ A. Indian Institute of Science Education and Research
  - ☒ B. National Research Foundation
  - ☒ C. National Foundation for Innovation and Research in India
  - ☒ D. Mahatma Gandhi International Institute for Research in India



**Q.96**

As per 'Investment Trends Monitor' report released in January 2022, the Foreign Direct Investment (FDI) flows to India in 2021 were 26% lower as compared to 2020. Who released this report?

**Ans**

- ☐ A. Reserve Bank of India
- ☐ B. International Monetary Fund (IMF)
- ☒ C. United Nations Conference on Trade and Development (UNCTAD)
- ☐ D. World Bank

**Q.97**

Which of the following matters is a part of the Concurrent List of the Constitution of India?

**Ans**

- ☐ A. Liquor
- ☒ B. Adulteration
- ☐ C. Police
- ☐ D. Public Health

**Q.98**

Galo is a Tani language spoken in \_\_\_\_\_.

**Ans**

- ☐ A. Haryana
- ☐ B. Himachal Pradesh
- ☐ C. Jharkhand
- ☒ D. Arunachal Pradesh

**Q.99**

On 21<sup>st</sup> January 2022, Tripura, Manipur and Meghalaya celebrated their \_\_\_\_\_ Foundation Day.

**Ans**

- ☐ A. 25<sup>th</sup>
- ☒ B. 50<sup>th</sup>
- ☐ C. 55<sup>th</sup>
- ☐ D. 75<sup>th</sup>

**Q.100**

Which bowler became the all time highest wicket taker in the Indian Premier League in the fifteenth edition of the tournament on 31 March 2022?

**Ans**

- ☐ A. Pat Cummins
- ☐ B. Ravichandran Ashwin
- ☐ C. Mohammed Shami
- ☒ D. Dwayne Bravo



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 20/09/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

Q.1 Express  $123.4\bar{7}$  in  $\frac{p}{q}$  form, where p and q are integers and  $q \neq 0$ .

- Ans
- ☒ A.  $\frac{12347}{99}$
- ☒ B.  $\frac{11113}{9}$
- ☒ C.  $\frac{12347}{90}$
- ☒ D.  $\frac{11113}{90}$

Q.2 When a transversal intersects two straight lines, two angles formed on the same side of the transversal, such that the two angles are both positioned above or are both positioned below relative to the two lines on which they are formed, are known as a pair of \_\_\_\_\_ angles.

- Ans
- ☒ A. adjacent
- ☒ B. corresponding
- ☒ C. complementary
- ☒ D. alternate

Q.3 If  $x^3y : xy :: xy : a$ , then which of the options below gives the value of a?

- Ans
- ☒ A.  $\frac{y}{x}$
- ☒ B.  $\frac{y}{x^2}$
- ☒ C.  $\frac{y^2}{x}$
- ☒ D.  $\frac{y^2}{x^2}$

**Q.4** A dishonest dealer professes to sell his goods at cost price, but he uses a weight of 950 gm for a kilogram. His gain per cent is:

**Ans**

✓ **A.**  $5\frac{5}{19}\%$

✗ **B.**  $4\frac{5}{19}\%$

✗ **C.**  $6\frac{5}{19}\%$

✗ **D.**  $7\frac{5}{19}\%$

**Q.5** If  $a, b$  are the roots of the equation  $x^2 - 5x + 6 = 0$ , then  $a^2 + b^2 - ab$  is:

**Ans**

✗ **A.**  $-7$

✗ **B.**  $43$

✓ **C.**  $7$

✗ **D.**  $9$

**Q.6** What is the sum of the deviations of the values of the data set 5, 6, 7, 9, 10, 12 and 14, from the mean of the values given in the same data set?

**Ans**

✓ **A.**  $0$

✗ **B.**  $-1$

✗ **C.**  $1$

✗ **D.**  $2$

**Q.7** Three cubes, each of edge 5 cm are arranged next to each other. The surface area of the resulting cuboid is:

**Ans**

✗ **A.**  $27\text{ cm}^2$

✗ **B.**  $37.5\text{ cm}^2$

✓ **C.**  $350\text{ cm}^2$

✗ **D.**  $125\text{ cm}^2$

**Q.8** Find  $b$  if 256,  $b$  and 324 are in continued proportion.

**Ans**

✗ **A.** 312

✗ **B.** 308

✓ **C.** 288

✗ **D.** 296

**Q.9** When the price of an article is increased by 20% its sale reduces by 20%. What is the net effect on the revenue?

**Ans**

✗ **A.** 20% increase

✗ **B.** 20% decrease

✓ **C.** 4% decrease

✗ **D.** 4% increase

**Q.10** A triangle and a parallelogram have the same base and the same area. If the sides of the triangle are 26 cm, 28 cm, and 30 cm and the parallelogram stands on a base of 28 cm, then the height of the parallelogram is:

- Ans**
- ✓ A. 12 cm
  - ✗ B. 10 cm
  - ✗ C. 14 cm
  - ✗ D. 11 cm

**Q.11** Find the value of  $9\frac{1}{6} \times 4\frac{2}{3} + 5\frac{1}{2} \div 2\frac{2}{3}$ .

- Ans**
- ✓ A.  $\frac{6457}{144}$
  - ✗ B.  $\frac{6417}{144}$
  - ✗ C.  $\frac{6457}{72}$
  - ✗ D.  $\frac{6157}{144}$

**Q.12** The value of  $\frac{\sin A - \sin B}{\cos A + \cos B} + \frac{\cos A - \cos B}{\sin A + \sin B}$  is:

- Ans**
- ✗ A. 1
  - ✗ B. -1
  - ✗ C. 2
  - ✓ D. 0

**Q.13** What will be the area (in  $\text{cm}^2$ ) of a semicircle whose perimeter is 72 cm? (Take  $\pi = \frac{22}{7}$ )

- Ans**
- ✗ A. 144
  - ✗ B. 154
  - ✗ C. 616
  - ✓ D. 308

**Q.14** A and B have the same annual income. A saves one-fifth of his income but B spends ₹80,000 more than A annually and at the end of 4 years finds himself in a debt of ₹2,20,000. Each of A and B's annual income is:

- Ans**
- ✗ A. ₹1,10,000
  - ✗ B. ₹1,30,000
  - ✗ C. ₹1,20,000
  - ✓ D. ₹1,25,000

**Q.15** If the HCF of two numbers is 6 and the product of the numbers is 2520, find their LCM.

- Ans**
- ✗ A. 2520
  - ✓ B. 420
  - ✗ C. 1320
  - ✗ D. 880

**Q.16** If the area of an equilateral triangle is  $25\sqrt{3}\text{ cm}^2$ , then the length (in cm) of each side of this equilateral triangle is \_\_\_\_\_.

**Ans**

☒ A.  $5\sqrt{2}$

☒ B.  $10\sqrt{3}$

☒ C. 10

☒ D. 8

**Q.17** The weights (in kg) of 10 students of a class have been recorded as 35, 42, 56, 44, 55, 44, 36, 44, 49 and 35. Find the modal weight.

**Ans**

☒ A. 44.0 kg

☒ B. 35.0 kg

☒ C. 36.0 kg

☒ D. 35.5 kg

**Q.18** If  $x = -\frac{1}{2}$  and  $y = 2$ , find the value of  $\frac{4y}{5}(y-x) - 35\left[\frac{3x-4y}{5} - \frac{1}{10}\left\{3x - \frac{5}{7}(7x-4y)\right\}\right]$ .

**Ans**

☒ A. 90

☒ B. 94

☒ C. 92

☒ D. 91

**Q.19** The product of the roots of  $6\sqrt{3}x^2 + 3\sqrt{3} + 5x = 0$  is \_\_\_\_\_.

**Ans**

☒ A.  $\sqrt{3}$

☒ B. 1

☒ C. 0

☒ D.  $\frac{1}{2}$

**Q.20** If  $4^{2n+1} = 2^{3n+9}$ , then  $n =$  \_\_\_\_\_.

**Ans**

☒ A. -8

☒ B. 7

☒ C. 8

☒ D.  $\frac{9}{2}$

**Q.21** The sum of two co-prime numbers is 122 and their product is 3717. The numbers are:

**Ans**

☒ A. (33; 89)

☒ B. (53; 69)

☒ C. (59; 63)

☒ D. (79; 43)

**Q.22** Arbaz and Aman can complete painting a building in 16 days and 12 days, respectively. If Arbaz starts the work and they work on alternate days, then the building painting will be completed in how many days?

- Ans**
- ✓ A.  $13\frac{3}{4}$
  - ✗ B.  $15\frac{1}{4}$
  - ✗ C. 12
  - ✗ D. 13

**Q.23** A dishonest dealer sells goods at a  $6\frac{1}{4}\%$  loss on cost price but actually gives 14 gm of goods for every 16 gm that is mentioned on the weight. His gain or loss percent is:

- Ans**
- ✓ A.  $7\frac{1}{7}\%$  gain
  - ✗ B.  $7\frac{1}{3}\%$  loss
  - ✗ C.  $6\frac{1}{7}\%$  gain
  - ✗ D.  $6\frac{1}{7}\%$  loss

**Q.24** What is the smallest natural number that must be added to 369 to make the result a perfect square?

- Ans**
- ✗ A. 25
  - ✓ B. 31
  - ✗ C. 30
  - ✗ D. 40

**Q.25** If the sum of three consecutive odd numbers is 309, then the largest number among them is \_\_\_\_\_.

- Ans**
- ✗ A. 101
  - ✗ B. 109
  - ✓ C. 105
  - ✗ D. 103

#### Section : General Intelligence and Reasoning

**Q.26** Study the following arrangement and answer the question given below. All numbers given below are 2 digit numbers.

18 @ 61 # 22 63 76 \$ 42 48 % 29 94 Ø 56 27 75

If all the symbols are dropped from the series, what will be the product of the numbers which are third from the right end and fourth from the left end?

- Ans**
- ✓ A. 3528
  - ✗ B. 3498
  - ✗ C. 3696
  - ✗ D. 3575

**Q.27** The given statements are followed by three conclusions. Find out which conclusion is true based on the given statements.

**Statements:**

$$A = B \geq C = D, E > F \geq G = D$$

**Conclusions:**

I.  $E > C$

II.  $A \geq G$

III.  $E \geq B$

- Ans**
- ☒ A. Only conclusion I is true
  - ☒ B. Only conclusion II is true
  - ☒ C. Only conclusion III is true
  - ☒ D. Only conclusions I and II are true

**Q.28** Which of the following options is the closest approximate value which will come in place of question mark(?) in the following equation?

$$(\sqrt{785} + 72 \div 4 \times 3 - \sqrt{120}) \times 2 = ?$$

- Ans**
- ☒ A. 180
  - ☒ B. 124
  - ☒ C. 142
  - ☒ D. 200

**Q.29** Select the correct conclusion that can be drawn from the given statements.

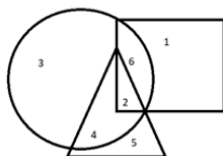
**Statements:**

$$1. C > A \geq D > Z$$

$$2. Z = V \leq K$$

- Ans**
- ☒ A.  $C > V$
  - ☒ B.  $K > A$
  - ☒ C.  $K > D$
  - ☒ D.  $C = D$

**Q.30** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons. The circle represents 'teachers', the square represents 'men', and the triangle represents 'post graduates'. How many men are there who are NEITHER teachers NOR post graduates?



- Ans**
- ☒ A. 4
  - ☒ B. 3
  - ☒ C. 2
  - ☒ D. 1

**Q.31** Vaani walks to her office from her home. After starting from home, while walking to office, she turned right twice and then left before reaching the office. If Vaani is facing South when she reaches her office, which direction was she facing when she started from her home?

- Ans**
- ☒ A. East
  - ☐ B. West
  - ☐ C. North
  - ☐ D. South

**Q.32** 30 cricketers are standing in a straight row facing the north. Amar is standing 10<sup>th</sup> from the right end while Dinesh is standing 5<sup>th</sup> from the left end. How many cricketers are standing between Amar and Dinesh?

- Ans**
- ☐ A. 16
  - ☒ B. 15
  - ☐ C. 18
  - ☐ D. 17

**Q.33** Read the given statement and the arguments carefully and select the appropriate answer from the given options.

Statement:

The monsoon season influences the lives of Mumbai people in many ways.

Arguments:

- I. Water logging is a common issue in Mumbai during the monsoon.
- II. Generally people enjoy the monsoon season in Mumbai.

- Ans**
- ☐ A. I weakens while II strengthens the statement.
  - ☐ B. II weakens while I strengthens the statement.
  - ☐ C. Both I and II weaken the statement.
  - ☒ D. Both I and II strengthen the statement.

**Q.34** Study the following table carefully and answer the questions based on it.  
Number of visitors who visit different tourist places in different months in the same year are given in the following table.

| Months    | Visitors        |                 |                 |                 |                 | Total |
|-----------|-----------------|-----------------|-----------------|-----------------|-----------------|-------|
|           | Tourist Place A | Tourist Place B | Tourist Place C | Tourist Place D | Tourist Place E |       |
| September | 200             | 70              | 30              | 290             | 10              | 600   |
| October   | 120             | 130             | 70              | 150             | 290             | 760   |
| November  | 45              | 35              | 25              | 125             | 160             | 390   |
| December  | 160             | 110             | 40              | 115             | 130             | 555   |
| January   | 80              | 90              | 70              | 100             | 140             | 480   |
| February  | 130             | 150             | 30              | 40              | 390             | 740   |

What is the difference in the number of visitors to the place A between the months of December and January?

- Ans**
- ☐ A. 85
  - ☐ B. 75
  - ☒ C. 80
  - ☐ D. 70

**Q.35** The position of how many letters will remain unchanged if each of the letters in the word 'MARGINS' is arranged in alphabetical order?

- Ans**
- ☐ A. None
  - ☒ B. One
  - ☐ C. Two
  - ☐ D. Three



**Q.36** Three statements are given, followed by two conclusions numbered I and II. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

Some journals are novels.  
Some novels are brochures.  
All brochures are charts.

**Conclusions:**

I. Some charts are novels.  
II. Some brochures are journals.

**Ans** ✓ **A. Only conclusion I follows.**

✗ **B. Only conclusion II follows.**

✗ **C. Neither conclusion I nor II follows.**

✗ **D. Both conclusions I and II follow.**

**Q.37** Select the option that is related to the fifth letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster and the fourth letter-cluster is related to the third letter-cluster.

EXA : HSH :: LWQ : ORX :: KNO : ?

**Ans** ✗ **A. MIV**

✗ **B. MIW**

✗ **C. NHW**

✓ **D. NIV**

**Q.38** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

7 : 345 :: 8 : 514 :: 2 : ?

**Ans** ✗ **A. 110**

✓ **B. 10**

✗ **C. 8**

✗ **D. 115**

**Q.39** In a certain code language, 'GRAND' is written as 'IVGVN' and 'NIGHT' is written as 'PMMPD'. How will 'MAGIC' be written in that language?

**Ans** ✗ **A. OBMRS**

✓ **B. OEMQM**

✗ **C. SDOFI**

✗ **D. DFONR**

**Q.40** Which of the following numbers will replace the question mark (?) in the given series?

2187, 729, 243, ?, 27

**Ans** ✗ **A. 143**

✓ **B. 81**

✗ **C. 51**

✗ **D. 113**

- Q.41** Select the set in which the numbers are related in the same way as are the numbers of the following sets.  
(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. EXAMPLE: 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)  
(7, 5, 16807)  
(8, 4, 4096)

**Ans** ☒ A. (10, 3, 100)  
☒ B. (8, 6, 3456)  
☒ C. (12, 3, 1728)  
☒ D. (3, 4, 21)

- Q.42** Three statements are given, followed by three conclusions I, II and III. You have to consider these statements to be true, even if they seem at variance from commonly known facts. Choose which of the given conclusions logically follow/s from the given statements.

**Statements:**

All covers are jars.

No funnel is a jar.

Some wells are funnels.

**Conclusions:**

I. Some wells are covers.

II. Some wells are jars.

III. No funnel is a cover.

**Ans** ☒ A. Only conclusions I and II follow.  
☒ B. Only conclusions II and III follow.  
☒ C. All the conclusions follow.  
☒ D. Only conclusion III follows.

- Q.43** Six friends B, D, F, H, J and L are sitting around a circular table facing the center (but not necessarily in the same order). F is the immediate neighbor of D and J. L is sitting to the immediate left of B. H is the immediate neighbour of D and L. Who is sitting to the immediate left of J?

**Ans** ☒ A. L  
☒ B. B  
☒ C. F  
☒ D. H

- Q.44** Each vowel in the word KETCHUP is changed to the letter following it in the English alphabetical order and each consonant is changed to the letter preceding it in the English alphabetical order. If each letter, thus formed, is arranged in alphabetical order, which letter will be third from the right?

**Ans** ☒ A. J  
☒ B. O  
☒ C. F  
☒ D. S

- Q.45** In a certain code language, 'BUS' is written as 'ACTVRT' and 'CAT' is written as 'BDZBSU'. How will 'PUT' be written in that language?

**Ans** ☒ A. OQTVSU  
☒ B. SUTVOQ  
☒ C. TVSUQO  
☒ D. VSTOQU

**Q.46** Five friends P, M, Q, S and J have their shops in the same market. P's shop is to the north of M's shop, which is to the west of Q's shop, which is to the west of S's shop. S has his shop to the north of J's shop. Because of some reasons, M and J have exchanged their shops. What is the direction of J's Shop with respect to P's shop now ?

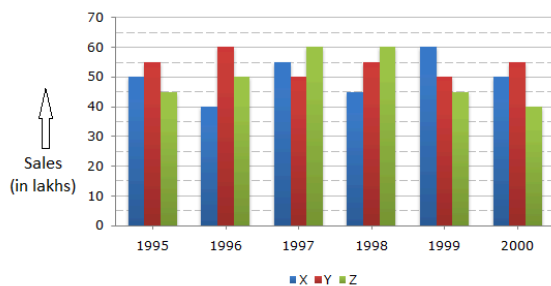
- Ans**
- ✓ A. South
  - ✗ B. West
  - ✗ C. East
  - ✗ D. South-East

**Q.47** Which of the following letter-clusters will replace the question mark (?) in the given series to make it logically complete?

DOG 8, ITL 13, NYQ 18, SDV 23, ?

- Ans**
- ✗ A. YMF 30
  - ✗ B. XIB 28
  - ✓ C. XIA 28
  - ✗ D. ZJD 25

**Q.48** The sales of three companies X, Y and Z in different years are shown in the following graph. Study the graph and answer the question.



Which company has the highest total sales for the period from year 1996 to 1998? By what percentage is the sales of company Z more than company Y in the year 1997?

- Ans**
- ✗ A. Y, 20%
  - ✓ B. Z, 20%
  - ✗ C. Y, 10%
  - ✗ D. Z, 10%

**Q.49** Which of the following numbers will replace the question mark (?) in the given series?

256, 256, 243, 230, 230, 217, 204, ?

- Ans**
- ✗ A. 209
  - ✗ B. 197
  - ✗ C. 226
  - ✓ D. 204

**Q.50** Which of the following options is the closest approximate value which will come in place of question mark (?) in the following equation?

$239.99 \times 20.01 - 99.99 \times 30.01 = ?$

- Ans**
- ✓ A. 1800
  - ✗ B. 1805
  - ✗ C. 1810
  - ✗ D. 1815

**Q.51** How many such pairs of letters are there in the word LIBRARY (in both forward and backward directions) which have as many letters between them in the word as there are in the English alphabet?

- Ans**
- ☒ A. Three
  - ☒ B. One
  - ☒ C. None
  - ☒ D. Two

**Q.52** Five persons, Pravalika, Roshan, Tarak, Vitika and Yadhu, live on five different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it number 2, and so on till the topmost floor is numbered 5. Vitika lives on the floor immediately below Yadhu. Pravalika lives on the floor immediately above Tarak. Roshan lives on the floor immediately above Pravalika. Yadhu lives on the floor immediately below Tarak.

Who lives on the third floor?

- Ans**
- ☒ A. Roshan
  - ☒ B. Pravalika
  - ☒ C. Tarak
  - ☒ D. Yadhu

**Q.53** What will come in the place of the question mark (?) in the following equation, if '+' and '-' are interchanged and also 'x' and '÷' are interchanged?

$$16 \div 3 - 12 \times 4 \div 18 \times 3 - 7 = ?$$

- Ans**
- ☒ A. 71
  - ☒ B. 72
  - ☒ C. 73
  - ☒ D. 74

**Q.54** A, B, C, D, E, F, G and H are sitting around a square table facing the centre of the table (but not necessarily in the same order). Some of them are sitting at the corners, while some are sitting at the exact centre of the sides. A is not sitting at any of the corners and is second to the right of H. G is sitting at one of the corners and is sitting fourth to the left to C. E and B are the immediate neighbours of C. F is sitting at one of the corners and is to the immediate left of B.

Who among the following are the immediate neighbours of H?

- Ans**
- ☒ A. D and G
  - ☒ B. F and G
  - ☒ C. C and F
  - ☒ D. D and B

**Q.55** All 25 students of a class are standing in a straight row facing north. Amit is 10<sup>th</sup> from the right end, while Madhu is 18<sup>th</sup> from the left end. How many students are standing between Amit and Madhu?

- Ans**
- ☒ A. 3
  - ☒ B. 4
  - ☒ C. 2
  - ☒ D. 1

#### Section : General Science

**Q.56** Which of the following compounds is an example of a covalent compound?

- Ans**
- ☒ A. CaO
  - ☒ B. MgCl<sub>2</sub>
  - ☒ C. P<sub>2</sub>O<sub>5</sub>
  - ☒ D. NaCl

**Q.57** Suppose a dentist uses a spherical mirror which can result in an upright image that is magnified five times. Then the radius of curvature in terms of the object distance  $d_o$  is given by:

**Ans**

☒ A.  $+\frac{5}{4}d_o$

☒ B.  $-\frac{5}{4}d_o$

☒ C.  $-\frac{5}{2}d_o$

☒ D.  $+\frac{5}{2}d_o$

**Q.58** When light is incident along the normal and passes from air to water, then the direction of light will \_\_\_\_\_.

**Ans**

☒ A. change before entering water

☒ B. change after entering water

☒ C. change at the boundary

☒ D. not be changed

**Q.59** The magnetic field lines \_\_\_\_\_.

**Ans**

☒ A. do not cross each other

☒ B. intersect each other at an angle of  $45^\circ$

☒ C. intersect each other at an angle of  $60^\circ$

☒ D. intersect each other at an angle of  $90^\circ$

**Q.60** A constant current of 0.1 A is passed through a copper wire by applying potential difference of 3 V across the wire. The resistance of the wire is:

**Ans**

☒ A.  $0.3 \Omega$

☒ B.  $30 \Omega$

☒ C.  $0.033 \Omega$

☒ D.  $3 \Omega$

**Q.61** What model did the Forest Officer AK Banerjee use to rejuvenate a degraded forest in West Bengal?

**Ans**

☒ A. He stopped the felling of old trees.

☒ B. He involved local people in silviculture.

☒ C. He made a canal waterway in the forest to help the plants to grow.

☒ D. He controlled termites and other wood-destroying insects.

**Q.62** Which of the following carbon compounds is formed by fermentation of molasses?

**Ans**

☒ A. Methane

☒ B. Ethane

☒ C. Ethanol

☒ D. Propanol

**Q.63** Select the product formed in a reaction between barium chloride and aluminium sulphate.

- Ans**
- ☐ A. Solid  $\text{AlCl}_3$  is formed.
  - ☒ B. Solid  $\text{BaSO}_4$  is formed.
  - ☐ C. Aqueous solution of  $\text{BaSO}_4$  is formed.
  - ☐ D.  $\text{AlCl}_3$  is released in gaseous form.

**Q.64** What happens to a pollen grain first after it is transferred on a stigma?

- Ans**
- ☐ A. It dissolves to release the nucleus into the ovule.
  - ☒ B. It grows a tube to transfer the nucleus to the ovule.
  - ☐ C. It undergoes meiosis to produce the male gamete.
  - ☐ D. It travels through the style to reach the ovary.

**Q.65** Suppose an electric kettle consumes 1.5 kW of electric power when it is operated at 240 V. What will be the rating of the fuse wire used for it?

- Ans**
- ☒ A. 6.25 A
  - ☐ B. 5 A
  - ☐ C. 8 A
  - ☐ D. 9 A

**Q.66** During photosynthesis six water molecules are produced from:

- Ans**
- ☐ A.  $6\text{H}_2\text{O}$
  - ☒ B.  $12\text{H}_2\text{O}$
  - ☐ C.  $18\text{H}_2\text{O}$
  - ☐ D.  $24\text{H}_2\text{O}$

**Q.67** A triangular glass prism has:

- Ans**
- ☐ A. 3 faces and 4 edges
  - ☐ B. 5 faces and 8 edges
  - ☒ C. 5 faces and 9 edges
  - ☐ D. 9 faces and 5 edges

**Q.68** The maximum and minimum total resistance that can be obtained by the combination of 5 coils of resistances  $2\Omega$ ,  $3\Omega$ ,  $4\Omega$ ,  $6\Omega$  and  $12\Omega$  will be \_\_\_\_\_.

- Ans**
- ☒ A.  $27\Omega$ ,  $0.75\Omega$
  - ☐ B.  $27\Omega$ ,  $0.65\Omega$
  - ☐ C.  $28\Omega$ ,  $0.65\Omega$
  - ☐ D.  $28\Omega$ ,  $0.75\Omega$

**Q.69** Suppose a pin is placed in front of a concave mirror and a real image that is thrice the size of the pin is formed on a screen. The pin and the screen are then moved until the image is six times the size of the object. If the shift of the screen is 24 cm, then the shift in the object is:

**Ans**

☐ A.  $\frac{2}{3} \text{ cm}$

☒ B.  $\frac{4}{3} \text{ cm}$

☐ C.  $\frac{5}{3} \text{ cm}$

☐ D.  $\frac{7}{3} \text{ cm}$

**Q.70** In which of the following villages did the Chipko Andolan ('Hug the Trees Movement') originate?

**Ans**

☒ A. Reni in Garhwal

☐ B. Malana in Kullu

☐ C. Andretta in Kangra

☐ D. Ziro in Lower Subansiri

**Q.71** The normal cell of human being consists of 46 chromosomes, however, the germ cell has:

**Ans**

☐ A. 44 chromosomes

☐ B. 46 chromosomes

☐ C. 22 chromosomes

☒ D. 23 chromosomes

**Q.72** Compound 'A' reacts with dilute hydrochloric acid to produce effervescence. The gas evolved turns lime water milky. Select the compound A.

**Ans**

☐ A. NaOH

☐ B. Zn metal

☒ C.  $\text{Na}_2\text{CO}_3$

☐ D. NaCl

**Q.73** The number of elements present in the third, fourth, fifth, sixth and seventh periods in the modern periodic table is:

**Ans**

☐ A. 8, 8, 18, 18 and 32, respectively

☒ B. 8, 18, 18, 32 and 32, respectively

☐ C. 8, 8, 18, 32 and 32, respectively

☐ D. 8, 18, 32, 32 and 32, respectively

**Q.74** The minimum resistance of a circuit which can be constructed using seven resistors, each of  $1/6 \Omega$ , is:

**Ans**

- ☒ A.  $\frac{7}{6} \Omega$
- ☒ B.  $\frac{7}{5} \Omega$
- ☒ C.  $\frac{6}{7} \Omega$
- ☒ D.  $\frac{5}{7} \Omega$

**Q.75** Some characteristic features of autotrophs are listed below. Which of the given statements is INCORRECT with respect to autotrophs?

**Ans**

- ☒ A. Carbon and energy requirements of autotrophs are fulfilled by photosynthesis.
- ☒ B. All green plants and some bacteria are autotrophs.
- ☒ C. The carbohydrates not used immediately are stored in the form of glycogen.
- ☒ D. They are also called primary producers.

**Q.76** What is the fluid matrix of blood called?

**Ans**

- ☒ A. RBC (Red Blood Corpuscles)
- ☒ B. WBC (White Blood Corpuscles)
- ☒ C. Plasma
- ☒ D. Platelets

**Q.77** Match the following:

| Ionic compound      | Melting point (K) |
|---------------------|-------------------|
| i. NaCl             | a. 2850           |
| ii. $\text{CaCl}_2$ | b. 1074           |
| iii. CaO            | c. 1045           |

**Ans**

- ☒ A. i-a, ii-b, iii-c
- ☒ B. i-c, ii-b, iii-a
- ☒ C. i-c, ii-a, iii-b
- ☒ D. i-b, ii-c, iii-a



Q.78  $\text{MnO} + 4\text{HCl} \rightarrow \text{MnCl}_2 + 2\text{H}_2\text{O} + \text{Cl}_2$

According to the given reaction, which of the following statements is INCORRECT?

- Ans
- ☒ A.  $\text{Cl}_2$  is oxidised to  $\text{HCl}$ .
  - ☒ B.  $\text{HCl}$  is oxidised to  $\text{Cl}_2$ .
  - ☒ C.  $\text{MnO}_2$  is reduced to  $\text{MnCl}_2$ .
  - ☒ D. It is a redox reaction.

Note: For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

Q.79 Which of the following is NOT a part of the female reproductive system?

- Ans
- ☒ A. Vas deferens
  - ☒ B. Fallopian tube
  - ☒ C. Ovaries
  - ☒ D. Oviduct

Q.80 Arrange the given non-metals in the increasing order of their electronegativity. Atomic number is given in parentheses.

O (8), Te (52), S (16), Se (34)

- Ans
- ☒ A.  $\text{Se} < \text{Te} < \text{S} < \text{O}$
  - ☒ B.  $\text{Te} < \text{Se} < \text{S} < \text{O}$
  - ☒ C.  $\text{O} < \text{S} < \text{Se} < \text{Te}$
  - ☒ D.  $\text{O} < \text{S} < \text{Te} < \text{Se}$

#### Section : General Awareness and Current Affairs

Q.81 By the 86th Amendment Act, which of the following rights has been included in the list of Fundamental Rights as part of the Right to Freedom by adding Article 21(A) in Constitution of India.

- Ans
- ☒ A. Right to practise any profession, or to carry on any occupation, trade or business
  - ☒ B. Right to protection against arrest and detention in certain cases
  - ☒ C. Right to assemble peaceably and without arms
  - ☒ D. Right to education

Q.82 On 5<sup>th</sup> July 2021 The Department of School Education and Literacy launched the \_\_\_\_\_ national mission aiming to achieve universal foundational literacy and numeracy in primary classes in India.

- Ans
- ☒ A. Digital India
  - ☒ B. NIPUN Bharat
  - ☒ C. Smart Class
  - ☒ D. Pradhan Mantri Kaushal Vikas Yojna

Q.83 An indifference map is a collection of indifference curves that represent different levels of \_\_\_\_\_.

- Ans
- ☒ A. satisfaction
  - ☒ B. demand
  - ☒ C. supply
  - ☒ D. consumption

**Q.84** As per NITI Aayog's Multidimensional Poverty Index (MPI) – 2021, which state has the highest percentage of people who are poor?

- Ans**
- ☐ A. Jharkhand
  - ☐ B. Tamil Nadu
  - ☐ C. Telangana
  - ☒ D. Bihar

**Q.85** Union Health Minister Mansukh Mandaviya launched the National Polio Immunisation Drive for 2022 by administering polio drops to children below \_\_\_\_\_ years of age in New Delhi.

- Ans**
- ☐ A. 2
  - ☐ B. 3
  - ☒ C. 5
  - ☐ D. 10

**Q.86** Which of the following is a famous wildlife spot, that was established in 1981 in Ladakh, and is famous for high population of snow leopards and a wide variety of birds?

- Ans**
- ☐ A. Pin Valley National Park
  - ☐ B. Namdapha National Park
  - ☒ C. Hemis National Park
  - ☐ D. Nanda Devi National Park

**Q.87** Which of the following statements about the word 'muslin' is true?

- Ans**
- ☒ A. It is a type of cotton textile.
  - ☐ B. It is a style of painting found in Bangladesh.
  - ☐ C. It is a technique of writing on stones.
  - ☐ D. It is a deprived community.

**Q.88** Which Kalaripayattu exponent received the Padma Shri in 2022 at the age of 93?

- Ans**
- ☐ A. Meena Raghavan
  - ☒ B. Sankaranarayana Menon Chundayil
  - ☐ C. Vijayan Gurukkal
  - ☐ D. Kalathil Krishnan Vaidyar

**Q.89** The Federation of Indian Chambers of Commerce & Industry (FICCI) was established in \_\_\_\_\_.

- Ans**
- ☐ A. 1925
  - ☒ B. 1927
  - ☐ C. 1930
  - ☐ D. 1932

**Q.90** Which of the following is NOT a classical Language of India yet?

- Ans**
- ☐ A. Telugu
  - ☐ B. Tamil
  - ☒ C. Marathi
  - ☐ D. Sanskrit

**Q.91** The 73<sup>rd</sup> and 74<sup>th</sup> Amendments to the Constitution of India ensured the reservation of \_\_\_\_\_ of total seats for women in all elected offices of local bodies in both, the rural and urban areas.

- Ans**
- ☐ A. 25%
  - ☐ B. 10%
  - ☐ C. 50%
  - ☒ D. 33%

**Q.92** Which of the following is a famous festival among the people belonging to the Angami tribe in Nagaland?

- Ans**
- ☒ A. Sekrenyi
  - ☐ B. Kambala
  - ☐ C. Vairamundi
  - ☐ D. Tula Sankramana

**Q.93** For which franchise has Dewald Brevis made his debut in the fifteenth edition of the IPL?

- Ans**
- ☐ A. Delhi Capitals
  - ☒ B. Mumbai Indians
  - ☐ C. Kolkata Night Riders
  - ☐ D. Chennai Super Kings

**Q.94** As per 'India State of Forest Report 2021' area-wise which state has the largest forest cover in the country?

- Ans**
- ☐ A. Uttar Pradesh
  - ☐ B. Karnataka
  - ☒ C. Madhya Pradesh
  - ☐ D. Assam

**Q.95** Who is considered as the person responsible for the political integration of India by unifying 562 princely states in the country?

- Ans**
- ☐ A. Lal Bahadur Shastri
  - ☒ B. Vallabhbhai Jhaverbhai Patel
  - ☐ C. Jawaharlal Nehru
  - ☐ D. Subhas Chandra Bose

**Q.96** The \_\_\_\_\_ is known as the Great or Inner Himalayas or the Himadri.

- Ans**
- ☐ A. range lying to the south of the Himalayas
  - ☐ B. outermost range of the Himalayas
  - ☒ C. northern-most range of the Himalayas
  - ☐ D. longitudinal valley lying between the lesser Himalaya and the Shiwaliks

**Q.97** Who is the political head of a Municipal Corporation in India?

- Ans**
- ☐ A. District Magistrate
  - ☒ B. Mayor
  - ☐ C. Councillor
  - ☐ D. Municipal Commissioner

**Q.98** In January 2022, scientists from IIT Kharagpur revealed a portable, user-friendly and non-invasive device for detecting \_\_\_\_\_ cancer in resource-constrained clinical settings.

- Ans**
- ☐ A. prostate
  - ☐ B. ovarian
  - ☐ C. cervical
  - ☒ D. oral

**Q.99** In which country is Mecca located?

- Ans**
- ☐ A. Iran
  - ☐ B. Afghanistan
  - ☒ C. Saudi Arabia
  - ☐ D. Yemen

**Q.100** There is/are \_\_\_\_\_ Deputy Governor(s) of the Reserve Bank of India. (As of the Jun 2022)

- Ans**
- ☐ A. 1
  - ☐ B. 2
  - ☐ C. 3
  - ☒ D. 4



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 22/09/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** Find the third proportional to 60 and 90.

Ans ☐ A. 120

☐ B. 75

☒ C. 135

☐ D. 90

**Q.2** If the sum of the roots of a quadratic equation is  $-7$  and product of the roots of the same equation is  $-12$ , then the quadratic equation is given as \_\_\_\_\_.

Ans ☐ A.  $x^2 - 7 = 0$

☐ B.  $x^2 + 7x + 12 = 0$

☐ C.  $x^2 - 12 = 0$

☒ D.  $x^2 + 7x - 12 = 0$

**Q.3** G is the centroid of  $\triangle ABC$ .  $\overline{AD}$  is a median of  $\triangle ABC$  intersecting  $\overline{BC}$  at D. What is the ratio of the lengths of  $\overline{AG}$  and  $\overline{GD}$ ?

Ans ☐ A. 1 : 2

☒ B. 2 : 1

☐ C. 3 : 1

☐ D. 1 : 3

**Q.4** A number added to its one-third is equal to 12. The number is \_\_\_\_\_.

Ans ☐ A. 4

☐ B. 3

☒ C. 9

☐ D. 6

**Q.5** Which of the options below is equivalent to  $8x^3 + 27y^3 + 36x^2y + 54xy^2$ .

- Ans**
- ☒ A.  $(3x + 2y)^3$
  - ☒ B.  $(2x + 3y)^3$
  - ☒ C.  $(4x + 3y)^3$
  - ☒ D.  $(2x + 5y)^3$

**Q.6** An equation, whose roots are the reciprocals of the roots of the equation  $5x^2 - 3x - 4 = 0$ , is:

- Ans**
- ☒ A.  $4x^2 + 3x - 5 = 0$
  - ☒ B.  $4x^2 - 3x - 5 = 0$
  - ☒ C.  $4x^2 - 3x + 5 = 0$
  - ☒ D.  $4x^2 + 3x + 5 = 0$

**Q.7** Seema is younger than Reema by 4 years. After 4 years the sum of their ages will be 44 years. What is Reema's present age?

- Ans**
- ☒ A. 32 years
  - ☒ B. 16 years
  - ☒ C. 20 years
  - ☒ D. 12 years

**Q.8** Two successive discounts of 15% and  $x\%$  on the sale of an item is equivalent to a single discount of 23.5%. What is the value of  $x\%$ ?

- Ans**
- ☒ A. 11%
  - ☒ B. 10%
  - ☒ C. 9%
  - ☒ D. 12%

**Q.9** The product of two numbers is 2160 and their HCF is 12. One of the possible pairs of numbers is:

- Ans**
- ☒ A. (36, 60)
  - ☒ B. (12, 185)
  - ☒ C. (35, 60)
  - ☒ D. (12, 184)

**Q.10** Babli travelled for 14 hours. If she covered one-fourth of the journey at a speed of 25 km/h and the remaining at 30 km/h, what is the total distance travelled by her?

- Ans**
- ☒ A. 225 km
  - ☒ B. 140 km
  - ☒ C. 400 km
  - ☒ D. 340 km

**Q.11**  $\left[ \left\{ (1690 - 934) \times \frac{5}{6} + 815 \right\} \div 17 \right]$  equals:

- Ans**
- ☒ A. 27
  - ☒ B. 17
  - ☒ C. 85
  - ☒ D. 58

**Q.12** Anil and Sunil started a business investing equal amounts. Anil left after 9 months. They earned an annual profit of ₹28,000. What is Sunil's share of annual profit?

- Ans**
- ☐ A. ₹15,000
  - ☐ B. ₹12,000
  - ☒ C. ₹16,000
  - ☐ D. ₹13,000

**Q.13** Find the mode of a moderately skewed data using empirical relation, given its mean is 222.4 and median is 216.6.

- Ans**
- ☐ A. 218
  - ☐ B. 216
  - ☒ C. 205
  - ☐ D. 222

**Q.14** Ren and Martin started a company on 1 March 2019. The ratio of their investments was 5 : 4. Martin left the company after 15 months. In what ratio must the profit be divided at the end of 2 years?

- Ans**
- ☐ A. 1 : 3
  - ☒ B. 2 : 1
  - ☐ C. 29 : 19
  - ☐ D. 24 : 15

**Q.15** What is the net discount, if two successive discounts of 10% and 12% are given?

- Ans**
- ☒ A. 20.8%
  - ☐ B. 22.0%
  - ☐ C. 21.4%
  - ☐ D. 23.2%

**Q.16** The value of  $\frac{\tan A}{1 - \cot A} + \frac{\cot A}{1 - \tan A}$  is:

- Ans**
- ☐ A.  $\sec A \operatorname{cosec} A - 1$
  - ☒ B.  $\sec A \operatorname{cosec} A + 1$
  - ☐ C.  $\sec A \sin A + 1$
  - ☐ D.  $\operatorname{cosec} A \cos A + 1$

**Q.17** Shenoy borrowed ₹4,50,000 at 5% per annum compounded annually. What is the amount he has to pay at the end of 2 years?

- Ans**
- ☐ A. ₹4,82,725
  - ☐ B. ₹4,65,000
  - ☐ C. ₹4,75,000
  - ☒ D. ₹4,96,125

**Q.18** If the length of each side of a cube is increased to three times its initial length, then its volume will become \_\_\_\_\_ times its initial volume.

- Ans**
- ☐ A. 3
  - ☐ B. 6
  - ☐ C. 9
  - ☒ D. 27

Q.19 Simplify

$$(731)^2 - (269)^2 = ?$$

- Ans
- ☐ A. 452000
  - ☐ B. 450000
  - ☐ C. 464000
  - ☒ D. 462000

Q.20 The number of nonoverlapping triangles that can be formed in an 11 – sided polygon by joining the vertices are:

- Ans
- ☐ A. 11
  - ☐ B. 10
  - ☐ C. 8
  - ☒ D. 9

Q.21 Simplify the given expression.

$$(x - y)^3 + (x + y)^3 + 3(x - y)(x^2 - y^2) + 3(x + y)(x^2 - y^2)$$

- Ans
- ☒ A.  $8x^3$
  - ☐ B.  $x^3$
  - ☐ C.  $4x^3$
  - ☐ D.  $6x^3$

Q.22 At what rate per annum would a sum of ₹8,000 amount to ₹9,261 in  $1\frac{1}{2}$  years, interest being compounded half-yearly?

- Ans
- ☐ A. 5%
  - ☒ B. 10%
  - ☐ C. 15%
  - ☐ D. 20%

Q.23 Find the value of  $345.08 + 56.02 + 44.44 \times 2.2 - 12.22$ .

- Ans
- ☐ A. 498.868
  - ☐ B. 468.648
  - ☐ C. 486.684
  - ☒ D. 486.648

Q.24 A cube each of whose side is 5 cm will have a total surface area of \_\_\_\_\_  $\text{cm}^2$ .

- Ans
- ☒ A. 150
  - ☐ B. 60
  - ☐ C. 80
  - ☐ D. 120

Q.25 Find the HCF of 1248 and 2456.

- Ans
- ☒ A. 8
  - ☐ B. 12
  - ☐ C. 16
  - ☐ D. 14



Section : General Intelligence and Reasoning

- Q.26** Pinto went 12 km to the south from his house, then he turned east and covered 8 km, then he turned north and covered 6 km. Finally turning to the west, he covered 13 km. In which direction is he from his house?  
(All turns are 90 degree turns only)
- Ans** ☒ A. South  
☒ B. South-east  
☒ C. South-west  
☒ D. North
- Q.27** Each vowel in the word SANITY is changed to the letter following it in the English alphabetical order and each consonant is changed to the letter preceding it in the English alphabetical order. If each letter, thus formed, is arranged in alphabetical order, which letter will be fourth from the left?
- Ans** ☒ A. X  
☒ B. J  
☒ C. R  
☒ D. S
- Q.28** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.  
  
LINE : MHOD  
GOAT : HNBS
- Ans** ☒ A. PAIR : QZJQ  
☒ B. CLUE : DKVF  
☒ C. TRIP : USJO  
☒ D. JSQB : IPPA
- Q.29** Five boxes A, B, C, D and E are kept one over the other but not necessarily in the same order. D is kept third from the bottom. Only one box is kept between D and C. There are only three boxes between B and C. E is placed immediately above C. How many boxes are placed between A and B?
- Ans** ☒ A. 1  
☒ B. 2  
☒ C. 0  
☒ D. 3
- Q.30** How many such pairs of letters are there in the word ABSENT (in both forward and backward directions) which have as many letters between them as there are in the English alphabetical order?
- Ans** ☒ A. None  
☒ B. One  
☒ C. Two  
☒ D. Three
- Q.31** If in each of the following words, each letter is changed to the next letter in the English alphabetical order, how many words thus formed will have NO vowel?  
1) BOOK  
2) PAPER  
3) BOAT  
4) PINK
- Ans** ☒ A. One  
☒ B. Two  
☒ C. Three  
☒ D. Four

**Q.32** Five people, Zunaid, Riya, Hema, Indu and Jagan, are sitting around a circular table facing the centre (but not necessarily in the same order). Zunaid is sitting second to the left of Indu. Hema is sitting second to the right of Riya. Jagan is not an immediate neighbour of Zunaid.

Who is sitting third to the right of Riya?

- Ans**
- ✓ **A. Indu**
  - ✗ **B. Jagan**
  - ✗ **C. Hema**
  - ✗ **D. Zunaid**

**Q.33** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. EXAMPLE: 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

10 : 21 :: 11 : 23 :: 12 : ?

- Ans**
- ✗ **A. 23**
  - ✗ **B. 24**
  - ✓ **C. 25**
  - ✗ **D. 26**

**Q.34** Read the given statement(s) and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statement(s).

**Statements:**

All pens are pencils.  
No pencil is a cutter.  
All cutters are rubbers.

**Conclusions:**

1. All rubbers are pencils.
2. No pen is a cutter.

- Ans**
- ✗ **A. Only conclusion 1 follows.**
  - ✓ **B. Only conclusion 2 follows.**
  - ✗ **C. Both conclusions 1 and 2 follow.**
  - ✗ **D. Neither 1 nor 2 is follows.**

Q.35

The following table shows the population (in lakhs) of four cities (A, B, C and D) over the past four years. Study the table and answer the question.

| City's Name | 2018-19<br>(In lakhs) | 2020-21<br>(In lakhs) |
|-------------|-----------------------|-----------------------|
| A           | 78                    | 92                    |
| B           | 61                    | 84                    |
| C           | 71                    | 92                    |
| D           | 72                    | 95                    |

Which city has registered the highest percentage of population growth from 2018-2019 to 2020-2021?

- Ans
- ☒ A. A
  - ☒ B. B
  - ☒ C. C
  - ☒ D. D

Q.36 If '+' and '-' are interchanged, what will be the value of the given expression?

$$18 - 6 + 14 \times 10 \div 5$$

- Ans
- ☒ A. 96
  - ☒ B. 120
  - ☒ C. 138
  - ☒ D. 148

Q.37 Which of the following options is the closest approximate value which will come in place of question mark(?) in the following equation?

$$104.96 + 120.96 + 103.16 - 12.89 \times 2.04 + 124.93 \div 5.1 = ?$$

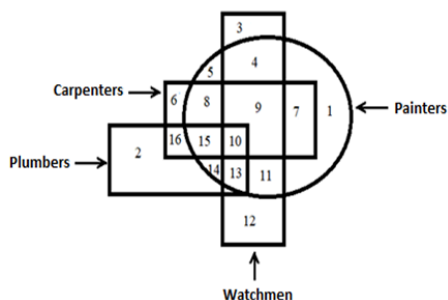
- Ans
- ☒ A. 328
  - ☒ B. 330
  - ☒ C. 334
  - ☒ D. 340

Q.38 Which of the following numbers will replace the question mark (?) in the given series?

78, 32, 68, 64, 58, 128, 48, 256, ?

- Ans
- ☒ A. 24
  - ☒ B. 34
  - ☒ C. 38
  - ☒ D. 28

- Q.39** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons. What does region '13' represent?



- Ans** ☒ A. The number of painters who are only watchmen.  
☒ B. The number of painters who are plumbers and also watchmen but not carpenters.  
☒ C. The number of carpenters who are only watchmen.  
☒ D. The numbers of painters who are only plumbers and neither watchmen nor carpenters.

- Q.40** If all the letters in each of the following words are written in reverse order and the newly formed words/clusters are arranged as per the dictionary arrangements, which of the following word/cluster will appear in the middle?

LOST, TALK, WALK, KALM, SHAW

- Ans** ☒ A. KALM  
☒ B. WALK  
☒ C. SHAW  
☒ D. LOST

- Q.41** Which of the following numbers will replace the question mark (?) in the given series?  
 20, 20, 22, 66, 70, ?

- Ans** ☒ A. 74  
☒ B. 350  
☒ C. 75  
☒ D. 340

- Q.42** Select the set in which the numbers are related in the same way as are the numbers of the following sets.  
 (NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding/deleting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

(63, 72)  
 (28, 32)

- Ans** ☒ A. (56, 63)  
☒ B. (64, 56)  
☒ C. (42, 48)  
☒ D. (40, 48)

**Q.43** A statement is given followed by two assumptions numbered I and II. You have to assume everything in the statement to be true and decide which of the assumptions is/are implicit in the statement.

Statement:

Due to the ongoing roadwork, all traffic on road X is being diverted to the airport road.

Assumptions:

- I. There are huge traffic jams leading to the airport.
- II. Flights are being rescheduled as people cannot make it to the airport on time.

- Ans**
- ☒ A. Only assumption I is implicit
  - ☒ B. Only assumption II is implicit
  - ☒ C. Neither assumptions I nor II is implicit
  - ☒ D. Both assumptions I and II are implicit

**Q.44** From a point O, Mohita started walking and covered a distance of 30 m in the west direction. She then turned to her left and covered a distance of 15 m. She then took a left turn and travelled a distance of 10 m. Finally, she turned to the left and covered a distance of 15 m. How far and in which direction is she now from the starting point O? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 10 m, East
  - ☒ B. 20 m, North
  - ☒ C. 10 m, South
  - ☒ D. 20 m, West

**Q.45** In this question, the statement is followed by four conclusions. Find out which conclusion is true based on the given statement:

$A \geq B, C \leq D, B = D > E$

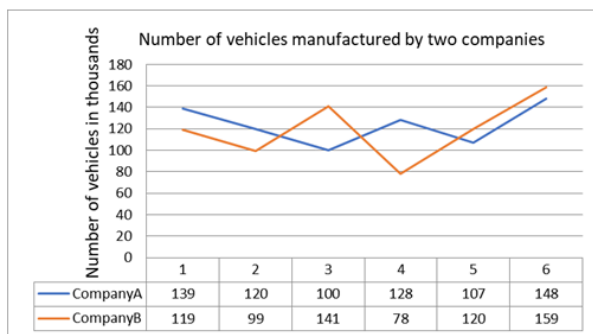
- Ans**
- ☒ A.  $E < A$
  - ☒ B.  $B < C$
  - ☒ C.  $D \geq A$
  - ☒ D.  $E > B$

**Q.46** Select the option that represents the letters that, when placed from left to right in the same sequence in the blanks below, will complete the letter series.

S X \_ A B S \_ Y B B S X Y \_ B S X \_ D B

- Ans**
- ☒ A. YXCY
  - ☒ B. XCYC
  - ☒ C. XCCY
  - ☒ D. CXYX

- Q.47** Study the given chart and answer the question that follows.  
The numbers 1 to 6 represent the years from 2001 to 2006.



What is the average number of vehicles (approx.) manufactured by company B over the given period?

- Ans**
- ☒ A. 1,11,223
  - ☒ B. 1,22,778
  - ☒ C. 1,19,333
  - ☒ D. 1,23,666

- Q.48** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/<br>Symbol | 6 | 8 | 4 | + | 5 | # | % | 2 | \$ | 1 | ^ | 7 | 9 | * | @ |
|-------------------|---|---|---|---|---|---|---|---|----|---|---|---|---|---|---|
| Code              | S | U | T | W | N | P | V | D | A  | Z | J | M | O | M | Y |

**Conditions:**

- (i) If the first and last elements are numbers, then the last element will be replaced by the symbol @.
- (ii) If the first element is a symbol, then the first element will be coded as ©.
- (iii) If both the first and second elements are numbers, then the third element will be coded as \*.

What will be the code for the following?

1 2 ^ % @

- Ans**
- ☒ A. ZD\*VY
  - ☒ B. ZDJVY
  - ☒ C. VYJZD
  - ☒ D. ZDYVJ

- Q.49** Each of the six students of class XII, Q, R, U, V, Y and Z, has an online medical entrance exam on a different day of a week, starting from Tuesday and ending on Sunday of the same week, but not necessarily in the same order. None of them have the exam before U. Y has the exam immediately after U. V has the exam on Saturday and Z has the exam immediately before V. Q does not have the exam on Sunday.  
Who among the following has the exam on Thursday?

- Ans**
- ☒ A. Z
  - ☒ B. Q
  - ☒ C. R
  - ☒ D. Y

Q.50 If

'+' means '×',

'−' means '+',

'×' means '−' and

'÷' means '÷',

then which number will replace the question mark (?) in the following expression?

$$11 + 35 - 5 \times 8 \div 3 = ?$$

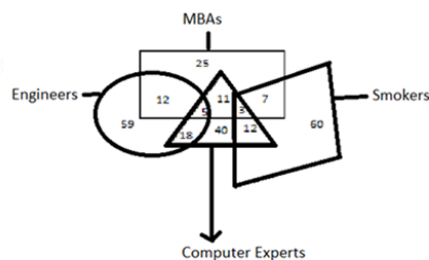
Ans ☒ A. 32.6

☒ B. 72

☒ C. −72

☒ D. −32.6

Q.51 Study the given diagram carefully and answer the questions. The numbers in different sections indicate the number of employees.



How many employees with MBA degrees are computer experts but are NOT engineers and also don't smoke?

Ans ☒ A. 5

☒ B. 3

☒ C. 11

☒ D. 12

Q.52 A statement is followed by two conclusions. Find out which conclusion is true based on the given statement.

**Statement:**

$$G > A \geq B \geq C > D \leq E \leq F$$

**Conclusions:**

I.  $A > E$

II.  $B \leq F$

Ans ☒ A. Only conclusion I is true

☒ B. Only conclusion II is true

☒ C. Neither conclusion I nor II is true

☒ D. Both conclusions I and II are true

Q.53 Five students A, B, C, D and E are sitting around a circular table facing the centre (but not necessarily in the same order). A is an immediate neighbour of both B and E. C is sitting to the immediate right of D. B is sitting to the immediate right of C. Who is an immediate neighbour of C and E?

Ans ☒ A. E

☒ B. B

☒ C. A

☒ D. D

**Q.54** Five laptop boxes marked with Z, X, W, V and U are kept one above the other but not necessarily in the same order. W is kept immediately above V. U is kept third from the top. W is neither the topmost nor the bottom most box. Z is kept immediately below X. Which box is kept immediately below Z?

- Ans**
- ☒ A. X
  - ☒ B. U
  - ☒ C. W
  - ☒ D. V

**Q.55** In a code language, the numbers/symbols are coded using letters as per the table given below and as per the given conditions.

| Number/ Symbol | 6 | ^ | 8 | @ | 4 | # | 9 | \$ | 1 | & | 3 | * |
|----------------|---|---|---|---|---|---|---|----|---|---|---|---|
| Code           | T | D | C | R | G | B | Y | H  | N | J | P | L |

**Conditions:**

1. If the first element is an even number and the last an odd number the codes for these two (the first and the last elements) are to be interchanged.
2. If both the second and third elements are odd numbers, the third element is to be coded as the code for the second element.
3. If the first element is a number and the last a symbol, the first and last elements are to be coded as ©.

What will be the code for 913@#4 ?

- Ans**
- ☒ A. YNPRBG
  - ☒ B. YPPRBG
  - ☒ C. YPNRBG
  - ☒ D. YNNRBG

#### Section : General Science

**Q.56** Consider several electric bulbs designed to be used on a 240 V electric supply line. The bulbs are rated as 10 W. How many bulbs can be connected in parallel with each other across the two wires of the 240 V line if the maximum allowable current is 8 A?

- Ans**
- ☒ A. 156
  - ☒ B. 174
  - ☒ C. 192
  - ☒ D. 212

**Q.57** Which of the following instruments use the principle of refraction?

- Ans**
- ☒ A. Radio
  - ☒ B. Spectacles
  - ☒ C. Clock
  - ☒ D. Mobile

**Q.58** The magnetic field lines produced by a bar magnet \_\_\_\_\_.

- Ans**
- ☒ A. originate from its north pole and end at its east pole
  - ☒ B. originate from its south pole and end at its east pole
  - ☒ C. originate from its north pole and end at its south pole
  - ☒ D. originate from its south pole and end at its north pole



Q.59 Which element has the hardest natural allotrope?

- Ans ☒ A. C  
☐ B. S  
☐ C. Sn  
☐ D. Pb

Q.60 The correct chemical formula of washing soda is:

- Ans ☐ A.  $\text{Na}_2\text{CO}_3 \cdot 6\text{H}_2\text{O}$   
☐ B.  $\text{Na}_2\text{CO}_3 \cdot 8\text{H}_2\text{O}$   
☒ C.  $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$   
☐ D.  $\text{Na}_2\text{CO}_3 \cdot 12\text{H}_2\text{O}$

Q.61 Which of the following products is formed when calcium carbonate is heated?

- Ans ☐ A. Limestone  
☐ B. Slaked lime  
☐ C. Marble  
☒ D. Quick lime

Q.62 Which of the following plants is a parasite?

- Ans ☒ A. Cuscuta  
☐ B. Pitcher plant  
☐ C. Cactus  
☐ D. Mango

Q.63 Which of the following is the correct name of a carbon compound with three-carbon chains and a ketone group?

- Ans ☐ A. Propanal  
☐ B. Propanol  
☒ C. Propanone  
☐ D. Propene

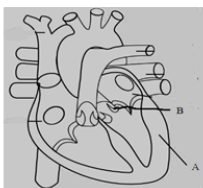
Q.64 Which of the following aqueous solutions undergoes electrolysis to form sodium hydroxide?

- Ans ☐ A.  $\text{Na}_2\text{O}$   
☒ B.  $\text{NaCl}$   
☐ C.  $\text{NaHCO}_3$   
☐ D.  $\text{Na}_2\text{SO}_4$

**Q.65** Two questions based on the transverse section of human heart are given below. Find the option that gives the correct answers to both the questions.

Q. Why does the part labelled 'A' have thick walls?

Q. What is the function of the part labelled 'B' ?



**Ans**

A – Because it pumps blood to different parts of the body

✓ A.

B – Prevents back flow of blood

A – Because it pumps blood to the left auricle

✗ B.

B – Does not let the blood flow forward

A – Because it pumps blood to the pulmonary artery

✗ C.

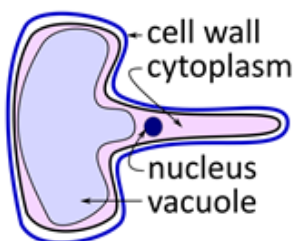
B – Pumps blood to aorta

A – Because it pumps blood to the right auricle

✗ D.

B – Prevents back flow of blood

**Q.66** Where in a plant can we find such a cell?



**Ans**

✗ A. Seed (germination)

✓ B. Root

✗ C. Xylem

✗ D. Shoot tip

**Q.67** The disease AIDS is caused by:

**Ans**

✗ A. mycobacterium

✗ B. fungus

✗ C. bacterium

✓ D. virus

**Q.68** Suppose Raghu has kept an object in front of a concave mirror of focal length ( $f$ ) at various distances ( $u$ ) and he has measured the corresponding image distances ( $v$ ). From the values of  $u$  and  $v$ , Raghu is able to plot a graph of magnification  $m$  against  $v$ . Which of the following options is true?

- Ans**
- ☒ A. It is a straight line with slope  $+f$ , and  $x$  intercept  $-1$  and  $y$  intercept  $1/f$
  - ☒ B. It is a straight line with slope  $+1/f$ , and  $x$  intercept  $+f$  and  $y$  intercept  $-1$
  - ☒ C. It is a straight line with slope  $-1/f$ , and  $x$  intercept  $-1$  and  $y$  intercept  $+f$
  - ☒ D. It is a straight line with slope  $-f$ , and  $x$  intercept  $-1$  and  $y$  intercept  $-f$

**Note:** For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

**Q.69** Which of the following is the best action to increase the thickness of the ozone layer?

- Ans**
- ☒ A. Reduce emission of carbon dioxide
  - ☒ B. Reduce use of fluorine-based refrigerants
  - ☒ C. Increase the percentage of oxygen in our atmosphere
  - ☒ D. Release ozone-filled balloons that will burst at high altitude

**Q.70** Which of the following continues to grow and develop organs to become a foetus?

- Ans**
- ☒ A. Zygote
  - ☒ B. Egg
  - ☒ C. Embryo
  - ☒ D. Placenta

**Q.71** Fleming's right hand rule gives us:

- Ans**
- ☒ A. the magnitude of the induced EMF
  - ☒ B. the direction of the magnetic field
  - ☒ C. the magnitude and the direction of the induced EMF
  - ☒ D. the direction of the induced current

**Q.72** The chemical reaction in which two reactants exchange their ions to form two new compounds is known as:

- Ans**
- ☒ A. displacement reaction
  - ☒ B. double displacement reaction
  - ☒ C. combination reaction
  - ☒ D. reduction reaction

**Q.73** Which of the following pairs of elements belonging to the same group exhibit similar chemical properties?

- Ans**
- ☒ A. N and P
  - ☒ B. Mg and Mn
  - ☒ C. C and Cl
  - ☒ D. Li and Kr

**Q.74** What does 'conservation' mean in terms of a natural resource like water?

- Ans**
- ☒ A. Stop its use
  - ☒ B. Leave it in a natural condition
  - ☒ C. Protect against pollution
  - ☒ D. Manage it wisely

**Q.75** Out of the following choose the conventional source of energy:

- Ans**
- ☒ A. Tidal energy
  - ☒ B. Bio Mass energy
  - ☒ C. Nuclear energy
  - ☒ D. Hydroelectric energy

**Note:** For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

**Q.76** Suppose a point source is incident on a system and it produces a parallel beam of light with respect to the principal axis of the system. The system is:

- Ans**
- ☒ A. either a convex mirror or a convex lens
  - ☒ B. either a concave mirror or a convex lens
  - ☒ C. either a concave mirror or a concave lens
  - ☒ D. Two plane mirrors perpendicular to each other

**Q.77** A student plots three graphs for I against V for three Ohmic conductors A, B and C. He found that the slope of these three graphs are 0.5, 0.1 and 0.2, respectively. If the conductors have the same length and their cross-section areas are in the ratio 1 : 2 : 3, then their resistivity ratios i.e.  $\rho_A : \rho_B : \rho_C$  will be:

- Ans**
- ☒ A. 1 : 20 : 15
  - ☒ B. 2 : 20 : 15
  - ☒ C. 3 : 20 : 15
  - ☒ D. 4 : 20 : 15

**Q.78** Suppose a lamp is connected to a battery of 10 V and current flowing through the lamp is 2 A. The heat energy produced by the lamp in 10 s is:

- Ans**
- ☒ A. 50 J
  - ☒ B. 100 J
  - ☒ C. 175 J
  - ☒ D. 200 J

**Q.79** Match the columns.

| Group-I      | Group-B                       |
|--------------|-------------------------------|
| I. Heart     | A. Pumping organ              |
| II. Arteries | B. Carries deoxygenated blood |
| III. Veins   | C. Carries oxygenated blood   |

- Ans**
- ☒ A. I-A; II-B; III-C
  - ☒ B. I-C; II-A; III-B
  - ☒ C. I-A; II-C; III-B
  - ☒ D. I-C; II-B; III-A

**Q.80** Which of the following statements regarding Dobereiner's triads is NOT correct?

**Ans** ☒ A. Li, Na and K constitute Dobereiner's triads.

☒ B.

If three elements are arranged in the increasing sequence of atomic masses, then atomic mass of the middle element is approximately the average of the atomic masses of the other two elements.

☒ C.

If three elements are arranged in the decreasing sequence of atomic masses, then atomic mass of the third element is approximately the average of the atomic masses of the other two elements.

☒ D. Cl, Br and I constitute Dobereiner's triads.

Section : General Awareness and Current Affairs

**Q.81** Who received the Arjuna Award 2021 for outstanding performance in the discipline of boxing?

**Ans** ☒ A. Monika

☒ B. Bhavina Patel

☒ C. Simranjit Kaur

☒ D. Arpinder Singh

**Q.82** Where is the headquarters of State Bank of India (SBI)?

**Ans** ☒ A. New Delhi

☒ B. Mumbai

☒ C. Chennai

☒ D. Kolkata

**Q.83** In which year were Bodo, Dogri, Maithili and Santhali were added in the list of languages of the Eighth Schedule of the Constitution of India?

**Ans** ☒ A. 2002

☒ B. 2004

☒ C. 2006

☒ D. 2010

**Q.84** In the Indian monetary system which bank is said to be the lender of last resort?

**Ans** ☒ A. State Bank of India

☒ B. Federal Bank

☒ C. Central Bank of India

☒ D. Reserve Bank of India

**Q.85** Who among the following was also called the 'Lion of Punjab'?

**Ans** ☒ A. Bal Gangadhar Tilak

☒ B. Sardar Vallabhbhai Patel

☒ C. Lala Lajpat Rai

☒ D. Bhagat Singh

**Q.86** El-Nino is a complex weather system that appears once every \_\_\_\_\_ years, bringing drought, floods, and other weather extremes to different parts of the world including India.

- Ans**
- ☒ A. two to four
  - ☒ B. three to seven
  - ☒ C. three to eight
  - ☒ D. four to six

**Q.87** \_\_\_\_\_ is the largest state in India by land area.

- Ans**
- ☒ A. Rajasthan
  - ☒ B. Madhya Pradesh
  - ☒ C. Maharashtra
  - ☒ D. Uttar Pradesh

**Q.88** Under Article 243 E of the Constitution of India, every Panchayat, unless sooner dissolved under any law for the time being in force, shall continue for \_\_\_\_\_ years from the date appointed for its first meeting and no longer.

- Ans**
- ☒ A. three
  - ☒ B. four
  - ☒ C. five
  - ☒ D. six

**Q.89** As of August 2022, under the Naya Savera Scheme, only candidates belonging to the notified Minority Communities, having the total family income from all sources NOT exceeding \_\_\_\_\_ per annum, will be eligible under the Scheme.

- Ans**
- ☒ A. ₹2 lakh
  - ☒ B. ₹4 lakh
  - ☒ C. ₹6 lakh
  - ☒ D. ₹8 lakh

**Q.90** Where did Gautam Buddha deliver his first sermon?

- Ans**
- ☒ A. Bodh Gaya
  - ☒ B. Sarnath
  - ☒ C. Kushinagar
  - ☒ D. Lumbini

**Q.91** A certain percentage of deposits which every bank must keep as 'reserves' is called \_\_\_\_\_.

- Ans**
- ☒ A. Statutory Liquidity Ratio (SLR)
  - ☒ B. Cash Reserve Ratio (CRR)
  - ☒ C. Fixed Deposits with RBI
  - ☒ D. Compulsory Deposit in Central Bank

**Q.92** The theme of International Women's Day 2022 issued by the United Nations was \_\_\_\_\_.

- Ans**
- ☒ A. Women in Leadership: Achieving an Equal Future in a COVID-19 World
  - ☒ B. Gender Equality Today for a Sustainable Tomorrow
  - ☒ C. An Equal World is an Enabled World
  - ☒ D. Think Equal, Build Smart, Innovate for Change



**Q.93** What do you call profits earned by a business firm over and above the opportunity cost of the factor inputs?

- Ans**
- ☐ A. Normal Profit
  - ☒ B. Abnormal Profit
  - ☐ C. Regulated Profit
  - ☐ D. Optimum Profit

**Q.94** The Ayurveda dataset on The Clinical Trials Registry- India (CTRI) Portal was launched by the \_\_\_\_\_ in July 2021.

- Ans**
- ☐ A. Ministry of Science and Technology
  - ☒ B. Ministry of AYUSH
  - ☐ C. Ministry of Health and Family Welfare
  - ☐ D. Ministry of Electronics and IT

**Q.95** In February 2022, a joint team of scientists from which of the following organisations for the first time in the country successfully demonstrated Quantum Key Distribution link between Prayagraj and Vindhyachal in Uttar Pradesh, a distance of more than 100 kilometres?

- Ans**
- ☐ A. Indian Space Research Organisation (ISRO) and Indian Institute of Technology (IIT), Delhi
  - ☐ B. Defence Research and Development Organisation (DRDO) and Indian Institute of Science, Bengaluru
  - ☐ C. Defence Electronics Research Laboratory (DERL) and Indian Institute of Technology (IIT), Kharagpur
  - ☒ D. Defence Research and Development Organisation (DRDO) and Indian Institute of Technology (IIT), Delhi

**Q.96** As per one of the provisions of Article 124 of the Indian Constitution, a Supreme Court judge can hold office until he attains the age of \_\_\_\_\_ years.

- Ans**
- ☐ A. 60
  - ☐ B. 62
  - ☒ C. 65
  - ☐ D. 67

**Q.97** Which Indian badminton player was the runner-up in the Yonex All England Open Badminton Championships 2022?

- Ans**
- ☐ A. Purupalli Kashyap
  - ☐ B. Kidambi Srikanth
  - ☒ C. Lakshya Sen
  - ☐ D. Chirag Sen

**Q.98** The Bay of Bengal's islands of Andaman in the north and the Nicobar in the south are separated by a waterbody which is called the \_\_\_\_\_ channel.

- Ans**
- ☒ A. ten degree
  - ☐ B. twenty degree
  - ☐ C. thirty degree
  - ☐ D. forty degree

**Q.99** The cultural festival 'Thrissur Pooram' is celebrated in which state?

- Ans**
- ☐ A. West Bengal
  - ☐ B. Telangana
  - ☒ C. Kerala
  - ☐ D. Karnataka

**Q.100** Which amendment added a chapter IV-A to Indian Constitution which consisted of only one Article 51-A that dealt with Fundamental Duties?

- Ans**
- ☒ A. 42<sup>nd</sup>
  - ☐ B. 44<sup>th</sup>
  - ☐ C. 53<sup>rd</sup>
  - ☐ D. 58<sup>th</sup>





# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 22/09/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** The marked price of a jacket is ₹1,050. The shopkeeper earns a profit of 25% even after giving a discount of 10%. At what cost did the shopkeeper purchase it?

- Ans**
- ✓ A. ₹756
  - ✗ B. ₹905
  - ✗ C. ₹856
  - ✗ D. ₹682

**Q.2** If the length of a diagonal of a square is 18 cm, then its perimeter (in cm) is \_\_\_\_\_.

- Ans**
- ✗ A.  $24\sqrt{2}$
  - ✗ B. 36
  - ✓ C.  $36\sqrt{2}$
  - ✗ D. 24

**Q.3** ABCD is a quadrilateral and E, F, G, and H are the mid-points of  $\overline{AB}$ ,  $\overline{BC}$ ,  $\overline{CD}$ , and  $\overline{DA}$  respectively. The quadrilateral EFGH is necessarily a:

- Ans**
- ✗ A. rectangle, but not a square
  - ✗ B. square
  - ✗ C. rhombus, but not a square
  - ✓ D. parallelogram

**Q.5** The diagonal of a rectangle is 26 cm. Its perimeter is 68 cm. Find its area.

- Ans**
- ✗ A.  $120 \text{ cm}^2$
  - ✗ B.  $550 \text{ cm}^2$
  - ✓ C.  $240 \text{ cm}^2$
  - ✗ D.  $330 \text{ cm}^2$

**Q.6** The cost of one kg sugar in 2020 was ₹46. If the cost of sugar increased by 2.5% in one year, how much would 5 kg sugar cost in 2021?

- Ans**
- ☒ A. ₹253.50
  - ☒ B. ₹235.75
  - ☒ C. ₹47.15
  - ☒ D. ₹48.50

**Q.7** If 128 is divided into two parts such that one part is three times the other, then the larger part is \_\_\_\_\_.

- Ans**
- ☒ A. 92
  - ☒ B. 84
  - ☒ C. 104
  - ☒ D. 96

**Q.8** The value of  $\tan^6 A + 3 \tan^2 A \sec^2 A + 1$  is:

- Ans**
- ☒ A.  $\sec^4 A$
  - ☒ B.  $\sec^5 A$
  - ☒ C.  $\sec^6 A$
  - ☒ D.  $\sec^4 A + \tan^4 A$

**Q.9** If  $a + b + c = 0$ , then the roots of the equation  $ax^2 + bx + c = 0$  are:

- Ans**
- ☒ A.  $-2, \frac{c}{a}$
  - ☒ B.  $2, \frac{c}{a}$
  - ☒ C.  $-1, \frac{-c}{a}$
  - ☒ D.  $1, \frac{c}{a}$

**Q.10** The ratio of marks obtained by A and B is 3 : 4 and of those obtained by B and C is 2 : 3. What is ratio of marks obtained by A and C?

- Ans**
- ☒ A. 1 : 2
  - ☒ B. 2 : 1
  - ☒ C. 1 : 1
  - ☒ D. 4 : 3

**Q.11** One-third of a certain journey is covered at a speed of 25 km/h, one-fourth of the journey is covered at a speed of 30 km/h and the rest of the journey is covered at 50 km/h. The average speed (in km/h) of the whole journey is:

- Ans**
- ☒ A.  $33\frac{1}{3}$
  - ☒ B. 33
  - ☒ C.  $32\frac{1}{2}$
  - ☒ D. 32

Q.12 Simplify

$$\left(\frac{1}{512}\right)^{\frac{-2}{3}} \div \left(\frac{1}{64}\right)^{\frac{-4}{3}} = ?$$

Ans

☒ A.  $\frac{3}{4}$

☒ B.  $\frac{1}{4}$

☒ C.  $\frac{2}{3}$

☒ D.  $\frac{1}{6}$

Q.13 Express  $5.\overline{7}$  in  $\frac{p}{q}$  form, where p and q are integers and  $q \neq 0$ .

Ans

☒ A.  $\frac{57}{10}$

☒ B.  $\frac{52}{7}$

☒ C.  $\frac{57}{7}$

☒ D.  $\frac{52}{9}$

Q.14 For the equation  $(x + 4)(x - 4) = 0$ , the value of the discriminant is equal to \_\_\_\_\_.

Ans

☒ A. 0

☒ B. -4

☒ C. 16

☒ D. 64

Q.15 Find the mean length of a leaf, given the lengths of 10 leaves (in mm) are as follows:

146, 150, 147, 143, 158, 139, 154, 149, 151, 155

Ans

☒ A. 149.2 mm

☒ B. 151.9 mm

☒ C. 139.6 mm

☒ D. 148.2 mm

**Q.16**  $(x + y + 2z)(x + y)$  can be expressed as:

- Ans**
- ✓ A.  $(x + y + z)^2 - z^2$
  - ✗ B.  $(x - y + z)^2 - z^2$
  - ✗ C.  $(x + y + z)^2 - y^2$
  - ✗ D.  $(x + y + z)^2 - x^2$

**Q.17** 68 is divided into three parts. When the first part is increased by 2, the second part is diminished by 2 and the third part is divided by 2, the resultant numbers all become equal. Find the value of the third part.

- Ans**
- ✗ A. 68
  - ✗ B. 19
  - ✗ C. 15
  - ✓ D. 34

**Q.19** 15 articles are sold at the total cost price of 20 articles. The gain or loss per cent is:

- Ans**
- ✓ A.  $33\frac{1}{3}\%$  gain
  - ✗ B.  $33\frac{1}{3}\%$  loss
  - ✗ C. 20% gain
  - ✗ D. 20% loss

**Q.20** Due to decrease in manpower, the production in a factory decreases by 30%. By what per cent should the working hours be increased to restore the original production?

- Ans**
- ✗ A. 41%
  - ✓ B.  $42\frac{6}{7}\%$
  - ✗ C. 43%
  - ✗ D. 42%

**Q.21** Find the smallest natural number which, when divided by 9, 24 and 12, leaves a remainder 4 in each case but when divided by 5 leaves no remainder.

- Ans**
- ✗ A. 150
  - ✗ B. 148
  - ✓ C. 220
  - ✗ D. 144

**Q.22** If the diagonals of a quadrilateral bisect each other at right angles, then the quadrilateral is a:

- Ans**
- ✗ A. rectangle
  - ✗ B. parallelogram
  - ✓ C. rhombus
  - ✗ D. trapezium

**Q.23** Find the LCM of 550, 880 and 1320.

- Ans**
- ☐ A. 10800
  - ☐ B. 12300
  - ☒ C. 13200
  - ☐ D. 11000

**Q.24** The ratio of the volumes of two cylinders A and B having the radii of their bases as 2 cm and 3 cm, respectively, and having the same height, is:

- Ans**
- ☒ A. 4 : 9
  - ☐ B. 9 : 4
  - ☐ C. 2 : 3
  - ☐ D. 3 : 2

**Q.25** A train 400 m long travelling at a speed of 64 km/h crosses another train 720 m long moving in the opposite direction at a speed of 80 km/h. How much time does the second train take to cross a man sitting in the first train?

- Ans**
- ☐ A. 12 sec
  - ☐ B. 15 sec
  - ☐ C. 16 sec
  - ☒ D. 18 sec

#### Section : General Intelligence and Reasoning

**Q.26** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

1. All mirrors are cupboards.
2. Some beds are almirahs.
3. Some almirahs are mirrors.

Conclusions:

- I-Some beds are cupboards.  
II-Some cupboards are almirahs.

- Ans**
- ☐ A. Only conclusion I follows.
  - ☒ B. Only conclusion II follows.
  - ☐ C. Both conclusions I and II follow.
  - ☐ D. Neither conclusion I nor II follows.

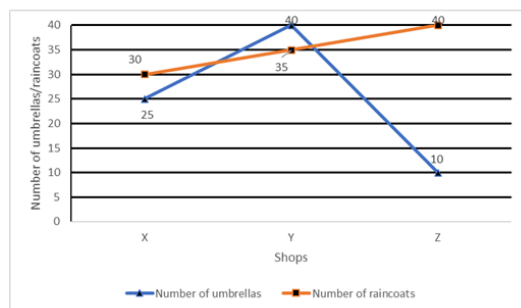
**Q.27** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

13 : 179 :: 19 : 371 :: 26 : ?

- Ans**
- ☐ A. 726
  - ☒ B. 686
  - ☐ C. 530
  - ☐ D. 734

**Q.28** Study the given line graph and answer the following question.

The given line graph depicts the number of umbrellas and raincoats sold by shops X, Y and Z.



What is the respective ratio between the number of umbrellas sold by shop X and the total number of raincoats sold by shops Y and Z?

- Ans**
- ☒ A. 2 : 5
  - ☒ B. 2 : 3
  - ☒ C. 1 : 5
  - ☒ D. 1 : 3

**Q.29** Which of the following numbers will replace the question mark (?) in the given series?

1, 1, 2, 4, 3, 27, 4, 256, 5, ?

- Ans**
- ☒ A. 125
  - ☒ B. 625
  - ☒ C. 3125
  - ☒ D. 15625

**Q.30** Study the given table and answer the question that follows.

The table shows the total income in ₹ and expenditure of five different families under different heads as a percentage of the total income.

| Family | Total Income (in ₹) | Daily Usage | Health Care | Medical | Other Expenses |
|--------|---------------------|-------------|-------------|---------|----------------|
| A      | 50,000              | 15%         | 18%         | 10%     | 7%             |
| B      | 65,000              | 20%         | 14%         | 8%      | 8%             |
| C      | 33,000              | 18%         | 20%         | 8%      | 14%            |
| D      | 55,000              | 25%         | 10%         | 11%     | 4%             |
| E      | 90,000              | 30%         | 20%         | 12%     | 8%             |

Find the total amount of saving (in ₹) of all the families combined.

Savings = Total Income – Sum of all expenditures

- Ans**
- ☒ A. 1,00,300
  - ☒ B. 1,25,200
  - ☒ C. 1,19,700
  - ☒ D. 1,76,200

**Q.31** Mohit starts from a point X and travels 2 km towards the north and takes a right turn and further travels 1 km. He then turns to the right and travels a distance of 3 km. He then takes a right turn and travels a distance of 1 km, and finally turns to the right again and travels a distance of 1 km. What is the present location of Mohit in respect of his point of initiation of travel, X? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 1 km south
  - ☒ B. 1 km north
  - ☒ C. Point X itself
  - ☒ D. 1 km east

**Q.32** What approximate value should come in place of the question mark (?) in the following equation?

$$15.09 - 8.99 + 26.02 \times 6.99 = ?$$

- Ans**
- ☒ A. 186
  - ☒ B. 187
  - ☒ C. 188
  - ☒ D. 190

**Q.33** Study the given letter, number, symbol series and answer the question that follows.

(Left) A 9 % B @ 6 & L # K 9 @ 7 # 6 K M \* 7 & B (Right)

How many such letters are there that are immediately preceded by a symbol and also immediately followed by a number?

- Ans**
- ☒ A. 1
  - ☒ B. 4
  - ☒ C. 5
  - ☒ D. 2

**Q.34** Each vowel in the word PRISON is changed to the letter preceding it in the English alphabetical order and each consonant is changed to the letter following it in the English alphabetical order. Which of the following letters will be fourth from the right in the group of letters thus formed?

- Ans**
- ☒ A. Q
  - ☒ B. H
  - ☒ C. N
  - ☒ D. T

**Q.35** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. EXAMPLE: 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

2 : 7 :: 8 : 13 :: 16 : ?

- Ans**
- ☒ A. 19
  - ☒ B. 20
  - ☒ C. 21
  - ☒ D. 22

**Q.36** If in each of the following words, each letter is changed to the next letter in the English alphabetical order, how many words thus formed will have NO vowel?

- 1) TOGETHER
- 2) BOXES
- 3) SPORTS
- 4) DRINK

- Ans**
- ☒ A. One
  - ☒ B. Two
  - ☒ C. Three
  - ☒ D. Four

**Q.37** Select the option that is related to the fifth term in the same way as the fourth term is related to the third term and the second term is related to the first term.

MOTHER : OMHTRE :: DAUGHTER : ADGUTHRE :: SIBLINGS : ?

- Ans**
- ☒ A. SGNILBIS
  - ☒ B. BISNILSG
  - ☒ C. LBISSGNI
  - ☒ D. ISLBNISG

**Q.38** In a certain code language, 'DTHKM' is written as 'EVKOR' and 'WHITE' is written as 'XJLXJ'. How will 'GREEN' be written in that language?

- Ans**
- ☒ A. HTHHS
  - ☒ B. HTHIS
  - ☒ C. HTIHS
  - ☒ D. HTHHT

**Q.40** Six national mathematics lectures are planned on the eve of Mathematics Day in six cities - Madurai, Dwaraka, Kakinada, Chandigarh, Lucknow and Bilaspur - on different months between July to December in the same year (but not necessarily in the same order). Only the Dwaraka lecture is planned between the Chandigarh and Bilaspur lectures. The Chandigarh lecture is in October. Only two lectures are planned before the Kakinada lecture. The Madurai lecture is immediately after the Lucknow lecture.

Which city has the last lecture in the year?

- Ans**
- ☒ A. Bilaspur
  - ☒ B. Chandigarh
  - ☒ C. Kakinada
  - ☒ D. Madurai

**Q.41** In the following question, the statement is followed by two conclusions. Which of the two conclusion(s) is/are true based on the given statement?

Statement:  $Q > S < R > T = U \leq V$

Conclusions: I.  $T = V$

II.  $R > U$

- Ans**
- ☒ A. Only conclusion I is true
  - ☒ B. Only conclusion II is true
  - ☒ C. Both conclusions I and II are true
  - ☒ D. Neither conclusion I nor II is true

**Q.42** Study the given letter, number, symbol series and answer the question that follows.

(Left) T 2 L % 4 M 2 # B N @ 8 K # B 6 L \* 3 P (Right)

How many such numbers are there that are immediately preceded by a symbol and also immediately followed by a letter?

- Ans**
- ☒ A. 4
  - ☒ B. 2
  - ☒ C. 1
  - ☒ D. 3

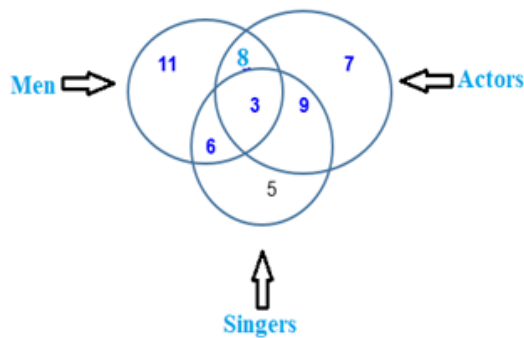
**Q.43** Amongst six people, D, E, F, G, H, and I, each has a different age. They are standing in a line according to their age in an increasing order. F is older than E but younger than D. D is younger than I. E is older than G. G is older than H. Who comes in 4<sup>th</sup> position in increasing order of age?

- Ans**
- ☒ A. I
  - ☒ B. E
  - ☒ C. F
  - ☒ D. H



**Q.44** Study the given diagram carefully and answer the question that follows.

The numbers in different sections indicate the number of people.



How many Men are Actors but NOT Singers?

- Ans**
- ✓ A. 8
  - ✗ B. 11
  - ✗ C. 3
  - ✗ D. 26

**Q.45** Seven students, A, B, C, D, E, F, and G, have exams on different days of a week starting from Monday and ending on Sunday of the same week. The exam of C is on Sunday and that of F is on Monday. The exam of G is on Tuesday. The exam of B is on the immediate next day of the exam of G. The exam of E is immediately after A. The exam of A is on Thursday. On which of the days will D have his exam?

- Ans**
- ✗ A. Tuesday
  - ✗ B. Friday
  - ✓ C. Saturday
  - ✗ D. Thursday

**Q.46** Ram walks 40 m towards east and then turns left and walks 56 m. From that point, he starts walking towards the west and walks 20 m. After taking a left turn, he walks 50 m and then takes a right turn and walks 20 m. How far and in which direction is Ram's current position from his starting point? (All turns are 90 degree turns only.)

- Ans**
- ✗ A. 50 m, West
  - ✗ B. 56 m, North
  - ✗ C. 4 m, South
  - ✓ D. 6 m, North

**Q.47** In a certain code language, 'BULK' is written as 'CWOQ' and 'PINK' is written as 'QKQO'. How will 'BLUE' be written in that language?

- Ans**
- ✗ A. CMXI
  - ✗ B. CNWI
  - ✗ C. CNXJ
  - ✓ D. CNXI

**Q.48** Which of the following numbers will replace the question mark (?) in the given series?  
10, 21, 38, 62, 94, ?

- Ans**
- ✗ A. 72
  - ✗ B. 104
  - ✗ C. 155
  - ✓ D. 135

**Q.49** What will come in the place of '?' in the following equation, if '+' and '-' are interchanged and also '×' and '÷' are interchanged?

$$60 - 72 \times 6 + 15 \div 3 = ?$$

- Ans**
- ☒ A. 25
  - ☒ B. 27
  - ☒ C. 32
  - ☒ D. 64

**Q.50** Which of the following options is the closest approximate value which will come in place of question mark(?) in the following equation?

$$15.99 - 4.02 + 19.89 \times 5.19 = ?$$

- Ans**
- ☒ A. 112
  - ☒ B. 75
  - ☒ C. 222
  - ☒ D. 50

**Q.51** Eight students, P, Q, R, S, T, U, V and W, are sitting around a square table facing the centre of the table (but not necessarily in the same order). Some of them are sitting at the corners, while some are sitting at the exact centre of the sides. S is sitting to the immediate left of U. R is sitting fourth to the right of S. Q is an immediate neighbour of R and V, who is sitting third to the left of T. W is sitting second to the right of T.

Who is an immediate neighbour of T and W?

- Ans**
- ☒ A. R
  - ☒ B. P
  - ☒ C. Q
  - ☒ D. S

**Q.52** Three statements are given followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

Statements:

All jewellerys are ornaments.

Some flowers are ornaments.

All plants are flowers.

Conclusions:

I. All plants are jewellerys.

II. Some ornaments are jewellerys.

III. Some flowers are plants.

- Ans**
- ☒ A. Only conclusions I and II follow
  - ☒ B. Only conclusions I and III follow
  - ☒ C. Only conclusions II and III follow
  - ☒ D. Only conclusion III follows

**Q.53** Which of the following terms will replace the question mark (?) in the given series to make it logically complete?

VZL15, TXJ18, RVH21, PTF24, ?

- Ans**
- ☒ A. NRD27
  - ☒ B. RND27
  - ☒ C. DRN27
  - ☒ D. LMN27

**Q.54** A certain number of anchors are sitting in a row in an audio launching programme, facing north. Archana sits fourth to the left of Chitra and seventh to the left of Bhumika. Bhumika sits fifth to the left of Darani. There is only one anchor between Darani and Esha. No anchor sits to the right of Esha. If no other anchor is sitting in the row, what is the total number of anchors seated?

- Ans**
- ☐ A. 13
  - ☐ B. 12
  - ☐ C. 11
  - ☒ D. 15

**Q.55** Eight girls, Ponti, Bobby, Anshu, Renu, Mohini, Sujata, Rani and Mohita, are sitting around a square table facing the centre of the table (but not necessarily in the same order). Some of them are sitting at the corners, while some are sitting at the exact centre of the sides. Ponti is sitting sixth to the left of the Bobby, who is sitting third to the right of Sujata. Mohini is sitting second to the left of Sujata. Rani is an immediate neighbour of Ponti and Bobby. Anshu is sitting to the immediate left of Sujata, who is to the immediate left of Renu.

Who is sitting to the immediate right of Rani?

- Ans**
- ☒ A. Ponti
  - ☐ B. Bobby
  - ☐ C. Anshu
  - ☐ D. Mohita

#### Section : General Science

**Q.56** In which of the following animals does blood go only once through the heart during one cycle of passage through the body?

- Ans**
- ☐ A. Birds
  - ☒ B. Fishes
  - ☐ C. Mammals
  - ☐ D. Reptiles

**Q.57** Suppose in a circuit, a silver wire of length  $L$  and cross-sectional area  $A$  is replaced by a chromium wire of length  $L/3$  and cross-sectional area  $3A$ . The resistance of the circuit will \_\_\_\_\_.

(Given that  $\rho_{\text{silver}} = 1.6 \times 10^{-8} \Omega \text{ m}$  and  $\rho_{\text{chromium}} = 12.9 \times 10^{-8} \Omega \text{ m}$ )

- Ans**
- ☐ A. increase to 1.3 times of itself
  - ☐ B. increase to 1.05 times of itself
  - ☐ C. decrease to 0.78 times of itself
  - ☒ D. decrease to 0.89 times of itself

**Q.59** Which of the following statements regarding the trend of metallic properties in the modern periodic table is correct?

- Ans**
- ☐ A. Metallic character remains constant across a period and increases down a group.
  - ☐ B. Metallic character increases across a period and decreases down a group.
  - ☒ C. Metallic character decreases across a period and increases down a group.
  - ☐ D. Metallic character decreases across a period and remains constant down a group.

**Q.60** Which of the following terms describes the movement of water molecules across a selectively permeable membrane?

- Ans**
- ☐ A. Diffusion
  - ☐ B. Translocation
  - ☐ C. Exocytosis
  - ☒ D. Osmosis

**Q.61** A 2KW AC is to be used on a 250 V a.c. mains for which a 3-pin top plug fitted to a cable is required. Which of the following option is **NOT** correct:

- Ans**
- ☒ A. The neutral wire is coloured Black
  - ☒ B. A fuse should be connected in the live wire
  - ☒ C. The green wire is for earth pin connection
  - ☒ D. The appropriate value of fuse to be used is 12 A

**Q.62** Which of the following types of cells are NOT a part of vascular tissue in plants?

- Ans**
- ☒ A. Tracheids
  - ☒ B. Vessels
  - ☒ C. Collenchyma
  - ☒ D. Parenchyma

**Q.64** Bleaching powder is represented as:

- Ans**
- ☒ A.  $\text{CaCO}_3$
  - ☒ B.  $\text{Ca(OH)}_2$
  - ☒ C.  $\text{CaCl}_2$
  - ☒ D.  $\text{CaOCl}_2$

**Q.65** When a ray is incident parallel to the principal axis of a convex lens then the refracted ray will pass through:

- Ans**
- ☒ A. optical centre
  - ☒ B. principal axis
  - ☒ C. centre of curvature
  - ☒ D. principal focus

**Q.66** What is the molecular formula of second member of alkene series?

- Ans**
- ☒ A.  $\text{C}_2\text{H}_4$
  - ☒ B.  $\text{C}_3\text{H}_6$
  - ☒ C.  $\text{C}_4\text{H}_8$
  - ☒ D.  $\text{C}_6\text{H}_{12}$

**Q.67** A light ray travels from air into an optical fibre with an index of refraction of 1.45. If the angle of incidence on the end of the fibre is  $22^\circ$ , the angle of refraction inside the fibre is:

- Ans**
- ☒ A.  $20.99^\circ$
  - ☒ B.  $14.99^\circ$
  - ☒ C.  $25.69^\circ$
  - ☒ D.  $22.69^\circ$

**Note:** For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

**Q.68** Why do fats in diet form large globules in the small intestine?

- Ans**
- ☒ A. Because fats do not mix well with watery slurry produced in the stomach
  - ☐ B. Because lipase enzymes in the stomach do not digest fats completely
  - ☐ C. Because proteins and fats clump together to produce colloidal matter
  - ☐ D. Because fats get trapped in fibrous carbohydrates during food churning in the stomach

**Q.69** A point on the principal axis which is equidistant from the curved surface of a spherical mirror is:

- Ans**
- ☒ A. principal focus
  - ☐ B. centre of curvature
  - ☐ C. pole
  - ☐ D. infinity

**Q.70** Which of the following colloids has solid dispersed phase in a liquid dispersing medium?

- Ans**
- ☐ A. Emulsion
  - ☐ B. Gel
  - ☒ C. Sol
  - ☐ D. Foam

**Q.71** A rainbow is formed by water droplets suspended in the atmosphere after the rain shower. The phenomenon responsible for occurring of rainbow consists of:

- Ans**
- ☐ A. Reflection only
  - ☐ B. Refraction only
  - ☒ C. A combination of refraction, dispersion and total internal reflection
  - ☐ D. A combination of refraction, scattering and dispersion

**Q.73** According to Henry Moseley, which of the following properties of an element is a more fundamental property than its atomic mass?

- Ans**
- ☐ A. Atomic size
  - ☒ B. Atomic number
  - ☐ C. Atomic density
  - ☐ D. Atomic radii

**Q.74**  $2\text{NaOH(aq)} + \text{H}_2\text{SO}_4\text{(aq)} \rightarrow \text{Na}_2\text{SO}_4\text{(aq)} + 2\text{H}_2\text{O(l)}$

The given reaction is an example of:

- Ans**
- ☐ A. decomposition reaction
  - ☐ B. precipitation reaction
  - ☐ C. redox reaction
  - ☒ D. neutralisation reaction

**Q.75** Burning of magnesium in the presence of air produces magnesium oxide. Select the type of reaction involved.

- Ans**
- ☒ A. Reduction reaction
  - ☒ B. Oxidation reaction
  - ☒ C. Displacement reaction
  - ☒ D. Double displacement reaction

**Q.77** The resistivity of the material of wire having resistance  $0.7\ \Omega$ , length 1 m and diameter 0.2 mm is:

- Ans**
- ☒ A.  $0.22 \times 10^{-8}\ \Omega\text{m}$
  - ☒ B.  $22 \times 10^{-8}\ \Omega\text{m}$
  - ☒ C.  $220 \times 10^{-8}\ \Omega\text{m}$
  - ☒ D.  $2.2 \times 10^{-8}\ \Omega\text{m}$

**Q.78** Which of the following is not the property of ionic compounds?

- (i) Ionic compounds have low melting and boiling points.
- (ii) Ionic compounds are generally soluble in water and insoluble in solvent such as kerosene, petrol etc.
- (iii) Ionic compounds are solids and are somewhat hard because of the strong force of attraction between the positive and negative ions.
- (iv) Ionic compounds conduct electricity in the molten state.

- Ans**
- ☒ A. iv
  - ☒ B. iii
  - ☒ C. ii
  - ☒ D. i

**Q.79** The correct relation between the radius of curvature  $R$  and focal length  $f$  for a spherical mirror is:

- Ans**
- ☒ A.  $R = \frac{f}{2}$
  - ☒ B.  $R = f$
  - ☒ C.  $\frac{R}{2} = f$
  - ☒ D.  $\frac{1}{R} = \frac{2}{f}$

**Q.80** Which of the following quantities affects the electrical resistivity of a given metallic wire?

- Ans**
- ☒ A. Thickness of the wire
  - ☒ B. Shape of the wire
  - ☒ C. Nature of the material of the wire
  - ☒ D. Number of turns of the wire

Section : General Awareness and Current Affairs

**Q.81** In which city of India will you find Shri Lal Bahadur Shastri Rashtriya Sanskrit Vidyapeetha?

- Ans**
- ☒ A. Agra
  - ☒ B. Bengaluru
  - ☒ C. Mumbai
  - ☒ D. New Delhi

Q.82

As of January 2022, which enterprise became India's first Unicorn sports Enterprise?

Ans

- ☐ A. Dabang Delhi
- ☒ B. Chennai Super Kings
- ☐ C. Patna Pirates
- ☐ D. Gujarat Giants

Q.83

Which of the following rivers flows from east to west?

Ans

- ☒ A. Narmada
- ☐ B. Godavari
- ☐ C. Mahanadi
- ☐ D. Krishna

Q.84

The 56<sup>th</sup> National Cross Country Championships 2022 was organised at which place?

Ans

- ☒ A. Kohima
- ☐ B. Panaji
- ☐ C. Chandigarh
- ☐ D. Ranchi

Q.85

In macroeconomic analysis, a consumption function describes the relation between total consumption and \_\_\_\_\_.

Ans

- ☐ A. price of the consumption good
- ☒ B. gross national income
- ☐ C. quality of the consumption good
- ☐ D. behaviour of the consumer

Q.86

When was independent India's first Union Budget presented in the Parliament?

Ans

- ☐ A. 1 October 1947
- ☒ B. 26 November 1947
- ☐ C. 2 January 1948
- ☐ D. 28 February 1948

Q.87

In June 2022, Polyversity, India's largest educational Metaverse with over 100 academic partners was launched by the Union Minister Sri Dharmendra Pradhan in which city?

Ans

- ☐ A. Chennai
- ☐ B. Varanasi
- ☐ C. Bhubaneswar
- ☒ D. New Delhi



**Q.88** Which of the following festivals is NOT celebrated in January every year?

- Ans**
- ☐ A. Lohri
  - ☐ B. Pongal
  - ☐ C. Bhogali Bihu
  - ☒ D. Onam

**Q.89** In February 2022, which state/UT's police launched two women's squads for ensuring the safety and security of women in its capital city?

- Ans**
- ☐ A. West Bengal
  - ☒ B. Jammu and Kashmir
  - ☐ C. Maharashtra
  - ☐ D. Uttar Pradesh

**Q.90** Which of the following Constitution Amendment Act of India is related to the urban local bodies?

- Ans**
- ☐ A. 72<sup>nd</sup>
  - ☐ B. 73<sup>rd</sup>
  - ☒ C. 74<sup>th</sup>
  - ☐ D. 75<sup>th</sup>

**Q.91** Which of the following measures is considered the most commonly used measure of money supply?

- Ans**
- ☐ A. M1
  - ☐ B. M2
  - ☒ C. M3
  - ☐ D. M4

**Q.92** Chandoli National Park is located in which state?

- Ans**
- ☐ A. Uttar Pradesh
  - ☒ B. Maharashtra
  - ☐ C. Himachal Pradesh
  - ☐ D. Kerala

**Q.93** In which year was the partition of Bengal announced by Lord Curzon, the then Viceroy of India?

- Ans**
- ☒ A. 1905
  - ☐ B. 1907
  - ☐ C. 1909
  - ☐ D. 1911

**Q.94** In the second and latest edition of the India Innovation Index 2020 which state occupies a top position under the 'Major States' category?

- Ans**
- ☐ A. Maharashtra
  - ☒ B. Karnataka
  - ☐ C. Tamil Nadu
  - ☐ D. Telangana



**Q.95** According to the Government Budget 2022, a taxpayer can now file updated income tax return within \_\_\_\_\_ for correcting errors.

- Ans**
- ☒ A. 1 year
  - ☒ B. 2 years
  - ☒ C. 3 years
  - ☒ D. 5 years

**Q.96** Who among the following was one of the recipients of Shanti Swarup Bhatnagar Prize for science and technology 2021?

- Ans**
- ☒ A. Dr. Amit Singh
  - ☒ B. Dr. Ashok Gupta
  - ☒ C. Dr. Sanjay Mathur
  - ☒ D. Dr. Prakash Varma

**Q.97** Which of the following rivers merges in the Arabian Sea?

- Ans**
- ☒ A. Krishna
  - ☒ B. Narmada
  - ☒ C. Teesta
  - ☒ D. Kaveri

**Q.98** Under the provisions of which Article of the Indian Constitution is the President empowered to constitute a Finance Commission at the expiration of every fifth year or at such earlier time as the President considers necessary?

- Ans**
- ☒ A. Article 280
  - ☒ B. Article 281
  - ☒ C. Article 282
  - ☒ D. Article 283

**Q.99** Which Articles of the Indian Constitution has provisions about the Fundamental Rights in the Constitution?

- Ans**
- ☒ A. Articles 5 to 11
  - ☒ B. Articles 12 to 35
  - ☒ C. Articles 36 to 51
  - ☒ D. Articles 52 to 78



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 22/09/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** Find the value of  $5432.5678 + 435.692 + 29.54 + 6.3 + 0.4321$ .

- Ans**
- ✓ A. 5904.5319
  - ✗ B. 6004.5319
  - ✗ C. 5900.5329
  - ✗ D. 5904.5391

**Q.2** In a classroom, the number of boys and the number of girls are initially equal. 8 girls left to play ring tennis, leaving twice as many boys as girls in the classroom. The total number of girls and boys present initially were \_\_\_\_\_.

- Ans**
- ✗ A. 26
  - ✗ B. 24
  - ✗ C. 34
  - ✓ D. 32

**Q.3** Lines  $\vec{l} \parallel \vec{m} \parallel \vec{n}$  and  $\vec{p}, \vec{q}$  are transversals of  $\vec{l}, \vec{m}$  and  $\vec{n}$ .  
 $\vec{p}$  intersects lines  $\vec{l}, \vec{m}$  and  $\vec{n}$  at the points A, B and C respectively, while  
 $\vec{q}$  intersects lines  $\vec{l}, \vec{m}$  and  $\vec{n}$  at the points D, E and F respectively.  
 If  $m(\overline{AB}) = m(\overline{DE})$ , then which of the following is correct?

- Ans**
- ✓ A.  $m(\overline{BC}) = m(\overline{EF})$
  - ✗ B.  $m(\overline{BD}) = m(\overline{CE})$
  - ✗ C.  $m(\overline{CE}) = m(\overline{DF})$
  - ✗ D.  $m(\overline{AD}) = m(\overline{DF})$

**Q.4** A certain sum invested at 12% simple interest per annum after 5 years yields an interest of ₹19,200. What is the sum invested?

- Ans**
- ✗ A. ₹38,000
  - ✓ B. ₹32,000
  - ✗ C. ₹30,000
  - ✗ D. ₹28,000

Q.5 The value of  $\left(\frac{1}{\sec^2 \theta - \cos^2 \theta} + \frac{1}{\operatorname{cosec}^2 \theta - \sin^2 \theta}\right) (\sin^2 \theta \cos^2 \theta)$

- Ans
- ✓ A.  $\frac{1 - \cos^2 \theta \sin^2 \theta}{2 + \cos^2 \theta \sin^2 \theta}$
  - ✗ B.  $\frac{1 + \cos^2 \theta \sin^2 \theta}{2 - \cos^2 \theta \sin^2 \theta}$
  - ✗ C.  $\frac{1 + \cos^2 \theta \sin^2 \theta}{2 + \cos^2 \theta \sin^2 \theta}$
  - ✗ D.  $\frac{1 - \cos^2 \theta \sin^2 \theta}{2 - \cos^2 \theta \sin^2 \theta}$

Q.6 If the 15 - digit number 4a5124356789734 is divisible by 9, then the value of "a" is \_\_\_\_\_.

- Ans
- ✓ A. 4
  - ✗ B. 3
  - ✗ C. 1
  - ✗ D. 5

Q.7 In triangle ABC, P, Q, and R are the mid points of its sides BC, CA, and AB, respectively. If the area of triangle PQR is  $6 \text{ cm}^2$ , then the area of triangle ABC is:

- Ans
- ✗ A.  $36 \text{ cm}^2$
  - ✗ B.  $12 \text{ cm}^2$
  - ✗ C.  $18 \text{ cm}^2$
  - ✓ D.  $24 \text{ cm}^2$

Q.8 The number of natural numbers between 18 and 78, both excluded, which are divisible by 6 is \_\_\_\_\_.

- Ans
- ✗ A. 10
  - ✓ B. 9
  - ✗ C. 11
  - ✗ D. 12

Q.9 Simplify  $(7x - 1)^3 + (7x + 1)^3$ .

- Ans
- ✓ A.  $686x^3 + 42x$
  - ✗ B.  $686x^3 - 42x$
  - ✗ C.  $-686x^3 + 42x$
  - ✗ D.  $-686x^3 - 42x$

Q.10 A sphere and a cube have the same surface area. The ratio of the volume of the sphere to that of the cube is:

- Ans
- ✗ A.  $\sqrt{\pi} : \sqrt{6}$
  - ✓ B.  $\sqrt{6} : \sqrt{\pi}$
  - ✗ C.  $4\sqrt{3} : \sqrt{\pi}$
  - ✗ D.  $\sqrt{\pi} : 4\sqrt{3}$

**Q.11** Determine the positive value of 'k' for which the equations  $x^2 + kx + 64 = 0$  and  $x^2 - 8x + k = 0$  will both have real roots.

- Ans**
- ☒ A. 15
  - ☒ B. 14
  - ☒ C. 16
  - ☒ D. 17

**Q.12** The ages of a father and his son together add up to 80 years. If the age of the son be doubled, it will exceed the father's age by 10 years. Find the present age of the son.

- Ans**
- ☒ A. 35 years
  - ☒ B. 40 years
  - ☒ C. 50 years
  - ☒ D. 30 years

**Q.13** Find the median of the following distribution.

|   |   |   |   |   |   |
|---|---|---|---|---|---|
| x | 1 | 2 | 3 | 4 | 5 |
| f | 5 | 7 | 4 | 8 | 2 |

- Ans**
- ☒ A. 13
  - ☒ B. 3
  - ☒ C. 4
  - ☒ D. 14

**Q.14**  $\sqrt{\frac{\sqrt{211600} + \sqrt{400}}{48000}}$  equals:

- Ans**
- ☒ A.  $\frac{1}{4}$
  - ☒ B.  $\frac{1}{10}$
  - ☒ C.  $\frac{1}{12}$
  - ☒ D.  $\frac{1}{48}$

**Q.15** Simplify the given expression.

$$\frac{140 \times 140 + 280 \times 450 \div 3 + 150 \times 150}{290}$$

- Ans**
- ☒ A. 280
  - ☒ B. 270
  - ☒ C. 290
  - ☒ D. 275

**Q.16** What will ₹80,000 amount to in one year at 12% per annum, if the interest is compounded half-yearly?

- Ans**
- ✓ A. ₹89,888
  - ✗ B. ₹1,00,352
  - ✗ C. ₹92,450
  - ✗ D. ₹88,888

**Q.17** If  $2.5 : x :: x : 4.9$ , and  $x > 0$ , find the value of  $x$ .

- Ans**
- ✓ A. 3.5
  - ✗ B. 3.4
  - ✗ C. 3.3
  - ✗ D. 3.2

**Q.18** The sum of the roots of the equation  $x^2 + 3ax^2 = 4ax$  is:

- Ans**
- ✗ A.  $3a$
  - ✓ B.  $4a$
  - ✗ C.  $2a$
  - ✗ D.  $a$

**Q.19** The total cost price of 63 identical articles is equal to the total selling price of 54 of those articles. What is the gain or loss percentage?

- Ans**
- ✗ A.  $16\frac{2}{3}\%$  loss
  - ✓ B.  $16\frac{2}{3}\%$  gain
  - ✗ C.  $15\frac{1}{3}\%$  loss
  - ✗ D.  $15\frac{1}{3}\%$  gain

**Q.20** A person spends 84% of his income and saves the remaining amount. If he saves ₹8,000 per month, what is his monthly income?

- Ans**
- ✗ A. ₹54,000
  - ✗ B. ₹45,000
  - ✗ C. ₹48,000
  - ✓ D. ₹50,000

**Q.21** The mean weight of 18 jackfruits is 7.2 kg. If the weights of 2 more jackfruits whose weights are equal are added, the mean weight decreases by 20 g. What is the weight of each jackfruit added later?

- Ans**
- ✗ A. 7.18 kg
  - ✗ B. 7.22 kg
  - ✓ C. 7.00 kg
  - ✗ D. 7.40 kg

**Q.22** Find the SP of an article whose marked price is ₹4,500 and discount allowed is 4.2%.

- Ans**
- ☒ A. ₹4,441.00
  - ☒ B. ₹4,311.00
  - ☒ C. ₹4,111.00
  - ☒ D. ₹4,213.45

**Q.23** The curved surface area of a sphere is  $1386 \text{ cm}^2$ . Find the volume of the sphere. [Use  $\pi = \frac{22}{7}$ ]

- Ans**
- ☒ A.  $2722 \text{ cm}^3$
  - ☒ B.  $4158 \text{ cm}^3$
  - ☒ C.  $4851 \text{ cm}^3$
  - ☒ D.  $5572 \text{ cm}^3$

**Q.24** The cost of a keyboard and a mouse is ₹3,600. If the cost of the keyboard is seven times that of the mouse, what is the cost of the keyboard?

- Ans**
- ☒ A. ₹3,050
  - ☒ B. ₹3,150
  - ☒ C. ₹450
  - ☒ D. ₹600

**Q.25** A and B can complete a piece of work in 20 days, B and C can complete the same piece of work in 12 days, while C and A can do it in 15 days. In how many days can A, B, and C together complete the same work?

- Ans**
- ☒ A. 10
  - ☒ B. 15
  - ☒ C. 5
  - ☒ D. 12

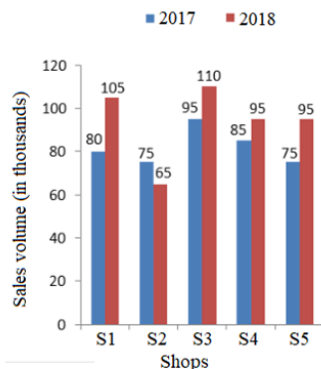
#### Section : General Intelligence and Reasoning

**Q.26** Two statement are given below, followed by four conclusions given in the options. Find out which conclusion is true based on the given statements.

Statement:  $S = M > Z > X$ ,  $A > B = M$

- Ans**
- ☒ A.  $X < A$
  - ☒ B.  $Z > A$
  - ☒ C.  $S > A$
  - ☒ D.  $B < Z$

- Q.27** Study the graph and answer the question that follows. The following bar chart shows the sales volume of Philips bulbs (in thousand) from five different electric shops in a city during two years 2017 and 2018.



What is the average sales volume of Philips bulbs (in numbers) from all the shops for the year 2017?

- Ans**
- ☒ A. 80000
  - ☒ B. 81000
  - ☒ C. 82000
  - ☒ D. 83000

- Q.28** Refer to the following number and symbol series and answer the question.

Note: The numbers are to be considered as a whole and should not be split into its constituent digits.

+ 25 @ 36 # 29 37 % 14 - 7

How many symbols have a prime number as an immediate neighbour on either of its sides?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

- Q.29** How many such pairs of letters are there in the word DANCER (in both forward and backward directions) which have as many letters between them as there are in the English alphabetical order?

- Ans**
- ☒ A. None
  - ☒ B. One
  - ☒ C. Two
  - ☒ D. Three

- Q.30** Which of the following numbers will replace the question mark (?) in the given series?

28, 42, 59, 81, 110, ?, 197

- Ans**
- ☒ A. 148
  - ☒ B. 159
  - ☒ C. 153
  - ☒ D. 163

- Q.31** In a certain code language, 'SCOPE' is written as 'JZNMX' and 'GAMUT' is written as 'VBPHI'. How will 'RANGE' be written in that language?

- Ans**
- ☒ A. KBOVW
  - ☒ B. KBOVX
  - ☒ C. LBOVX
  - ☒ D. KBPVX

**Q.32** Eight friends, Hari, Ganpati, Falak, Ekta, Janak, Rohit, Mangesh and Tony, are sitting around a round table, facing the centre of the table but not necessarily in the same order. Janak is sitting third to the right of Mangesh, who is not an immediate neighbour of either Falak or Tony. Falak is sitting second to the left of Tony, who is sitting third to the left of Hari. Ganpati is sitting fourth to the right of Tony. Ekta is sitting second to the left of Hari.

Who is second to the right of Janak?

- Ans**
- ☒ A. Ekta
  - ☒ B. Falak
  - ☒ C. Rohit
  - ☒ D. Tony

**Q.33** Eight people live on different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it is numbered 2 and so on till the topmost floor is numbered 8. Only 4 people live above Aditya. Anu lives on the sixth floor. Only two people live between Anu and Shubham. Ravi lives immediately above Deep. Diksha lives immediately below Sakshi. Sakshi lives on the topmost floor. On which floor does Deep live?

- Ans**
- ☒ A. 1
  - ☒ B. 5
  - ☒ C. 2
  - ☒ D. 3

**Q.34** Amongst six people, P, Q, R, S, T and U, each has a different weight. R is heavier than T. U is lighter than P. Q is lighter than T but heavier than S. S is heavier than P. Who is the heaviest amongst them?

- Ans**
- ☒ A. T
  - ☒ B. Q
  - ☒ C. P
  - ☒ D. R

**Q.35** Three statements are given, followed by four conclusions numbered I, II, III and IV. You have to consider these statements to be true, even if they seem at variance from commonly known facts. Decide which of the given conclusions logically follow/s from the given statements.

**Statements:**

Some cisterns are ponds.  
All ponds are streets.  
Some streets are cisterns.

**Conclusions:**

I. Some streets are ponds.  
II. All cisterns are streets.  
III. All ponds are cisterns.  
IV. No street is a cistern.

- Ans**
- ☒ A. Only conclusion I follows.
  - ☒ B. Only conclusions II and III follow.
  - ☒ C. Only conclusions I and IV follow.
  - ☒ D. Only conclusion IV follows.



- Q.36** A statement is given followed by two conclusions numbered I and II. You have to assume everything in the statement to be true and decide which of the conclusions logically follow(s) beyond a reasonable doubt from the information given in the statement.

Statement:

Sale up to 70% on all clothing items in the store and online.

Conclusions:

- I. All clothing items are 70% off during the sale period.
- II. There are some clothing items that are not on sale.

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Neither conclusion I nor II follows
  - ☒ D. Both conclusions I and II follow

- Q.37** Select the option that is related to the seventh number in the same way as the second number is related to the first number, the fourth number is related to the third number and the sixth number is related to the fifth number.

56 : 8 :: 84 : 12 :: 42 : 6 :: 14 : ?

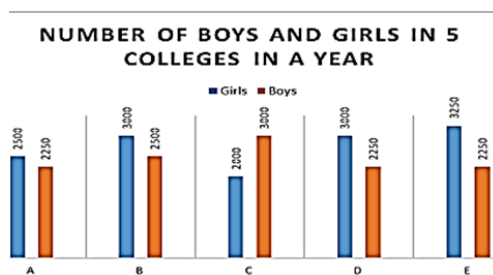
- Ans**
- ☒ A. 7
  - ☒ B. 2
  - ☒ C. 98
  - ☒ D. 42

- Q.38** Select the option that represents the letters that, when placed from left to right in the same sequence in the blanks below, will complete the letter series.

L G \_ A L L \_ F B L \_ G F \_ L L G F \_ L

- Ans**
- ☒ A. FGLCD
  - ☒ B. FLGDC
  - ☒ C. FCGLD
  - ☒ D. FFCCD

- Q.39** Below bar graph is the representation of the number of boys and girls studying in 5 different colleges in a given year. Study the bar graph and answer the questions.



The total number of girls studying in colleges D and E is what percentage of the total number of girls studying in colleges A, B and C?

- Ans**
- ☒ A. 63.45%
  - ☒ B. 66.60%
  - ☒ C. 75 %
  - ☒ D. 83.33 %

**Q.40** Which of the following numbers will replace the question mark (?) in the given series?

10, 121, 11, 144, 12, 169, 13, 196, 14, ?

- Ans**
- ☒ A. 222
  - ☒ B. 223
  - ☒ C. 224
  - ☒ D. 225

**Q.41** If 1 is added to each odd digit and 2 is subtracted from each even digit in the number 6513742678, how many digits will appear more than once in the new number thus formed?

- Ans**
- ☒ A. Two
  - ☒ B. Four
  - ☒ C. Five
  - ☒ D. Six

**Q.42** Surya participated in a marathon. From starting point he ran 11 km towards West, turned right and ran for 12 km and turned right again and ran 11 km and then turned right again and ran 9 km. How many kms he has to run now in order to reach the starting point from his present position to complete the marathon?

- Ans**
- ☒ A. 2 km
  - ☒ B. 3 km
  - ☒ C. 7 km
  - ☒ D. 14 km

**Q.43** Each of six teachers, J, K, L, M, N and O, have their classes on six different days of a week starting from Monday and ending on Saturday of the same week, but not necessarily in the same order. Only two teachers have classes before M's class. J has the class on Tuesday, and O has the class on Saturday. Only one teacher has the class after the class of K. N's class is not between the classes of K and M. Who among the following has the class on Monday?

- Ans**
- ☒ A. K
  - ☒ B. N
  - ☒ C. M
  - ☒ D. L

**Q.44** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

2 : 18 :: 4 : 74 :: 9 : ?

- Ans**
- ☒ A. 517
  - ☒ B. 1005
  - ☒ C. 739
  - ☒ D. 348

**Q.45** Six classmates, Kanti, Manoj, Suman, Divya, Anuj and Mohit, are sitting around a square table facing the centre of the table (but not necessarily in the same order). All classmates are sitting at the sides of the table, nobody is sitting at the corners. Kanti is sitting on a side alone. Manoj and Suman are sitting on the same side of the table. Mohit is sitting alone on the opposite side of Kanti. Divya is sitting to the immediate left of Mohit. Anuj and Divya are sitting on the same side of the table. Suman is sitting second to the right of Divya.

Who is sitting to the immediate right of Kanti?

- Ans**
- ☒ A. Manoj
  - ☒ B. Mohit
  - ☒ C. Anuj
  - ☒ D. Divya

**Q.46** If '+' means '-', '-' means '×', '×' means '÷', '÷' means '+', what will come in place of the question mark (?) in the following equation?

$$88 \div 60 \times 15 - 7 + 10 \times 2 = ?$$

- Ans**
- ☐ A. 98
  - ☐ B. 101
  - ☒ C. 111
  - ☐ D. 99

**Q.47** Refer to the following letter-symbol series and answer the question that follows.

(Left) \*V!^CFA\*BY&YTGSV#Y!SC^ACSYN (Right)

From left how many such symbols are there that are immediately preceded by a symbol and immediately followed by a letter?

- Ans**
- ☐ A. 1
  - ☒ B. 2
  - ☐ C. 3
  - ☐ D. 5

**Q.48** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

AOE : FUJ  
RKT : WQY

- Ans**
- ☐ A. JPM : OUS
  - ☐ B. CRU : HXY
  - ☒ C. QEI : VKN
  - ☐ D. DPJ : JUP

**Q.49** Three statements are given followed by two conclusions numbered I and II. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

Statements:  
All gadgets are electronics.  
Some electronics are wireleses.  
Some wireleses are toys.

Conclusions:  
I. Some gadgets are toys.  
II. Some electronics are gadgets.

- Ans**
- ☐ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☐ C. Both conclusions I and II follow
  - ☐ D. Neither conclusion I nor II follows

**Q.50** Three statements are given, followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

Some investors are urbans.

All stores are urbans.

Some cottages are stores.

**Conclusions:**

I. Some cottages are investors.

II. Some investors are stores.

III. Some cottages are urbans.

- Ans**
- ☒ A. Only conclusion I follows.
  - ☒ B. Only conclusions II and III follow.
  - ☒ C. Only conclusion III follows.
  - ☒ D. Only conclusions I and II follow.

**Q.51** Each vowel in the word LOCKER is changed to the letter preceding it in the English alphabetical order and each consonant is changed to the letter following it in the English alphabetical order. Which of the following letters will appear twice in the group of letters thus formed?

- Ans**
- ☒ A. D
  - ☒ B. L
  - ☒ C. M
  - ☒ D. S

**Q.52** Five friends named Kishore, Jayan, Lahari, Manyaki and Nalini live on five different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it is numbered 2, and so on till the topmost floor which is numbered 5. Kishore lives on odd numbered floor but not on third floor and Nalini lives on the bottommost floor. Manyaki and Jayan lives on even numbered floors but Manyaki doesn't lives above Jayan. Lahari lives on the floor immediately above Manyaki.

Who lives on the third floor?

- Ans**
- ☒ A. Kishore
  - ☒ B. Jayan
  - ☒ C. Manyaki
  - ☒ D. Lahari

**Q.53** If the signs + and × are interchanged, and the numbers 3 and 7 are also interchanged, which of the following four equations given as options would be correct?

- Ans**
- ☒ A.  $14 + 3 \times 7 = 35$
  - ☒ B.  $3 + 7 \times 9 = 30$
  - ☒ C.  $13 + 7 \times 3 = 47$
  - ☒ D.  $16 \times 3 + 7 = 39$

**Q.54** In a certain code language, 'MANNER' is written as 'OETVOD' and 'BEHAVE' is written as 'DINIFQ'. How will 'POLITE' be written in the same code language?

- Ans**
- ☒ A. RSRQDQ
  - ☒ B. RKFADQ
  - ☒ C. RSFQDQ
  - ☒ D. RKRQDQ

**Q.55** Jyoti covered a distance of 3 km in a particular direction and then turned to her right. She further travelled 1 km and thereafter she turned to the left and walked 5 km and then finally she turned to right and walked in the north direction. In which direction was she facing when she started her journey? (All turns are 90 degree turns only)

- Ans**
- ☒ A. East
  - ☒ B. West
  - ☒ C. North
  - ☒ D. South

Section : General Science

**Q.56** According to Newlands, how many elements existed in nature?

- Ans**
- ☒ A. 56
  - ☒ B. 66
  - ☒ C. 76
  - ☒ D. 86

**Q.57** Suppose a beam of light of average wavelength 600 nm is incident on a glass prism from air, and on entering into the prism, it splits into different colours. One of the colours has wavelength 380 nm. The refractive index of the medium for this particular wavelength is:

- Ans**
- ☒ A. 1.33
  - ☒ B. 1.42
  - ☒ C. 1.58
  - ☒ D. 1.73

**Q.58** Which of the following is NOT an example of combination reaction?

- Ans**
- ☒ A. Heating of calcium carbonate
  - ☒ B. Burning of coal
  - ☒ C. Formation of water from hydrogen gas and oxygen gas
  - ☒ D. Formation of slaked lime

**Q.59** In which of the following places is the cellulose of food digested by the action of certain bacteria in animals like horses, rabbit, etc.?

- Ans**
- ☒ A. Stomach
  - ☒ B. Small intestine
  - ☒ C. Caecum
  - ☒ D. Oesophagus

**Q.60** Which of the following is a major event in plants during day time?

- Ans**
- ☒ A. CO<sub>2</sub> release
  - ☒ B. O<sub>2</sub> release
  - ☒ C. CO release
  - ☒ D. O<sub>3</sub> release

**Q.61** Consider an equilateral glass prism on which a ray of light incident at an angle  $\theta$  and passes through the prism in such a way that the refracted ray inside the prism is parallel to its base and emerges at an angle of emergence  $\beta$ . Which of the following is true?

- Ans**
- ☒ A.  $\theta = -\beta$
  - ☒ B.  $\theta = \beta$
  - ☒ C.  $\theta = -2\beta$
  - ☒ D.  $\theta = 2\beta$

**Q.62** What is the nature of washing soda?

- Ans**
- ☒ A. Mild acidic
  - ☒ B. Basic
  - ☒ C. Neutral
  - ☒ D. Amphoteric

**Q.63** The WHO has found that young adolescents (ages 10-14) face a higher risk of complications and death as a result of pregnancy than other women. What is the most likely reason for higher MMR (maternal mortality rate) in young women?

- Ans**
- ☒ A. They are the group with the highest pregnancy rate
  - ☒ B. Their bodies do not support a foetus formation
  - ☒ C. Their body size is often too small to deliver a baby
  - ☒ D. They are ignorant or negligent about health guidelines

**Q.64** The position of the image produced by a concave mirror when an object is placed at a distance such that light rays from the object are parallel to the principal axis is:

- Ans**
- ☒ A. at the principal focus
  - ☒ B. at a point between the principal focus and pole
  - ☒ C. at a point between the principal focus and the centre of curvature
  - ☒ D. at the position of the object itself

**Q.65** What is the role of cilia in the respiratory tract?

- Ans**
- ☒ A. They help to mix all the gases in the inhaled and exhaled air.
  - ☒ B. Dust particles in the inhaled air stick to the cilia.
  - ☒ C. Cilia sweep mucus from the lungs and airway towards the nose.
  - ☒ D. Ciliated cells produce secretions to trap bacteria and viruses.

**Q.66** The nutrients are supplied to the foetus from the mother through:

- Ans**
- ☒ A. cervix
  - ☒ B. zygote
  - ☒ C. placenta
  - ☒ D. endosperm

**Q.67** Which of the following metals forms a green colour coating due to corrosion?

- Ans**
- ☐ A. Silver
  - ☐ B. Iron
  - ☐ C. Zinc
  - ☒ D. Copper

**Q.68** A 12 V battery is connected across a  $250\ \Omega$  resistance. The heat produced in 5 seconds is:

- Ans**
- ☐ A. 2.99 J
  - ☐ B. 3.0 J
  - ☐ C. 3.15 J
  - ☒ D. 2.88 J

**Q.69** Breathing is harder at high altitudes compared to the sea level because \_\_\_\_\_.

- Ans**
- ☐ A. colder temperature constricts airways
  - ☐ B. the concentration of oxygen is very high at high altitudes
  - ☐ C. the rate of diffusion of gases is decreased at high altitudes
  - ☒ D. the atmosphere is less dense at high altitudes

**Q.70** Suppose a lamp of  $25\ \Omega$  is connected across a battery. The heat produced by the lamp per second is 100 J. The potential difference across the lamp is:

- Ans**
- ☐ A. 30 V
  - ☐ B. 40 V
  - ☒ C. 50 V
  - ☐ D. 60 V

**Q.71** Which of the following is not the use of baking soda?

- Ans**
- ☒ A. bleaching action
  - ☐ B. making of baking powder
  - ☐ C. in soda-acid fire extinguishers
  - ☐ D. as an ingredient in antacids

**Q.72** Consider two wires of the same resistance, but the ratio of their cross-sectional areas is 1 : 9. Furthermore, the ratio of their lengths is 3 : 2. The ratio of their resistivities will be:

- Ans**
- ☐ A. 2 : 9
  - ☐ B. 2 : 13
  - ☒ C. 2 : 27
  - ☐ D. 2 : 33

**Q.73** According to Mendeleev's periodic table, just like halogens, hydrogen also exists as a:

- Ans**
- ☐ A. monoatomic molecule
  - ☒ B. diatomic molecule
  - ☐ C. triatomic molecule
  - ☐ D. tetra-atomic molecule



Q.74 What type of bonding is present in carbon compounds?

- Ans
- ☐ A. Metallic bonding
  - ☐ B. Ionic bonding
  - ☐ C. Hydrogen bonding
  - ☒ D. Covalent bonding

Q.75 Consider that a mature blue whale is 30.0 m long. On the other hand a baby whale is 10.0 m long. Where should the baby whale be placed in front of a concave mirror of focal length 15.0 m so that one can observe a real image of the baby whale as that of the size of a mature whale?

- Ans
- ☐ A. 10 m
  - ☐ B. 15 m
  - ☒ C. 20 m
  - ☐ D. 25 m

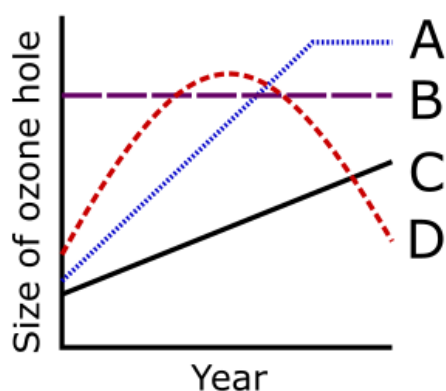
Q.76 In a chemical equation, the notations (aq) represents:

- Ans
- ☐ A. solid
  - ☐ B. Liquid
  - ☐ C. Gas
  - ☒ D. aqueous

Q.77 Out of the following which is not a non conventional source of energy:

- Ans
- ☐ A. Geothermal Energy
  - ☐ B. Solar energy
  - ☒ C. Nuclear energy
  - ☐ D. Tidal energy

Q.78 Which line best explains changes in the size of the ozone hole over the years?



- Ans
- ☒ A. Line A – it was growing but now it is not growing
  - ☐ B. Line B – the size has not changed
  - ☐ C. Line C – it is growing steadily
  - ☐ D. Line D – it was growing but now it is shrinking



**Q.79** Which of the following statements is INCORRECT?

- Ans**
- ✓ A. Sustainable management of natural resources is an easy task.
  - ✗ B. We need to accept that people will act with their own best interests as the priority.
  - ✗ C. The fossil fuels, coal and petroleum will ultimately be exhausted.
  - ✗ D. Combustion of fossil fuels pollute our environment; we need to use these resources judiciously.

**Q.80** Suppose Rammohan has kept a cylindrical bar magnet along the axis of a circular solenoid. Now, he is rotating the magnet about the axis of the solenoid. The induced electric current in the coil will be:

- Ans**
- ✗ A. proportional to the number of turns in the solenoid
  - ✗ B. inversely proportional to the resistance of the solenoid
  - ✗ C. proportional to the length of the solenoid
  - ✓ D. zero

Section : General Awareness and Current Affairs

**Q.81** When was the Regulating Act passed by the British Parliament to regulate the activities of the East India Company?

- Ans**
- ✓ A. 1773
  - ✗ B. 1793
  - ✗ C. 1861
  - ✗ D. 1875

**Q.82** Which of the given options would result in an increase in gross fiscal deficit?

- Ans**
- ✗ A. Increase in revenue receipts
  - ✗ B. Decrease in borrowings from abroad
  - ✓ C. Decrease in revenue receipts
  - ✗ D. Decrease in borrowings from RBI

**Q.83** In January 2022, which of the following states has decided to increase the age of retirement from 60 to 62 years?

- Ans**
- ✓ A. Andhra Pradesh
  - ✗ B. Rajasthan
  - ✗ C. Himachal Pradesh
  - ✗ D. Delhi

**Q.84** Who propounded the theory of 'Advaita' in Hinduism?

- Ans**
- ✓ A. Adi Sankaracharya
  - ✗ B. Ramanuj
  - ✗ C. Ramanand
  - ✗ D. Vallabhacharya

**Q.85** India has been a WTO member since

- Ans**
- ✓ A. 1995
  - ✗ B. 1996
  - ✗ C. 1997
  - ✗ D. 1998

**Q.86** Which programme or allocation head has emerged as the biggest beneficiary in the Union sports budget for the financial year 2022-23?

- Ans**
- ✓ **A. Khelo India**
  - ✗ **B. National Service Scheme**
  - ✗ **C. National Sports Federations**
  - ✗ **D. National Sports Development Fund**

**Q.87** The Twelfth Schedule of the Indian Constitution is related to powers, authority and responsibilities of \_\_\_\_\_.

- Ans**
- ✗ **A. Panchayats**
  - ✓ **B. urban local bodies**
  - ✗ **C. States**
  - ✗ **D. the Centre**

**Q.88** Which of the following Parts and Articles of the Constitution of India is related to Fundamental Duties?

- Ans**
- ✓ **A. Part IV A (Article 51 A)**
  - ✗ **B. Part V A (Article 52 A)**
  - ✗ **C. Part VI A (Article 51 A)**
  - ✗ **D. Part VI A (Article 53 A)**

**Q.89** On 24<sup>th</sup> March 2022 the Government of India Department of Biotechnology has launched Data-Driven Research to Eradicate which of the following disease?

- Ans**
- ✓ **A. Tuberculosis**
  - ✗ **B. Malaria**
  - ✗ **C. Hepatitis B**
  - ✗ **D. HIV-AIDS**

**Q.90** Who is the head of the Union Executive of the Government of India?

- Ans**
- ✗ **A. The President**
  - ✗ **B. The Vice President**
  - ✓ **C. The Prime Minister**
  - ✗ **D. The Chief Justice of India**

**Q.91** Which of the following companies has developed India's first mRNA-based vaccine against COVID-19, which was found to be safe and got the approval for phase II and III trials in the year 2021?

- Ans**
- ✗ **A. Wockhardt Ltd**
  - ✗ **B. Bharat Biotech**
  - ✓ **C. Gennova Biopharmaceuticals Ltd**
  - ✗ **D. Serum Institute of India**

**Q.92** \_\_\_\_\_ buying occurs when a consumer experiences a sudden, often powerful and persistent urge to buy something immediately.

- Ans**
- ✗ **A. Monotonic**
  - ✗ **B. Satisfactory**
  - ✓ **C. Impulse**
  - ✗ **D. Disruptive**

**Q.93** On 23 December 2021, Maharashtra passed which of the following Criminal Law Acts to approve death penalty for heinous offences against women and children?

- Ans**
- ☒ A. Disha
  - ☒ B. Shakti
  - ☒ C. Aasha
  - ☒ D. Kiran

**Q.94** The outermost range of the Himalayas is the Shivalik, which ranges between 900 and 1100 metres in height, and lies in width between \_\_\_\_\_.

- Ans**
- ☒ A. 10 and 50 km
  - ☒ B. 15 and 25 km
  - ☒ C. 25 and 40 km
  - ☒ D. 30 and 55 km

**Q.95** Which of the following is the westernmost of the Himalayan rivers in India?

- Ans**
- ☒ A. Luni
  - ☒ B. Indus
  - ☒ C. Bhagirathi
  - ☒ D. Alaknanda

**Q.96** Who among the following is one of the awardees of Major Dhyan Chand Khel Ratna Award 2021 in the discipline of wrestling?

- Ans**
- ☒ A. Lovlina Borgohain
  - ☒ B. Ravi Kumar
  - ☒ C. Sumit Antil
  - ☒ D. Krishna Nagar

**Q.97** As per one of the criteria evolved by Government to determine declaration of a language as a Classical language, the language must have high antiquity of its early texts/recorded history over a period of \_\_\_\_\_ years.

- Ans**
- ☒ A. 500-1000
  - ☒ B. 1500-2000
  - ☒ C. 2500-3000
  - ☒ D. 3500-4000

**Q.98** The Criminal Procedure (Identification) Bill was passed by the Parliament of India in which of the following years?

- Ans**
- ☒ A. 2018
  - ☒ B. 2019
  - ☒ C. 2021
  - ☒ D. 2022

**Q.99** India lies entirely in the northern hemisphere, the mainland extends between latitudes \_\_\_\_\_ and 37° 6' north.

- Ans**
- ☒ A. 8° 4'
  - ☒ B. 9° 4'
  - ☒ C. 10° 4'
  - ☒ D. 11° 4'

Q.100 Which of the following festivals is NOT related to agriculture?

- Ans
- ☒ A. Pongal
  - ☒ B. Lohri
  - ☒ C. Baisakhi
  - ☒ D. Deepawali



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

## सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 26/09/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** In quadrilateral ABCD, we have  $AD = 9$  cm,  $BC = 8$  cm and  $CD = 17$  cm,  $AD \perp AB$  and diagonal  $BD \perp BC$ . Find the area of the quadrilateral ABCD.

- Ans**
- ☒ A.  $110 \text{ cm}^2$
  - ☒ B.  $114 \text{ cm}^2$
  - ☒ C.  $112 \text{ cm}^2$
  - ☒ D.  $111 \text{ cm}^2$

**Q.2** Find the median of the following data.

12, 16, 26, 15, 17, 18, 73, 74, 25, 24

- Ans**
- ☒ A. 17
  - ☒ B. 18
  - ☒ C. 19
  - ☒ D. 21

**Q.3** If  $-2$  is a root of the equation  $3x^2 + px + 2 = 0$ , and  $7x^2 + px + k = 0$  has equal roots, then what is the value of  $k$ ?

- Ans**
- ☒ A.  $\frac{7}{2}$
  - ☒ B.  $\frac{7}{4}$
  - ☒ C.  $\frac{2}{3}$
  - ☒ D.  $\frac{4}{3}$

**Q.4** A sum of ₹2500 is invested in a bank at 6% interest per annum compounded annually. On maturity, the amount payable becomes ₹2809. Find the time period of the investment.

- Ans**
- ☒ A. 1 year
  - ☒ B. 2.5 years
  - ☒ C. 2 years
  - ☒ D. 1.5 years

**Q.5** Ravi spends 20% of his income on petrol, one-third of the remaining income on household expenditure, and the balance is his savings. If he spends ₹7,500 on petrol, find his household expenditure.

- Ans**
- ☐ A. ₹8,500
  - ☐ B. ₹8,566.70
  - ☐ C. ₹8,666.70
  - ☒ D. ₹10,000

**Q.6** Which of the numbers given below is a prime number?

- Ans**
- ☒ A. 983
  - ☐ B. 986
  - ☐ C. 153
  - ☐ D. 319

**Q.7** Riya has a total of 60 pens and pencils. If she has 25 more pens and 5 less pencils, then the number of pens becomes three times the number of pencils. What is the difference between the number of pens and pencils that she had originally?

- Ans**
- ☒ A. 10
  - ☐ B. 25
  - ☐ C. 30
  - ☐ D. 5

**Q.8** If  $60\% \text{ of } A = 1.2 \text{ of } B = \frac{2}{5} \text{ of } C$ , then find  $A : B : C$ .

- Ans**
- ☐ A. 3 : 2 : 1
  - ☐ B. 3 : 1 : 2
  - ☒ C. 2 : 1 : 3
  - ☐ D. 1 : 2 : 3

**Q.9** Find the median of the data whose mean is 46 and mode is 45, using empirical relation (Round the answer off to one decimal place).

- Ans**
- ☐ A. 45.5
  - ☒ B. 45.7
  - ☐ C. 45.9
  - ☐ D. 45.1

**Q.10** A house and a garden together cost ₹51 lakh and the cost of the garden is  $\frac{5}{12}$  of the cost of the house. Find the cost of the garden (in ₹).

- Ans**
- ☐ A. 30 lakh
  - ☐ B. 16 lakh
  - ☒ C. 15 lakh
  - ☐ D. 36 lakh

**Q.11** Three angles of  $\triangle ABC$  are in the ratio 3 : 4 : 5, taken in order. If side AB is extended to X, what is the measure of exterior angle  $\angle CBX$ ?

- Ans**
- ☒ A.  $120^\circ$
  - ☐ B.  $100^\circ$
  - ☐ C.  $80^\circ$
  - ☐ D.  $60^\circ$

**Q.12** Given  $a \sin q = b \cos q$  and  $a \sin^3 q + b \cos^3 q = \sin q \cos q$ , for  $0 < q < 90^\circ$ , find the value of  $a^2 + b^2$ .

- Ans**
- ☒ A. 1
  - ☐ B. 2
  - ☐ C. 0
  - ☐ D. 3

**Q.13** 3 right circular cylinders having the same base radius ( $r$  cm) and the same height ( $h$  cm) are placed one upon the other, to form another right cylinder whose radius of base is also  $r$  cm. The total surface area (in  $cm^2$ ) of this new right cylindrical solid so formed is:

- Ans**
- ☒ A.  $6\pi rh + 2\pi r^2$
  - ☐ B.  $6\pi rh + 6\pi r^2$
  - ☐ C.  $4\pi rh + 4\pi r^2$
  - ☐ D.  $6\pi rh + 4\pi r^2$

**Q.14** If  $7(x) + 5$ ,  $7(x) + 4$ ,  $5(x) + 5$  and  $y$  are in proportion when  $x = 5$ , find the value of  $y$ .

- Ans**
- ☐ A. 29
  - ☒ B. 29.25
  - ☐ C. 29.5
  - ☐ D. 29.75

**Q.15** If the roots of the quadratic equation  $x^2 - kx + 169 = 0$  are equal, find the value of  $k$ .

- Ans**
- ☐ A.  $\pm 13$
  - ☒ B.  $\pm 26$
  - ☐ C.  $\pm 17$
  - ☐ D.  $\pm 14$

**Q.16**  $\frac{9^4 \times 10^3 \times 4^{-4} \times 16^{\frac{1}{2}}}{5^6 \times 3^6}$  equals:

- Ans**
- ☐ A.  $\frac{1}{9000}$
  - ☐ B.  $\frac{1}{4000}$
  - ☐ C.  $\frac{4}{9000}$
  - ☒ D.  $\frac{9}{1000}$

**Q.17** If  $0.3\overline{72} = \frac{x}{y}$ , where  $x$  and  $y$  are coprime, then what is the value of  $(x + y)$ ?

- Ans**
- ☐ A. 134
  - ☐ B. 143
  - ☒ C. 151
  - ☐ D. 186

**Q.18** Three bells A, B and C toll every 15 seconds, 24 seconds, and 42 seconds, respectively. If all of them toll together at 8 a.m., then between 8 a.m. and 10 a.m. on the same day, how many times will they all toll together, including the one at 8 a.m.?

- Ans**
- ☒ A. 6
  - ☒ B. 7
  - ☒ C. 8
  - ☒ D. 9

**Q.19** Expand  $\left(\frac{1}{2}x + 3y - \frac{1}{3}z\right)^2$ .

- Ans**
- ☒ A.  $\frac{1}{4}x^2 + 9y^2 + \frac{1}{9}z^2 + 3xy - 2yz - \frac{xz}{3}$
  - ☒ B.  $\frac{1}{4}x^2 + 9y^2 - \frac{1}{9}z^2 + 3xy - 2yz - \frac{xz}{3}$
  - ☒ C.  $\frac{1}{4}x^2 + 9y^2 + \frac{1}{9}z^2 - 3xy + 2yz + \frac{xz}{3}$
  - ☒ D.  $\frac{1}{4}x^2 + 9y^2 - \frac{1}{9}z^2 - 3xy - 2yz - \frac{xz}{3}$

**Q.20** If  $\triangle XYZ \cong \triangle ABC$ , which of the following is necessarily correct?

- Ans**
- ☒ A.  $m(\overline{XY}) = m(\overline{AC})$
  - ☒ B.  $m(\overline{XZ}) = m(\overline{BC})$
  - ☒ C.  $m(\overline{YZ}) = m(\overline{AB})$
  - ☒ D.  $m(\overline{XZ}) = m(\overline{AC})$

**Q.21** A, B and C can complete a piece of work in 18 days, 24 days and 60 days, respectively. In how many days will the work be completed, if A works on all days, and is assisted by B and C on alternate days, starting with B assisting A on the first day?

- Ans**
- ☒ A.  $11\frac{5}{13}$
  - ☒ B.  $11\frac{10}{13}$
  - ☒ C.  $12\frac{1}{9}$
  - ☒ D.  $11\frac{11}{42}$

**Q.22** X sells a washing machine to Y at a profit of 20%. Y sells it to Z at a loss of 12% and later Z sells it to T at a profit of 30%. If Z earns ₹87.60 more than X as profit, then at what price (in ₹) did Y buy the washing machine?

- Ans**
- ☒ A. 1,020
  - ☒ B. 980
  - ☒ C. 960
  - ☒ D. 900



**Q.23** The value of  $\frac{[(34.45)]^2 - (11.75)^2] \times 5.15}{[(25.75)^2 + (25.75 \times 20.45)] \times 22.7}$  is:

- Ans**
- ☒ A.  $\frac{1}{10}$
  - ☒ B.  $\frac{1}{5}$
  - ☒ C.  $\frac{2}{3}$
  - ☒ D.  $\frac{1}{2}$

**Q.24** Namita completes  $33\frac{1}{3}\%$  of a piece of work alone in 16 days and the remaining work is completed by Bobby alone. The entire work is completed in a total of 28 days. Working together, Namita and Bobby can complete  $\frac{11}{16}$  part of the original work in:

- Ans**
- ☒ A. 6 days
  - ☒ B. 8 days
  - ☒ C. 9 days
  - ☒ D. 12 days

**Q.25** The sum of the ages of three persons is 44 years and the numerical product of their ages is 1950. Also, the difference in the ages of the second and the third person, when subtracted from the difference in the ages of the first and the second person, is 5 years. Find the present age of the second person.

- Ans**
- ☒ A. 25 years
  - ☒ B. 6 years
  - ☒ C. 13 years
  - ☒ D. 10 years

#### Section : General Intelligence and Reasoning

**Q.26** Study the given arrangement of numbers and answer the question that follows:

(LEFT) 2 8 3 6 0 8 1 5 3 7 3 4 9 6 2 4 3 2 5 6 4 0 7 (RIGHT)

Based on the arrangement given, Three of the following four groups of numbers (given in options) are alike in a certain way and so form a group. Which option does NOT belong to that group?

- Ans**
- ☒ A. 462
  - ☒ B. 230
  - ☒ C. 746
  - ☒ D. 013

**Q.27** Select the option that represents the letters that, when placed from left to right in the same sequence in the blanks below, will complete the letter series.

Q \_ T \_ T \_ BT \_ TQB \_ RT

- Ans**
- ☒ A. BRQRT
  - ☒ B. BQRRT
  - ☒ C. BRRQT
  - ☒ D. BRTRQ

**Q.28** Which of the following options is the closest approximate value which will come in place of the question mark (?) in the following equation?

$$?^2 + 53.99 = 206.01 \div 1.99$$

- Ans**
- ✓ A. 7
  - ✗ B. 5
  - ✗ C. 3
  - ✗ D. 13

**Q.29** Amongst six friends A, B, C, D, E and F, each has a different height. Only one person is shorter than E. Only two people are taller than D. A is shorter than F but taller than C. F is not the tallest. Who is the shortest among all the friends?

- Ans**
- ✓ A. C
  - ✗ B. E
  - ✗ C. A
  - ✗ D. D

**Q.30** If the position of the digit '2' is interchanged with the position of the digit '4', and the position of the digit '5' is interchanged with the position of the digit '3', then what is the value of the given expression?

$$47 + 56 \div 6 - 2 \times 3$$

- Ans**
- ✗ A. 3
  - ✓ B. 13
  - ✗ C. 7
  - ✗ D. 21

**Q.31** Which of the following numbers will replace the question mark (?) in the given series?

2, 3, 6, 12, ?, 37, 58

- Ans**
- ✓ A. 22
  - ✗ B. 24
  - ✗ C. 26
  - ✗ D. 20

**Q.32** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

QJD : TMG  
GMS : JPV

- Ans**
- ✗ A. MYO : PQJ
  - ✓ B. RPH : USK
  - ✗ C. AWL : ZDT
  - ✗ D. NIH : SXB

**Q.33** Each vowel in the word KINDLE is changed to the letter following it in the English alphabetical order and each consonant is changed to the letter preceding it in the English alphabetical order. Which of the following letters will appear twice in the group of letters thus formed?

- Ans**
- ✓ A. J
  - ✗ B. F
  - ✗ C. M
  - ✗ D. K

**Q.34** Eight friends are sitting around a square table facing the centre. Four of them are sitting at the corners and remaining four are sitting at the exact middle of the four sides. Aman is sitting fourth to the left of Priya. Lakshay is an immediate neighbour of both Priya and Sakshi. Utkarsh is sitting fourth to the left of Sakshi. Riddhi is sitting to the immediate right of Utkarsh. Priya is sitting to the immediate left of Vidhi. Vidhi is sitting fourth to the right of Tejaswi. Who is sitting to the immediate right of Aman?

- Ans**
- ☒ A. Riddhi
  - ☒ B. Lakshay
  - ☒ C. Vidhi
  - ☒ D. Tejaswi

**Q.35** Which of the following numbers will replace the question mark (?) in the given series?

43   41   37   31   ?   23

- Ans**
- ☒ A. 25
  - ☒ B. 27
  - ☒ C. 29
  - ☒ D. 21

**Q.36** Three statements are given followed by two conclusions numbered I and II. You have to take the statements to be true, even if they seem to be at variance with commonly known facts and decide which of the conclusions logically follow(s) from the statements.

**Statements:**

Some Picnics are Grasses.  
All Grasses Are Rains.  
Some Rains are Clouds.

**Conclusions:**

(I) Some Grasses are Clouds.  
(II) All Picnics are Rains.

- Ans**
- ☒ A. Only conclusion (I) follows.
  - ☒ B. Only conclusion (II) follows.
  - ☒ C. Both conclusions (I) and (II) follow.
  - ☒ D. Neither conclusion (I) nor (II) follows.

**Q.37** Seven boxes, L, M, N, O, P, Q and E, are kept one above the other but not necessarily in the same order. L is fifth from the bottom in the stack. M is immediately above L. Only three boxes are there between O and L. Only two boxes are there between P and N. N is immediately above Q. P is at one of the positions above N. Which box is kept at the sixth position from bottom?

- Ans**
- ☒ A. K
  - ☒ B. L
  - ☒ C. M
  - ☒ D. N

**Q.38** In a certain code language, 'ARMOR' is written as 'CVOST' and 'GLAND' is written as 'IPCRF'. How will 'FARMS' be written in that language?

- Ans**
- ☒ A. HDTPU
  - ☒ B. HEQTU
  - ☒ C. HETQU
  - ☒ D. HFTRU

- Q.39** A, B, C, D, E and F live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor, which is numbered 6. Only two people live between A and F. Only three people live between B and C. C lives below B. E does not live below D. Only two people live below F. Who lives immediately above F?

**Ans** ☒ A. A  
☒ B. D  
☒ C. E  
☒ D. B

- Q.40** Madhav starts from Point A and drives 16 km towards the east. He then takes a right turn, drives 4 km, turns right and drives 12 km. He then takes a right turn and drives 11 km, takes a left turn and drives 4 km and stops at Point B. How far and towards which direction should he drive in order to reach Point A from Point B? (All turns are 90 degree turns only)

**Ans** ☒ A. 7 km towards the south  
☒ B. 12 km towards the west  
☒ C. 6 km towards the east  
☒ D. 8 km towards the south

- Q.41** Refer to the following letter, number, symbol series and answer the question.

(Left) 2 & # 4 @ 3 Z 6 A # 5 % 3 \* 6 # 9 (Right)

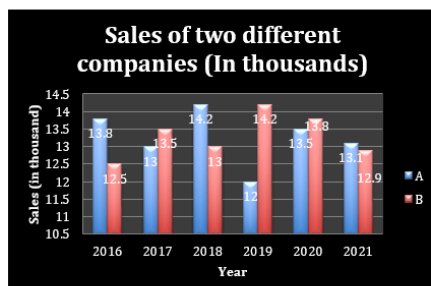
How many letters are there between the second element from the right end and the fifth element from the left end of the given series?

**Ans** ☒ A. 2  
☒ B. 6  
☒ C. 4  
☒ D. 3

- Q.42** M, N, O, P, Q and R live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 6. M lives two floors above R, on an odd-numbered floor. Q lives immediately below M. There are only two people living between O and Q. O is not living on the lowermost floor. If N lives immediately above M, then how many people live exactly between Q and P?

**Ans** ☒ A. Two  
☒ B. One  
☒ C. Four  
☒ D. Three

- Q.43** The given bar graph shows the sales of bikes of two different companies in 6 different years. Study the graph and answer the question that follows.



The total bikes sold by company A in 2016 and 2020 together is approximately what percentage of the total bikes sold by both the companies in 2018?

**Ans** ☒ A. 95%  
☒ B. 100%  
☒ C. 105%  
☒ D. 110%

**Q.44** Three statements are given followed by two conclusions numbered I and II. You have to take the statements to be true, even if they seem to be at variance with commonly known facts and decide which of the conclusions logically follow(s) from the statements.

**Statements:**

Some Buses are Vans.  
All Vans are Trucks.  
Some Buses are Cars.

**Conclusions:**

(I) Some Trucks are Buses.  
(II) Some Cars are Trucks.

- Ans**
- ✓ A. Only conclusion (I) follows.
  - ✗ B. Only conclusion (II) follows.
  - ✗ C. Both conclusions (I) and (II) follow.
  - ✗ D. Neither conclusion (I) nor (II) follows.

**Q.45** In this question, a statement is followed by two conclusions. Which of the two conclusions is/are true with respect to the statement?

Statement:  $P = Q \geq R \leq S > T < U$

Conclusions:

I.  $Q > U$

II.  $R \leq P$

- Ans**
- ✗ A. Only conclusion I is true
  - ✓ B. Only conclusion II is true
  - ✗ C. Both conclusions I and II are true
  - ✗ D. Neither conclusion I nor II is true

**Q.46** Five friends A, B, C, D and E are seated around a round table facing the centre. B is an immediate neighbour of both D and E. A is an immediate neighbour of D. Which position of E is NOT possible?

- Ans**
- ✓ A. Immediate neighbour of A
  - ✗ B. 3<sup>rd</sup> to the left of D
  - ✗ C. 3<sup>rd</sup> to the right of A
  - ✗ D. To the immediate left of C

**Q.47** Select the set in which the numbers are related in the same way as are the numbers of the following sets.  
(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding / subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

(7, 19, 40)  
(12, 11, 47)

- Ans**
- ✗ A. (9, 27, 72)
  - ✗ B. (15, 31, 48)
  - ✗ C. (14, 23, 74)
  - ✓ D. (16, 5, 53)

**Q.48** Select the option in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding/deleting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(85,198,52)

(77,270,32)

- Ans**
- ☒ A. (62,90,45)
  - ☒ B. (62,94,47)
  - ☒ C. (62,90,47)
  - ☒ D. (61,90,47)

**Q.49** Town P is west of town Q. Town P is south-west of town S. Town S is north of town Q. If town R is south-east of town Q and town M is east of town R, then what is the position of town P with respect to town M?

- Ans**
- ☒ A. West
  - ☒ B. South-west
  - ☒ C. North-west
  - ☒ D. South

**Q.50** This question consists of a statement followed by two arguments I and II. Read the statement and the arguments carefully and select the appropriate answer from the given options.

Statement –

Segregation of garbage into wet and dry waste will help in recycling it

- I. Wet waste can be converted to organic compost or biogas when managed the right
- II. Recycled plastic can be remanufactured for a wide array of products including carpet, upcycled polyester for clothing, recycled plastic building materials

- Ans**
- ☒ A. I weakens while II strengthens the statement
  - ☒ B. II weakens while I strengthens the statement
  - ☒ C. Both I and II weaken the statement
  - ☒ D. Both I and II strengthen the statement

**Q.51** The given table shows the expenditure (in millions) on different things of families living in 5 different cities. Study the table and answer the question that follows.

| City | Type of expenditure |           |      |        |               |
|------|---------------------|-----------|------|--------|---------------|
|      | Food                | Education | Loan | Travel | Entertainment |
| A    | 10                  | 20        | 17   | 9      | 15            |
| B    | 12                  | 18        | 10   | 7      | 17            |
| C    | 18                  | 23        | 23   | 11     | 20            |
| D    | 13                  | 27        | 14   | 5      | 23            |
| E    | 21                  | 13        | 25   | 20     | 14            |

The percentage of expenditure on travel with respect to that on food is the maximum in which city?

- Ans**
- ☒ A. City A
  - ☒ B. City C
  - ☒ C. City D
  - ☒ D. City E

**Q.52** Three statements are given followed by two conclusions numbered I and II. You have to take the statements to be true, even if they seem to be at variance with commonly known facts and decide which of the conclusions logically follow(s) from the statements.

**Statements:**

All Tables are Dinners.  
Some Dinners are Plates.  
All Plates are Bowls.

**Conclusions:**

(I) Some Tables are Plates.  
(II) All Dinners are Bowls.

- Ans**
- ☒ A. Only conclusion (I) follows.
  - ☒ B. Only conclusion (II) follows.
  - ☒ C. Both conclusions (I) and (II) follow.
  - ☒ D. Neither conclusion (I) nor (II) follows.

**Q.53** Each of the digits in the number 36275918 is arranged in ascending order from left to right. The position of how many digits will remain unchanged as compared to that in the original number?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. None

**Q.54** If each of the letter of the letter cluster 'DEHRAZUN' is arranged in alphabetical order, how many vowels will be immediately preceded by a consonant in the newly formed letter cluster?

- Ans**
- ☒ A. 3
  - ☒ B. 1
  - ☒ C. 0
  - ☒ D. 2

**Q.55** In a certain code language, 'SPACE' is written as 'QNDAH' and 'CRAFT' is written as 'APDDR'. How will 'SPEED' be written in the same code language?

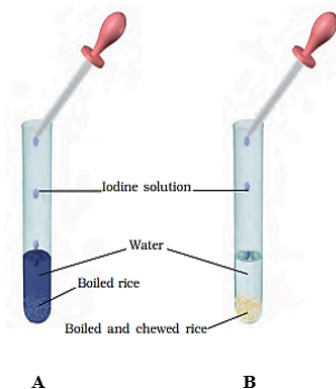
- Ans**
- ☒ A. QNCCB
  - ☒ B. QSHHB
  - ☒ C. QSHHG
  - ☒ D. QNHBB

Section : **General Science**

**Q.56** The distance between the pole and centre of curvature of a concave mirror of radius of curvature 100 cm is:

- Ans**
- ☒ A. 100 cm
  - ☒ B. 50 cm
  - ☒ C. 200 cm
  - ☒ D. 25 cm

**Q.57** Study the figure given below carefully. Which option is correct regarding the non-appearance of blue colour in test tube B?



- Ans**
- ☒ A. Starch was digested by salivary amylase in the saliva
  - ☐ B. Starch was digested by pepsin in the saliva
  - ☐ C. Starch was digested by lipase in the saliva
  - ☐ D. Starch was digested by trypsin in the saliva

**Q.58** Fleming's Right Hand Rule can be applied only if the directions of the applied magnetic field, the motion of conductor and the induced current are mutually at \_\_\_\_\_ with respect to each other.

- Ans**
- ☐ A.  $30^\circ$
  - ☐ B.  $60^\circ$
  - ☒ C.  $90^\circ$
  - ☐ D.  $45^\circ$

**Q.59** An object of height 3 cm is placed at a distance  $1.5f$  in front of a convex lens of focal length  $f$ . The magnification will be:

- Ans**
- ☐ A. 1.5
  - ☒ B. 2.0
  - ☐ C. 2.5
  - ☐ D. 3.0

**Q.60** A stalactite of size 10.0 m is found in Brazil. If this stalactite is placed at a distance of 20.0 m from a concave mirror and a real image of size 30.0 m is formed, then the principal focus of the mirror is at:

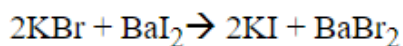
- Ans**
- ☐ A. -30.0 m
  - ☐ B. +30.0 m
  - ☒ C. -15.0 m
  - ☐ D. +15.0 m

**Q.61** Which of the following components of xylem do NOT function in the transport of water?

- Ans**
- ☐ A. Xylem tracheids
  - ☐ B. Xylem vessels
  - ☒ C. Xylem fibres
  - ☐ D. Xylem parenchyma



Q.62 In the given reaction, which substance is insoluble?



Ans ☒ A. 2KBr

☒ B. 2KI

☒ C. BaBr<sub>2</sub>

☒ D. BaI<sub>2</sub>

Q.63 The energy lost in the form of heat in an electrical circuit is,

Ans ☒ A. directly proportional to the resistance

☒ B. Inversely proportional to time for which current flows through the circuit

☒ C. Inversely proportional to the current flowing through the circuit

☒ D. Inversely proportional to the potential difference applied in the circuit

Q.64 Sulphide ion is formed from Sulphur due to \_\_\_\_\_.

Ans ☒ A. Reduction

☒ B. Oxidation

☒ C. Dehydrogenation

☒ D. Combination

Q.65 \_\_\_\_\_ is Calcium sulphate hemihydrate.

Ans ☒ A. Gypsum

☒ B. Limestone

☒ C. Quicklime

☒ D. Plaster of Paris

Q.66 Why are carbon compounds bad conductors of electricity?

Ans ☒ A. Because they don't form any ions

☒ B. Because they are ionic in nature

☒ C. Because they have high melting and boiling point

☒ D. Because carbon compounds are solid in nature

Q.67 The device which converts mechanical energy into electrical energy is \_\_\_\_\_.

Ans ☒ A. electric dynamo

☒ B. electric motor

☒ C. compass needle

☒ D. dry cell

Q.68 Which of the following carbon compounds is a major component of biogas and compressed natural gas?

Ans ☒ A. Methane

☒ B. Ethane

☒ C. Propane

☒ D. Butane

**Q.69** Where can we find a plumule in a plant?

- Ans**
- ☐ A. In a leaf
  - ☐ B. In a flower
  - ☒ C. In a seed
  - ☐ D. In the root tips

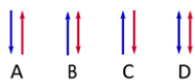
**Q.70** Which of the following statements is correct with respect to modern periodic law?

- Ans**
- ☒ A. In a neutral atom, the atomic number is equal to the number of electrons or protons.
  - ☐ B. In a neutral atom, the atomic number of an atom is equal to only number of electrons.
  - ☐ C. The atomic number is equal to the only number of protons in a neutral atom.
  - ☐ D. The atomic number is neither equal to the number of electrons nor protons in a neutral atom.

**Q.71** What does 'segregation at source' mean in terms of non-biodegradable wastes?

- Ans**
- ☐ A. Factories producing non-biodegradable consumer items should not mix them with biodegradable material.
  - ☐ B. People using non-biodegradable items should not add biodegradable items to these items.
  - ☒ C. Households should separate non-biodegradable items from biodegradable items in the trash.
  - ☐ D. Municipalities should have separate disposal sites for non-biodegradable and biodegradable waste.

**Q.72** In the following diagrams, the blue arrows represent transport through the xylem vessels and the red arrows represent transport through the phloem vessels. Which diagram shows the correct direction of transport in the plant stem?



- Ans**
- ☐ A. Diagram A
  - ☒ B. Diagram B
  - ☐ C. Diagram C
  - ☐ D. Diagram D

**Q.73** The enzymes responsible for final conversion of Proteins into amino acids, complex carbohydrates into glucose and fats into fatty acids and glycerol is present in the:

- Ans**
- ☒ A. intestinal juice
  - ☐ B. pancreatic juice
  - ☐ C. gastric juice
  - ☐ D. bile juice

**Q.74** Plaster of Paris is prepared by heating \_\_\_\_\_.

- Ans**
- ☒ A. gypsum at 373 K
  - ☐ B. limestone at 373 K
  - ☐ C. limestone at 273 K
  - ☐ D. gypsum at 273 K

**Q.75** The shape of the voltage-current graph for a conductor is \_\_\_\_\_.

- Ans**
- ☒ A. linear
  - ☐ B. exponential
  - ☐ C. Parabolic
  - ☐ D. zig-zag

**Q.76** A needle of height 6 cm is placed at a distance of 20 cm in front of a lens with a power of  $-2.5$  D. The height of the image of the needle will be:

- Ans**
- ☒ A. 4 cm
  - ☐ B. 5 cm
  - ☐ C. 6 cm
  - ☐ D. 7 cm

**Q.77** According to Dobereiner's Triads, which of the following elements could be placed between Calcium and Barium? (Atomic mass of Ca = 40.1 and atomic mass of Ba = 137.3)

- Ans**
- ☐ A. Chlorine (atomic mass = 35.5)
  - ☒ B. Strontium (atomic mass = 87.62)
  - ☐ C. Phosphorous (atomic mass = 30.97)
  - ☐ D. Nitrogen (atomic mass = 14.00)

**Q.78** What was the effect of controlled seasonal grazing by sheep in the alpine meadows of the Himalayan National Park?

- Ans**
- ☐ A. It destroyed the ground cover and led to soil erosion.
  - ☒ B. It removed older grass and allowed new grass to grow.
  - ☐ C. The National Park provided income and livelihood to the local shepherds.
  - ☐ D. It had no effect because sheep were few and the Park is vast.

**Q.79** Recently the Government of India has raised the age of marriage for girls to 21. What is the benefit of following this law?

- Ans**
- ☐ A. It will slow down population growth.
  - ☒ B. It will discourage teen pregnancies.
  - ☐ C. It will ensure girls have reached puberty.
  - ☐ D. It will help couples to be financially independent.

**Q.80** The magnitude of the magnetic field of a current carrying conductor increases with increase in \_\_\_\_\_.

- Ans**
- ☒ A. current
  - ☐ B. distance
  - ☐ C. resistance
  - ☐ D. Resistivity

Section : General Awareness and Current Affairs

**Q.81** The 'United Nations' theme for observance of Women's Day 2022 was \_\_\_\_\_.

- Ans**
- ☐ A. An Equal World is an Enabled World
  - ☐ B. Think Equal, Build Smart, Innovate for Change
  - ☒ C. Gender Equality Today for a Sustainable Tomorrow
  - ☐ D. Women in Leadership: Achieving an Equal Future in a Covid-19 World

**Q.82** Which of the following keywords best defines the existence of more than one level of government in the country?

- Ans**
- ☒ A. Federalism
  - ☐ B. Deliberative democracy
  - ☐ C. Dictatorship
  - ☐ D. Totalitarianism

**Q.83** Who is the head of the Nyaya Panchayat?

- Ans**
- ☐ A. Chairman
  - ☒ B. Sarpanch
  - ☐ C. BDO
  - ☐ D. Block Pramukh

**Q.84** According to the National Commission for Protection of Child Rights draft regulatory guidelines 2022, employment of children in the entertainment industry requires producers to obtain permission from which district authority while engaging a child actor?

- Ans**
- ☐ A. District Welfare Officer
  - ☐ B. Superintendent of Police
  - ☒ C. District Magistrate
  - ☐ D. District Judge

**Q.85** The Delhi Durbar \_\_\_\_\_ marked the succession of King George V and in this Durbar, the King declared that Capital of India will be transferred from Calcutta to Delhi.

- Ans**
- ☐ A. 1877
  - ☐ B. 1903
  - ☐ C. 1910
  - ☒ D. 1911

**Q.86** India with its area of 3.28 million km<sup>2</sup> accounts for 2.4 per cent of the world's land surface area and stands as the \_\_\_\_\_ largest country in the world.

- Ans**
- ☐ A. fifth
  - ☐ B. sixth
  - ☒ C. seventh
  - ☐ D. eighth

**Q.87** The western coastal plains are an example of \_\_\_\_\_ coastal plains.

- Ans**
- ☐ A. narrow
  - ☐ B. wide
  - ☐ C. dry
  - ☒ D. submerged

**Q.88** Which of the following historical places is associated with the birth of Jesus Christ?

- Ans**
- ☐ A. Byzantium
  - ☒ B. Bethlehem
  - ☐ C. Vatican City
  - ☐ D. Mount Tabor

**Q.89** Which of the following bills presented along with the Annual Financial Statement provides details on the imposition, abolition, remission, alteration or regulation of taxes proposed in the Budget in India?

- Ans**
- ☐ A. Ordinary Bill
  - ☒ B. Finance Bill
  - ☐ C. Money Bill
  - ☐ D. Ordinance Replacing Bill

**Q.90** 'Beating the Retreat' officially denotes the end of which National Festival of India?

- Ans**
- ☐ A. Independence Day
  - ☒ B. Republic Day
  - ☐ C. Gandhi Jayanti
  - ☐ D. Constitution Day

**Q.91** Excess of government's revenue expenditure over revenue receipts is termed as \_\_\_\_\_.

- Ans**
- ☒ A. revenue deficit
  - ☐ B. income tax
  - ☐ C. capital receipt
  - ☐ D. capital expenditure

**Q.92** The word 'secular' was added to the preamble of the Constitution of India in the \_\_\_\_\_ Amendment Act.

- Ans**
- ☐ A. First
  - ☐ B. Seventh
  - ☒ C. Forty-Second
  - ☐ D. Forty-Fourth

**Q.93** Towards the close of the summer season, pre-monsoon showers are common, especially in Kerala and Karnataka. These showers are referred to as \_\_\_\_\_.

- Ans**
- ☐ A. Grape showers
  - ☒ B. Mango showers
  - ☐ C. Papaya showers
  - ☐ D. Orange showers

**Q.94** Who was India's first Minister of Labour?

- Ans**
- ☒ A. Jagjivan Ram
  - ☐ B. Cooverji Hormusji Bhabha
  - ☐ C. Rafi Ahmed Kidwai
  - ☐ D. Amrit Kaur

**Q.95** In which year did ISRO launch EOS-04, INS-2TD and INSPIRESat-1 satellites?

- Ans**
- ✓ A. 2022
  - ✗ B. 2021
  - ✗ C. 2020
  - ✗ D. 2019

**Q.96** Which of the following is a COVID-19 Omicron hybrid strain, which was found in April 2022?

- Ans**
- ✓ A. XE
  - ✗ B. ZE
  - ✗ C. XX
  - ✗ D. FE

**Q.97** In which year was India's first National Air Sports Policy (NASP) released by the Ministry of Civil Aviation?

- Ans**
- ✓ A. 2022
  - ✗ B. 2021
  - ✗ C. 2019
  - ✗ D. 2017

**Q.98** As of July 2022, who is the highest wicket-taker in the history of the ICC Women's Cricket World Cup?

- Ans**
- ✗ A. Mithali Raj
  - ✓ B. Jhulan Goswami
  - ✗ C. Shafali Verma
  - ✗ D. Harmanpreet Kaur

**Q.99** Which is the first Indian language that was given the status of 'classical language' by the Ministry of Culture, Government of India?

- Ans**
- ✓ A. Tamil
  - ✗ B. Malayalam
  - ✗ C. Odia
  - ✗ D. Kannada

**Q.100** Which Ministry of the Government of India announced the Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY) in the year 2014?

- Ans**
- ✗ A. Ministry of Micro, Small and Medium Enterprises
  - ✗ B. Ministry of Finance
  - ✗ C. Ministry of Home Affairs
  - ✓ D. Ministry of Rural Development





# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 26/09/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** In a seminar, the number of participants in subjects A, B and C are 96, 160 and 224, respectively. Find the minimum number of rooms required, if in each room the same number of participants are seated and all participants in a room are from the same subject.

- Ans**
- ☒ A. 12
  - ☒ B. 15
  - ☐ C. 24
  - ☐ D. 32

**Q.2** The sum of the interior angles of a quadrilateral is equal to:

- Ans**
- ☐ A.  $180^\circ$
  - ☒ B.  $360^\circ$
  - ☐ C.  $270^\circ$
  - ☐ D.  $390^\circ$

**Q.3** If the cost price of an article is ₹800 and if a 15% loss is incurred on selling the article, find the selling price.

- Ans**
- ☐ A. ₹760
  - ☐ B. ₹780
  - ☒ C. ₹680
  - ☐ D. ₹860

**Q.4** 2250 m of wire is used to fence a rectangular plot in three rounds. The length of the plot exceeds the breadth by 5 m. What is the length of the plot?

- Ans**
- ☐ A. 215 m
  - ☐ B. 210 m
  - ☐ C. 185 m
  - ☒ D. 190 m

**Q.5** A boat goes 30 km upstream and 44 km downstream in a total of 10 hours. It also goes 40 km upstream and 55 km downstream in a total of 13 hours. The speed of the stream is:

- Ans**
- ☒ A. 3 km/h
  - ☐ B. 5 km/h
  - ☐ C. 2 km/h
  - ☐ D. 4 km/h

Q.6  $\left[ \{(54.36 \times 0.4) + 0.256\} \div \sqrt{121} \right]$  equals:

- Ans
- ☐ A. 22
  - ☐ B. 11
  - ☒ C. 2
  - ☐ D. 1

Q.7 A sells an article to B at a gain of 16%. B sells it to C at a loss of 15% and C sells it to D at a gain of 20%. If the difference between the profits earned by C and A is ₹248, then the loss (in ₹) incurred by B is:

- Ans
- ☐ A. 1,040
  - ☐ B. 1,150
  - ☒ C. 1,160
  - ☐ D. 1,200

Q.8 AD and BC are two poles, that are respectively 30 metres and 15 metres tall, and both stand upright in a playground. A and B, respectively the feet of the two poles AD and BC, are 36 metres apart and  $\overline{CE} \perp \overline{BA}$ , intersecting  $\overline{AD}$  at E. Find the ratio of the area of  $\triangle DEC$  to the area of the rectangle ABCE.

- Ans
- ☐ A. 2 : 1
  - ☒ B. 1 : 2
  - ☐ C. 3 : 1
  - ☐ D. 1 : 3

Q.9 The given table shows the number of people of various age groups visiting a park in a locality. Find the modal age (in years) of the visitors (rounded off to one decimal place).

| Age (years) | Number of persons |
|-------------|-------------------|
| 0 - 10      | 4                 |
| 10 - 20     | 14                |
| 20 - 30     | 18                |
| 30 - 40     | 23                |
| 40 - 50     | 27                |
| 50 - 60     | 16                |
| 60 - 70     | 8                 |

- Ans
- ☐ A. 43.7
  - ☐ B. 47.2
  - ☒ C. 42.7
  - ☐ D. 42.1

Q.10  $9(x)$ ,  $x + 6$ ,  $7(x) - 3$  and  $y$  are in proportion when  $x = 3$ . Find the value of  $y$ .

- Ans
- ☐ A. 54
  - ☐ B. 45
  - ☒ C. 6
  - ☐ D. 63

Q.11 John has a cuboidal box whose length, breadth and height are in the ratio 2 : 3 : 5. If the length, the breadth and the height of this box are each increased by 100% to make a new box, then the volume of the new box is how many times the volume of the old box?

- Ans
- ☒ A. 8 times
  - ☐ B. 7 times
  - ☐ C. 9 times
  - ☐ D. 6 times



**Q.12** 44, 96 and 184, when divided by a number  $x$ , leaves the same remainder in each case. The largest value of  $x$  is:

- Ans**
- ☒ A. 3
  - ☒ B. 4
  - ☒ C. 6
  - ☒ D. 8

**Q.13** Ram's salary increased by 12% and then decreased by 8%. Find the overall percentage change in his salary.

- Ans**
- ☒ A. 3.04% increase
  - ☒ B. 3.04% decrease
  - ☒ C. 3.4% decrease
  - ☒ D. 3.4% increase

**Q.14** Simplify  $(x + 2)(2x + 5)(x - 4) + x^2 + 5x - 12$ .

- Ans**
- ☒ A.  $x^3 + 2x^2 - 21x - 52$
  - ☒ B.  $2x^3 + 2x^2 - 21x - 52$
  - ☒ C.  $2x^3 + x^2 - 21x - 52$
  - ☒ D.  $2x^3 + 2x^2 - 21x - 12$

**Q.15** If a sum of ₹80,000 is invested for a year at 4% per annum compounded half yearly, then find the compound interest.

- Ans**
- ☒ A. ₹3,232
  - ☒ B. ₹2,323
  - ☒ C. ₹5,252
  - ☒ D. ₹2,525

**Q.16** The value of  $(1 + \cot^2 \theta)(1 + \cos \theta)(1 - \cos \theta) + (1 - \sin \theta)(1 + \sin \theta)(1 + \tan^2 \theta)$  is:

- Ans**
- ☒ A. 4
  - ☒ B. 1
  - ☒ C. 0
  - ☒ D. 2

**Q.17** A man travelled the first 200 km at a speed of 50 km/h, the next 300 km at a speed of  $x$  km/h and the final 280 km at a speed of 80 km/h. If his average speed for the whole journey is 52 km/h, then the value of  $x$  is:

- Ans**
- ☒ A. 36
  - ☒ B. 40
  - ☒ C. 42
  - ☒ D. 45

**Q.18** The data below gives the number of wickets taken by a bowler in 10 different matches. Find the mode of the data.

3, 4, 6, 3, 1, 3, 5, 4, 2, 2.

- Ans**
- ☒ A. 2
  - ☒ B. 3
  - ☒ C. 4
  - ☒ D. 6

Q.19 Find the roots of the quadratic equation  $x^2 + 30x + 104 = 0$

- Ans
- ☒ A. 14, 16
  - ☒ B. 12, 18
  - ☒ C. 4, 26
  - ☒ D. -4, -26

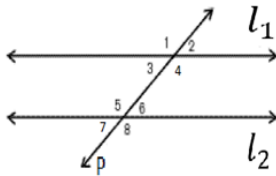
Q.20 Express  $4.\overline{142}$  in the form  $\frac{p}{q}$ , where p and q are integers and  $q \neq 0$ .

- Ans
- ☒ A.  $\frac{4136}{999}$
  - ☒ B.  $\frac{4138}{999}$
  - ☒ C.  $\frac{4140}{999}$
  - ☒ D.  $\frac{4142}{999}$

Q.21 The sum of three consecutive numbers is 177. The mean of these three numbers is:

- Ans
- ☒ A. 58
  - ☒ B. 59
  - ☒ C. 60
  - ☒ D. 57

Q.22 In the given figure,  $l_1 \parallel l_2$  and p is their transversal with angle 4 =  $5x+35$  and angle 7 =  $45^\circ$ . Find the value of x.



- Ans
- ☒ A.  $10^\circ$
  - ☒ B.  $20^\circ$
  - ☒ C.  $40^\circ$
  - ☒ D.  $45^\circ$

Q.23 If  $0.72\overline{45} = \frac{a}{b}$ , where the HCF of a and b is 1, then what is the value of (b - a)?

- Ans
- ☒ A. 113
  - ☒ B. 313
  - ☒ C. 303
  - ☒ D. 606

**Q.24** An electric pump can fill a tank in 5 hours. Due to a leakage in the tank, it takes  $7\frac{1}{2}$  hours to fill the tank. How much time will this leak take to empty the full tank if water does not get in or out of the tank through any other point during this period?

- Ans**
- ☒ A. 30 hours
  - ☒ B. 25 hours
  - ☒ C. 20 hours
  - ☒ D. 15 hours

**Q.25** If  $\alpha$  and  $\beta$  are the roots of the equation  $2x^2 - 3x - 5 = 0$ , then the quadratic equation whose roots are  $\frac{\alpha}{\beta}$  and  $\frac{\beta}{\alpha}$  is:

- Ans**
- ☒ A.  $10x^2 - 29x - 10 = 0$
  - ☒ B.  $10x^2 - 29x + 10 = 0$
  - ☒ C.  $10x^2 + 29x - 10 = 0$
  - ☒ D.  $10x^2 + 29x + 10 = 0$

### Section : General Intelligence and Reasoning

**Q.26** Three statements are given followed by two conclusions numbered I and II. You have to take the statements to be true, even if they seem to be at variance with commonly known facts and decide which of the conclusions logically follow(s) from the statements.

**Statements:**

Some Trees are Bushes.  
All Bushes are Leaves.  
Some Leaves are Green.

**Conclusions:**

(I) Some Bushes are Green.  
(II) Some Trees are Leaves.

- Ans**
- ☒ A. Only conclusion (I) follows.
  - ☒ B. Only conclusion (II) follows.
  - ☒ C. Both conclusions (I) and (II) follow.
  - ☒ D. Neither conclusion (I) nor (II) follows.

**Q.27** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. EXAMPLE: 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(10, 150, 3)  
(8, 80, 2)

- Ans**
- ☒ A. (10, 401, 9)
  - ☒ B. (12, 197, 4)
  - ☒ C. (18, 270, 3)
  - ☒ D. (11, 188, 6)

**Q.28** In a certain code language, 'TONE' is written as 'VPMC' and 'FIRE' is written as 'HIQC'. How will 'CITY' be written in that language?

- Ans**
- ☒ A. EGRX
  - ☒ B. EJSW
  - ☒ C. EIUZ
  - ☒ D. EHPU

**Q.29** K, L, M, N, O and P are six people sitting around a circular table facing the centre of the table at a wedding. K is the immediate neighbour of P and is seated second to the right of O. O is seated to the immediate left of M. N is an immediate neighbour of both P and L. Who is seated second to the right of L?

- Ans**
- ☒ A. N
  - ☒ B. M
  - ☒ C. P
  - ☒ D. O

**Q.30** If in each of the following words, each letter is changed to the previous letter in the English alphabetical order, how many words thus formed will have a vowel?

JUST, RIME, BEST, FAST, LOST, TIME

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.31** Select the number from among the given options that can replace the question mark (?) in the following series.

5, 6, 14, 41, ?

- Ans**
- ☒ A. 169
  - ☒ B. 105
  - ☒ C. 188
  - ☒ D. 95

**Q.32** G, H, I, J, K and L live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it is numbered 2 and so on till the topmost floor is numbered 6. Only one person lives above G. Only two people live between G and K. Neither J nor H live on the lowermost floor. I does not live on an odd-numbered floor. J lives immediately above K and immediately below H. Who lives on floor number 4?

- Ans**
- ☒ A. H
  - ☒ B. J
  - ☒ C. K
  - ☒ D. L

**Q.33** Three statements are followed by three conclusions numbered I, II and III. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts. Decide which of the given conclusions logically follow(s) from the given statements.

**Statements:**

Few calciums are aldehydes  
All aldehydes are rubidiums  
All rubidiums are hydrogens

**Conclusions:**

(I) Some hydrogens are aldehydes  
(II) Some rubidiums are aldehydes  
(III) All aldehydes are hydrogens

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Either conclusion I or III follows
  - ☒ D. All conclusions I, II and III follow

**Q.34** Six friends M, N, O, P, Q and R have their tests on a different day of week starting from Monday and ending on Saturday of the same week. Only two friends are having their tests before M's test. Only four friends are having their tests after Q's test. Only O has the test between the tests of P and N. Who amongst the following has the test on Monday?

- Ans** ☒ A. R  
☐ B. O  
☐ C. P  
☐ D. N

**Q.35** Which of the following numbers will replace the question mark (?) in the given series?

50 42 34 26 ?

- Ans** ☐ A. 16  
☒ B. 18  
☐ C. 14  
☐ D. 17

**Q.36** Three statements are given followed by two conclusions numbered I and II. You have to take the statements to be true, even if they seem to be at variance with commonly known facts and decide which of the conclusions logically follow(s) from the statements.

**Statements:**

Some Beaches are Sands.  
Some Sands are Deserts.  
All Beaches are Oceans.

**Conclusions:**

(I) Some Deserts are Beaches.  
(II) Some Sands are Oceans.

- Ans** ☐ A. Only conclusion (I) follows.  
☒ B. Only conclusion (II) follows.  
☐ C. Both conclusions (I) and (II) follow.  
☐ D. Neither conclusion (I) nor (II) follows.

**Q.37** In this question, the statement is followed by four conclusions. Find out which conclusion is NOT true based on the given statement.

Statement :  $P \geq T = W > L < S \leq B$

- Ans** ☐ A.  $T > L$   
☒ B.  $P \leq W$   
☐ C.  $L < B$   
☐ D.  $P > L$

**Q.38** Select the set in which the numbers are related in the same way as are the numbers of the following sets.  
(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding / subtracting / multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

(13, 16, 21)  
(28, 34, 45)

- Ans** ☒ A. (37, 18, 46)  
☐ B. (35, 12, 59)  
☐ C. (64, 26, 90)  
☐ D. (72, 45, 27)

**Q.39** Amongst six friends A, B, C, D, E and F, each has a different height. C is taller than only two other friends. D is shorter than only one friend. B is shorter than C but taller than E. A is shorter than F. Who is the second shortest among all the friends?

- Ans**
- ☒ A. E
  - ☒ B. B
  - ☒ C. A
  - ☒ D. F

**Q.40** Eight friends, A, B, C, D, E, F, G and H, are sitting around a circular table facing the centre (but not necessarily in the same order). Only D is sitting between A and E. E is sitting second to the right of F. Only B is sitting between C and G. Only F is sitting between G and H.

What is F's position with respect to D?

- Ans**
- ☒ A. Third to the right
  - ☒ B. Third to the left
  - ☒ C. To the immediate left
  - ☒ D. To the immediate right

**Q.41** If '+' means '-', '-' means '+', '÷' means '×', and '×' means '÷', what will be the value of the following expression?  
[[{(12 - 2) × (3 ÷ 2)} + (12 × 4)]

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.42** In a particular language, AC is written as 13 and FG is written as 67. How will HI be written in that language?

- Ans**
- ☒ A. 73
  - ☒ B. 75
  - ☒ C. 81
  - ☒ D. 89

**Q.43** If 2 is added to each odd digit and 1 is subtracted from each even digit in the number 2149763, which of the following digits will appear the most in the new number thus formed?

- Ans**
- ☒ A. 3
  - ☒ B. 1
  - ☒ C. 9
  - ☒ D. 5

**Q.44** In a certain code language, 'HOTEL' is coded as 'DQPGH' and 'BANKS' is coded as 'XCJMO'. How will 'LOGIC' be coded in that language?

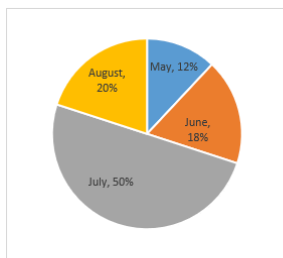
- Ans**
- ☒ A. PMKGG
  - ☒ B. HQCKY
  - ☒ C. PQKKG
  - ☒ D. HMCgy

**Q.45** In which year can the calendar of the year 2024 be used again?

- Ans**
- ☒ A. 2052
  - ☒ B. 2050
  - ☒ C. 2048
  - ☒ D. 2051

**Q.46** Study the given pie-chart and answer the question that follows.

The pie-chart depicts the percentage of passes issued in 4 months, out of the total number of passes issued (which is 50) in these 4 months together.



The number of passes issued to females in May and June was 3 and 5, respectively. What was the total number of passes issued to males in May and June together?

- Ans**
- ☒ A. 7
  - ☐ B. 5
  - ☐ C. 6
  - ☐ D. 8

**Q.47** Suraj starts walking 9 m towards the east, then turns left. He walks 5 m, turns right and again walks 5 m. Then he turns right and walks 8 m. He then again turns right and walks 5 m. Again, he turns right and walks 3 m. Which direction is he facing now? (All turns are 90 degree turns only)

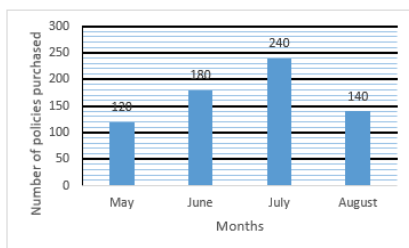
- Ans**
- ☐ A. South
  - ☐ B. West
  - ☐ C. East
  - ☒ D. North

**Q.48** A certain number of people are sitting in a straight line facing north. T is sitting to the immediate left of S. Only two people are sitting to the left of P. Only two people are sitting between P and S. T is third to the left of the person sitting at the extreme right end. How many people are sitting in the row?

- Ans**
- ☐ A. 6
  - ☐ B. 5
  - ☐ C. 7
  - ☒ D. 8

**Q.49** Study the given bar-graph and answer question that follows.

The bar-graph depicts the number of policies purchased in May, June, July and August.



The number of policies purchased in July increased by approximately what per cent as compared to June?

- Ans**
- ☐ A. 66%
  - ☒ B. 33%
  - ☐ C. 75%
  - ☐ D. 40%

**Q.51** In this question, a statement is followed by two conclusions numbered I and II. You have to assume everything in the statement to be true and decide which of them logically follow(s) beyond a reasonable doubt from the information given in the statement.

Statement:

Before leaving for college, Sita is learning to cook basic meals from her mother.

Conclusions:

I. Sita didn't know how to cook.

II. Sita wants to throw a party for her friends before leaving for college.

- Ans**
- ✓ A. Only conclusion I follows
  - ✗ B. Only conclusion II follows
  - ✗ C. Neither conclusion I nor II follows
  - ✗ D. Both conclusions I and II follow

**Q.52** The position of how many letters will remain unchanged if each of the letters in the word 'EQUIVOCAL' is arranged in alphabetical order?

- Ans**
- ✗ A. One
  - ✓ B. Two
  - ✗ C. Three
  - ✗ D. Four

**Q.53** Which of the following terms will replace the question mark (?) in the given series to make it logically complete?

L 16, M 20, O 24, R 28, V 32, ?

- Ans**
- ✗ A. A 34
  - ✗ B. Z 36
  - ✓ C. A 36
  - ✗ D. Z 34

**Q.54** Sohan is facing north-west. He turns 90° clockwise, then 360° anticlockwise and then 90° clockwise. In which direction is Sohan facing now?

- Ans**
- ✗ A. North-east
  - ✓ B. South-east
  - ✗ C. North-west
  - ✗ D. South-west

**Q.55** Which of the following options is the closest approximate value which will come in place of the question mark (?) in the following equation?

$12.01 \div 5.99 + 13.89 - 3.002 = ?$

- Ans**
- ✓ A. 13
  - ✗ B. 9
  - ✗ C. 18
  - ✗ D. 24

#### Section : General Science

**Q.56** The current I flowing through an electric circuit of resistance 10 ohm is 5 amp. What is the heat generated per second?

- Ans**
- ✓ A. 250 joule
  - ✗ B. 50 joule
  - ✗ C. 250 calorie
  - ✗ D. 50 calorie



**Q.57** Every germ cell will take one chromosome from each pair and these may be of either maternal or paternal origin. When two germ cells combine, they will restore the normal number of chromosomes in the progeny, ensuring

the stability of the DNA of the species. Such a mechanism of inheritance is explained in:

- Ans**
- ☐ A. mutation in species
  - ☐ B. variation in chromosomal number
  - ☐ C. speciation of organisms
  - ☒ D. the results of the Mendel's experiments

**Q.58** The hearts muscles contract and relax rhythmically, this rhythmic contraction followed by its relaxation constitute a heartbeat. Which instrument is used to measure heartbeats?

- Ans**
- ☒ A. Stethoscope
  - ☐ B. Sphygmomanometer
  - ☐ C. Oximeter
  - ☐ D. Potometer

**Q.59** Which of the following gases is evolved when limestone undergoes thermal decomposition?

- Ans**
- ☐ A. Oxygen
  - ☐ B. Hydrogen
  - ☐ C. Carbon monoxide
  - ☒ D. Carbon dioxide

**Q.60** Dobereiner tried to arrange the elements with similar properties into groups. For this he identified some groups having how many elements?

- Ans**
- ☐ A. 2
  - ☐ B. 8
  - ☒ C. 3
  - ☐ D. 4

**Q.61** What is the net resistance of two resistors 10 ohm and 40 ohm connected in parallel?

- Ans**
- ☐ A. 60 ohm
  - ☐ B. 1/60 ohm
  - ☒ C. 8 ohm
  - ☐ D. 1/8 ohm

**Q.62** In Flemming's left hand rule; the thumb, fore finger and centre finger respectively represent,

- Ans**
- ☒ A. Direction of force experienced, magnetic field and current
  - ☐ B. Direction of magnetic field, force experienced and current
  - ☐ C. Direction of current, magnetic field and force experienced
  - ☐ D. Direction of magnetic field, current and force experienced

**Q.63** Which of the following materials are NOT biodegradable?

- Ans**
- ☐ A. A cardboard box and a paper bag
  - ☐ B. A woollen blanket and a jute rope
  - ☐ C. A leather belt and a canvas shoe
  - ☒ D. Glass dish and plastic covers

**Q.64** In plants during the spring season, food material stored in the roots usually moves into the \_\_\_\_\_.

- Ans**
- ☐ A. leaves
  - ☐ B. fruits
  - ☐ C. flowers
  - ☒ D. buds

**Q.65** Compounds of carbon containing carbon-carbon double bond are known as:

- Ans**
- ☐ A. saturated compounds
  - ☐ B. alkanes
  - ☒ C. unsaturated compounds
  - ☐ D. alkynes

**Q.66** To get rid of pain in the stomach during indigestion, people use:

- Ans**
- ☐ A. gastric juice
  - ☐ B. lemon juice
  - ☒ C. milk of magnesia
  - ☐ D. tomato juice

**Q.67** The radius of curvature of a spherical mirror is 40 cm. Its focal length is \_\_\_\_\_ cm.

- Ans**
- ☒ A. 20
  - ☐ B. 40
  - ☐ C. 30
  - ☐ D. 10

**Q.68** The power input to the circuit when charge of Q coulomb is flowing for t seconds for a potential difference of V volt is \_\_\_\_\_.

- Ans**
- ☐ A.  $P = VQt$
  - ☐ B.  $P = Qt/V$
  - ☒ C.  $P = VQ/t$
  - ☐ D.  $P = Vt/Q$

**Q.69** What type of forest underwent a remarkable recovery with the active and willing participation of the local community in the Arabari forest range of Midnapore district?

- Ans**
- ☐ A. Teak forests
  - ☐ B. Neem forests
  - ☒ C. Sal forests
  - ☐ D. Sandalwood forests

**Q.70** Newlands law of Octaves was applicable only up to element \_\_\_\_\_.

- Ans**
- ☒ A. Ca
  - ☐ B. K
  - ☐ C. Na
  - ☐ D. Mg

Q.71 Blood coagulation occurs with the help of:

- Ans
- ☐ A. red blood cells
  - ☐ B. blood plasma
  - ☐ C. white blood cells
  - ☒ D. platelet cells

Q.72 Suppose you are given three mediums, A, B, and C, with refractive indexes 1.47, 1.33, and 1.44 respectively. If the velocity of light in A, B, and C are  $V_A$ ,  $V_B$ , and  $V_C$  respectively, then which of the following is true?

- Ans
- ☐ A.  $V_A > V_B > V_C$
  - ☐ B.  $V_C > V_B > V_A$
  - ☒ C.  $V_B > V_C > V_A$
  - ☐ D.  $V_A > V_C > V_B$

Q.73 Which of the following solutions has the lowest pH value?

- Ans
- ☒ A. Tomato juice
  - ☐ B. Coffee
  - ☐ C. Saliva (before a meal)
  - ☐ D. Saliva (after a meal)

Q.74 Sieve plates are found in the \_\_\_\_\_.

- Ans
- ☐ A. phloem parenchyma cells
  - ☐ B. phloem fiber cells
  - ☒ C. phloem tube cells
  - ☐ D. phloem companion cells

Q.75 Match the columns.

| Group-I     | Group-II                |
|-------------|-------------------------|
| I. Mouth    | A. Chewing of food      |
| II. Teeth   | B. Rolling of food      |
| III. Tongue | C. Intake of whole food |
| IV. Saliva  | D. Swallowing of food   |

- Ans
- ☐ A. I-A; II-B; III-C; IV-D
  - ☒ B. I-C; II-A; III-B; IV-D
  - ☐ C. I-B; II-C; III-D; IV-C
  - ☐ D. I-A; II-D; III-A; IV-A

**Q.76** The colour of the clear sky is blue due to \_\_\_\_\_ of light by particles in the atmosphere of size \_\_\_\_\_ than the wavelength of visible light.

- Ans**
- ☐ A. refraction, larger
  - ☐ B. scattering, larger
  - ☐ C. refraction, smaller
  - ☒ D. scattering, smaller

**Q.77** When lead nitrate is mixed with potassium iodine, the precipitate formed is \_\_\_\_\_.

- Ans**
- ☐ A. yellow colour potassium nitrate
  - ☒ B. yellow colour lead iodide
  - ☐ C. colourless lead iodide
  - ☐ D. black colour potassium nitrate

**Q.78** In the Fleming's left hand rule index finger indicates the direction of the:

- Ans**
- ☐ A. magnetic force
  - ☐ B. electric current
  - ☒ C. magnetic field
  - ☐ D. motion of conductor

**Q.80** An imaginary line passing through principal focus, centre of curvature and pole of a Spherical Mirror is known as \_\_\_\_\_.

- Ans**
- ☐ A. radius of curvature
  - ☐ B. focal length
  - ☒ C. principal axis
  - ☐ D. focal plane

#### Section : General Awareness and Current Affairs

**Q.81** Which Act provided constitutional status to the Panchayati Raj institutions?

- Ans**
- ☐ A. 73rd Constitutional Amendment Act 1991
  - ☐ B. 73rd Constitutional Amendment Act 1990
  - ☐ C. 73rd Constitutional Amendment Act 1993
  - ☒ D. 73rd Constitutional Amendment Act 1992

**Q.82** Under the Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB-PMJAY), which is being implemented by the National Health Authority (NHA) in partnership with state governments, a health cover of up to what amount per family per year for secondary and tertiary care hospitalisation is being provided, as on August 2022?

- Ans**
- ☐ A. ₹2 lakhs
  - ☐ B. ₹4 lakhs
  - ☒ C. ₹5 lakhs
  - ☐ D. ₹6 lakhs

**Q.83** Which state government in 2022 has proposed to offer identity cards to six religious minority communities, which they can submit to avail benefits of the schemes meant for the minorities?

- Ans**
- ✓ **A. Assam**
  - ✗ **B. Nagaland**
  - ✗ **C. Haryana**
  - ✗ **D. Odisha**

**Q.84** The Santosh Trophy is related to which of the following sports in India?

- Ans**
- ✗ **A. Cricket**
  - ✗ **B. Chess**
  - ✓ **C. Football**
  - ✗ **D. Badminton**

**Q.85** Which of the following classical languages is known as the 'Italian of the East' as all words in this language end with vowel sound?

- Ans**
- ✗ **A. Marathi**
  - ✓ **B. Telugu**
  - ✗ **C. Malayalam**
  - ✗ **D. Kannada**

**Q.86** Who among the following won her maiden Commonwealth Games gold medal in 62 kg Wrestling at the Commonwealth Games 2022?

- Ans**
- ✓ **A. Sakshi Malik**
  - ✗ **B. Vinesh Phogat**
  - ✗ **C. Babita Kumari**
  - ✗ **D. Kavita Devi**

**Q.87** According to \_\_\_\_\_, the Parliament amended the Constitution (42nd Constitutional Amendment) and inserted 'Secular', 'Socialist', and 'Integrity' in the Preamble of the Constitution.

- Ans**
- ✗ **A. Article 358**
  - ✓ **B. Article 368**
  - ✗ **C. Article 359**
  - ✗ **D. Article 366**

**Q.88** The Steel Authority of India Limited was earlier known as \_\_\_\_\_.

- Ans**
- ✗ **A. National Steel Limited (NSL)**
  - ✗ **B. Indian Steel Limited (ISL)**
  - ✓ **C. Hindustan Steel Limited (HSL)**
  - ✗ **D. Bharat Steel Limited (BSL)**

**Q.89** The Reserve Bank of India was nationalised with effect from 1st January, \_\_\_\_\_.

- Ans**
- ✓ **A. 1949**
  - ✗ **B. 1950**
  - ✗ **C. 1952**
  - ✗ **D. 1954**

**Q.90** What is the term used for an assessment of an individual's past credit history, which is usually shown as a number between 300 and 900?

- Ans**
- ☐ A. Status Rating
  - ☐ B. Trust Rating
  - ☒ C. Credit Rating
  - ☐ D. Accept Rating

**Q.91** The Kamet peak of Himalaya is located in which state of India?

- Ans**
- ☐ A. Arunachal Pradesh
  - ☐ B. Sikkim
  - ☒ C. Uttarakhand
  - ☐ D. Himachal Pradesh

**Q.92** Select the correct sequence of states according to the given sequence of cultural festivals celebrated in the respected states.

Hampi Dance Utsav, Mamallapuram Dance Utsav, Nishagandhi Festival, Taj Mahotsav

- Ans**
- ☐ A. Tamil Nadu, Karnataka, Kerala, Uttar Pradesh
  - ☐ B. Kerala, Tamil Nadu, Karnataka, Uttar Pradesh
  - ☐ C. Uttar Pradesh, Tamil Nadu, Kerala, Karnataka
  - ☒ D. Karnataka, Tamil Nadu, Kerala, Uttar Pradesh

**Q.93** Where was Swami Mahavir born?

- Ans**
- ☐ A. Lumbini
  - ☐ B. Pataliputra
  - ☒ C. Kundagram
  - ☐ D. Pavapuri

**Q.94** Under Abdul Kalam Technology Innovation National Fellowship funded by the Science and Engineering Research Board (SERB), the fellowship amount is \_\_\_\_\_ per month in addition to regular income research grant of ₹15 lakh per annum and an overhead of ₹1 lakh per annum.

- Ans**
- ☒ A. ₹25,000
  - ☐ B. ₹30,000
  - ☐ C. ₹40,000
  - ☐ D. ₹50,000

**Q.95** Who received the CSIR Young Scientist Award in 2021 (a scheme of Awards for Young Scientists in the CSIR system to promote excellence in various fields of science and technology)?

- Ans**
- ☐ A. Venkateswarlu M
  - ☐ B. Dr. Jeemon Panniyammakal
  - ☒ C. Dr. K Giribabu
  - ☐ D. Debabrata Mandal

**Q.96** Which Indian state is made up of soft unconsolidated deposits and also known as the 'Molassis basin'?

- Ans**
- ☐ A. Arunachala Pradesh
  - ☐ B. Assam
  - ☐ C. Sikkim
  - ☒ D. Mizoram

**Q.97** India's services exports achieved above \_\_\_\_\_ billion for the first time during April-March 2021-22.

- Ans**
- ☐ A. \$110
  - ☐ B. \$500
  - ☒ C. \$250
  - ☐ D. \$1,000

**Q.98** The Western Ghats are locally known by which name in Maharashtra?

- Ans**
- ☐ A. Nilgiri
  - ☒ B. Sahyadri
  - ☐ C. Anaimalai
  - ☐ D. Cardamom

**Q.99** During the British rule in India, when did transfer of capital from Calcutta to Delhi take place?

- Ans**
- ☐ A. 1905
  - ☒ B. 1911
  - ☐ C. 1917
  - ☐ D. 1919

**Q.100** How many sessions of the Lok Sabha take place in a year?

- Ans**
- ☐ A. 2
  - ☒ B. 3
  - ☐ C. 4
  - ☐ D. 5





# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 26/09/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

Q.1 Simplify  $(3x + 4)^2 + (3x - 4)^2 + (3x + 4)(3x - 4)$ .

Ans ☒ A.  $27x^2 + 48x + 32$

☒ B.  $27x^2 - 24x + 16$

☒ C.  $27x^2 + 16$

☒ D.  $27x^2 - 16$

Q.2 Find the median of the given frequency distribution.

| Class Interval | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 |
|----------------|------|-------|-------|-------|-------|
| $f$            | 8    | 7     | 9     | 12    | 11    |

Ans ☒ A.  $\frac{215}{9}$

☒ B.  $\frac{265}{9}$

☒ C.  $\frac{85}{3}$

☒ D.  $\frac{88}{3}$

Q.3 A can complete a piece of work alone in 10 days and B can complete the same piece of work alone in 15 days. Working together, A, B and C can complete this work in  $4\frac{1}{2}$  days. If B does not work, while A and C work on alternate days, starting with C, then in how many days will the work be completed?

Ans ☒ A.  $13\frac{1}{9}$

☒ B. 13

☒ C.  $13\frac{1}{5}$

☒ D.  $12\frac{2}{3}$



**Q.4** The selling price of a sewing machine is ₹19,440. If it was sold at 8% profit, find its cost price.

- Ans**
- ✓ A. ₹18,000.00
  - ✗ B. ₹16,000.00
  - ✗ C. ₹17,595.20
  - ✗ D. ₹20,559.20

**Q.5** A solid right cylinder having a base of diameter 10 cm and height 2 cm is melted and recast into right cylindrical coins with a base diameter of 1 cm and a 0.2 cm thickness. Find the number of coins that can be made.

- Ans**
- ✓ A. 1000
  - ✗ B. 100
  - ✗ C. 10,000
  - ✗ D. 1001

**Q.6** Find the single percentage discount equivalent to three successive discounts of 30%, 20% and 10% respectively.

- Ans**
- ✗ A. 50.4%
  - ✓ B. 49.6%
  - ✗ C. 46.4%
  - ✗ D. 64.6%

**Q.7** Rani is elder to Rosy by 1 year, and Rosy is elder to Rimmy by 1 year. The sum of their ages is 48 years. What is Rosy's age?

- Ans**
- ✗ A. 15 years
  - ✓ B. 16 years
  - ✗ C. 17 years
  - ✗ D. 21 years

**Q.8** The diameter of a wheel is 63 cm. What is the distance covered by the wheel by making 100 revolutions? [Use  $\pi = \frac{22}{7}$ ]

- Ans**
- ✗ A. 99 m
  - ✓ B. 198 m
  - ✗ C. 28 m
  - ✗ D. 396 m

**Q.9** If the median and the mode of a set of data are 12 and 15, respectively, then find the value of thrice the mean of the same data set.

- Ans**
- ✗ A.  $\frac{35}{2}$
  - ✓ B.  $\frac{63}{2}$
  - ✗ C.  $\frac{33}{2}$
  - ✗ D.  $\frac{23}{2}$

Q.10 In a triangle ABC, which of the following statements is correct?

- Ans ☒ A. Side AB + Side BC > Side AC  
☒ B. Side AB + Side BC = Side AC  
☒ C. Side AB + Side BC < Side AC  
☒ D. Side AB + Side BC  $\geq$  Side AC

Q.11 The value of  $\frac{[(0.68)^2 + (0.32)^2 + 16 \times 0.0136]}{[(0.68)^2 - (0.32)^2] \div (0.3)^2}$  is:

- Ans ☒ A.  $\frac{1}{4}$   
☒ B.  $\frac{1}{2}$   
☒ C.  $\frac{3}{8}$   
☒ D.  $\frac{3}{5}$

Q.12 A sum of ₹10,000 amounts to ₹11,025 in 2 years at a certain rate of interest per annum, compounded annually. The rate of interest per annum is:

- Ans ☒ A. 6%  
☒ B. 4%  
☒ C. 3%  
☒ D. 5%

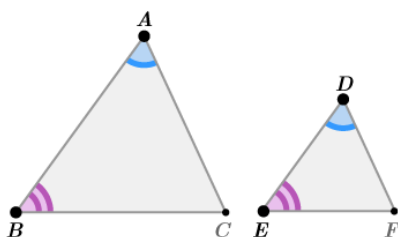
Q.13 If  $0.0\overline{216}$  is written as a fraction in lowest terms, then what is the difference between the denominator and the numerator of the fraction?

- Ans ☒ A. 179  
☒ B. 181  
☒ C. 183  
☒ D. 187

Q.14  $\left[ \left\{ (9261)^{\frac{1}{2}} \div 81^{\frac{1}{4}} \right\}^2 \times \sqrt[4]{1296} \right]$  equals:

- Ans ☒ A. 249  
☒ B. 147  
☒ C. 294  
☒ D. 174

Q.15 In the given figure,  $\triangle ABC$  is similar to  $\triangle DEF$ ; if AB = 6.5 cm, DE = 3.9 cm, and BC = 5.15 cm, find EF.



- Ans ☒ A. 3.09 cm  
☒ B. 3.00 cm  
☒ C. 3.90 cm  
☒ D. 4.12 cm

**Q.16** The LCM and the HCF of two numbers are 5005 and 77, respectively. When one of the two numbers is divided by 55, the quotient is 18 and the remainder is 11. The other number is:

- Ans**
- ☒ A. 330
  - ☒ B. 385
  - ☒ C. 418
  - ☒ D. 440

**Q.17** Find the sum of the roots of the quadratic equation  $x^2 + 19x + 60 = 0$ .

- Ans**
- ☒ A.  $1/19$
  - ☒ B.  $-19$
  - ☒ C. 19
  - ☒ D.  $-19/60$

**Q.18** Initially Ram had ₹4 with him and Shyam had ₹7 with him. Jatin gave each of Ram and Shyam an equal amount of money and after that the amounts Ram and Shyam had were in the ratio 7 : 9. How much money (in ₹) did Jatin give to each of Ram and Shyam?

- Ans**
- ☒ A. 5.50
  - ☒ B. 6.00
  - ☒ C. 6.50
  - ☒ D. 7.00

**Q.19** A can complete  $33\frac{1}{3}\%$  of a piece of work in 10 days and B can complete one-fourth of the same work in 30 days. A, B and C together can complete the same work in 12 days. In how many days will the work be completed if A works on all days, and is assisted by B and C on alternate days, starting with B assisting A on the first day?

- Ans**
- ☒ A.  $18\frac{2}{3}$
  - ☒ B.  $18\frac{4}{13}$
  - ☒ C.  $17\frac{1}{3}$
  - ☒ D.  $17\frac{3}{13}$

**Q.20** Which of the following represents a quadratic equation?

- Ans**
- ☒ A.  $(x + 3)(x - 4) = x^2 + 2x + 12$
  - ☒ B.  $(x + 2)(x + 2)(x - 1) = x^3 + 5x^2 + 6x + 4$
  - ☒ C.  $(3x + 4)x = 3x^2 + 16$
  - ☒ D.  $(x - 7)(x + 2) = (x - 2)(x)$

**Q.21**  $\sin^6 \theta + \cos^6 \theta$  can be simplified as:

- Ans**
- ☒ A.  $1 - \sin^2 \theta \cos^2 \theta$
  - ☒ B.  $1 + 3 \sin^2 \theta \cos^2 \theta$
  - ☒ C.  $1 + \sin^2 \theta \cos^2 \theta$
  - ☒ D.  $1 - 3 \sin^2 \theta \cos^2 \theta$

**Q.22** Which of the options below gives a pair of co-prime numbers?

- Ans**
- ☐ A. (196, 343)
  - ☐ B. (156, 234)
  - ☐ C. (228, 247)
  - ☒ D. (161, 192)

**Q.23** Ten years later, Ramesh will be twice as old as Rajiv and five years ago Ramesh was three times as old as Rajiv. Find the present age (in years) of Ramesh.

- Ans**
- ☒ A. 50
  - ☐ B. 20
  - ☐ C. 40
  - ☐ D. 60

**Q.24** If  $\left(\frac{32}{243}\right)^k = \frac{8}{27}$ , then  $k =$  \_\_\_\_\_.

- Ans**
- ☐ A.  $\frac{2}{3}$
  - ☒ B.  $\frac{3}{5}$
  - ☐ C.  $\frac{5}{3}$
  - ☐ D.  $\frac{3}{2}$

**Q.25** The ratio of A's salary to B's salary is 4 : 5. The ratio of B's salary to C's salary is 3 : 4. Find the ratio of A's salary to C's salary.

- Ans**
- ☐ A. 4 : 3
  - ☐ B. 5 : 4
  - ☒ C. 3 : 5
  - ☐ D. 4 : 5

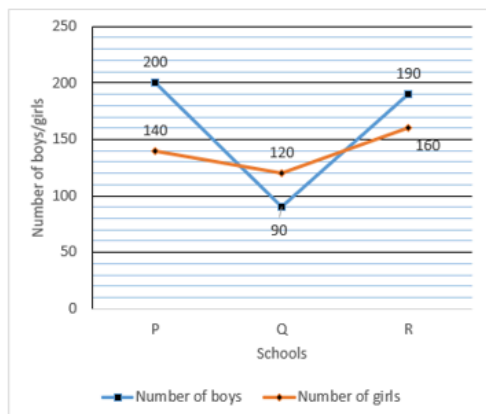
#### Section : General Intelligence and Reasoning

**Q.26** In a class test, a certain number of students got different ranks based on their marks. Anshu is ranked 19<sup>th</sup> from the top. 6 students are ranked after Anshu. How many total students gave the test?

- Ans**
- ☒ A. 25
  - ☐ B. 37
  - ☐ C. 26
  - ☐ D. 31

**Q.27** Study the given line graph and answer the following question.

The given line graph depicts the number of boys and girls in three schools (P, Q and R).



What is the average number of boys in the given three schools?

- Ans**
- ☒ A. 170
  - ☒ B. 160
  - ☒ C. 150
  - ☒ D. 140

**Q.28** Study the given letter series and answer the question that follows.

(Left) H A D W V Q T S P E R S T K E L M T (Right)

How many such vowels are there each of which is immediately preceded by a consonant and also immediately followed by a consonant?

- Ans**
- ☒ A. 4
  - ☒ B. 3
  - ☒ C. 2
  - ☒ D. 5

**Q.29** In a certain code language, 'SOLVE' is coded as 'QRJYC' and 'FENCE' is coded as 'DHLFC'. How will 'TASTE' be coded in that language?

- Ans**
- ☒ A. VXUQG
  - ☒ B. RXQQC
  - ☒ C. VDUWG
  - ☒ D. RDQWC

**Q.30** Vaishnavi starts walking towards the south. She walks 10 m, turns right and walks 5 m. She then turns right and walks for 3 m. Next, she again turns right and walks 10 m. Again, she takes a right and walks 8 m. Finally, she again turns right and walks 6 m. In which direction is she facing now? (All turns are 90 degree turns only)

- Ans**
- ☒ A. South
  - ☒ B. West
  - ☒ C. East
  - ☒ D. North

- Q.31** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/<br>Symbol | 6 | 8 | 4 | + | 5 | # | % | 2 | \$ | 1 | ^ | 7 | 9 | * | @ |
|-------------------|---|---|---|---|---|---|---|---|----|---|---|---|---|---|---|
| Code              | S | U | T | W | N | P | V | D | A  | Z | J | M | O | M | Y |

**Conditions:**

- (i) If the first and last elements are numbers, then the last element will be replaced by the symbol @.  
(ii) If the first element is a symbol, then the first element will be coded as ©.  
(iii) If both the first and second elements are numbers, then the third element will be coded as \*.

What will be the code for the following?

5 6 \* @ %

- Ans**  **A. NS\*YV**  
 **B. YVMNS**  
 **C. NSMVY**  
 **D. VYSNM**

- Q.32** Three statements are given followed by two conclusions numbered I and II. You have to take the statements to be true, even if they seem to be at variance with commonly known facts and decide which of the conclusions logically follow(s) from the statements.

**Statements:**

Some Rings are Ears.  
Some Rings are Fingers.  
All Ears are Noses.

**Conclusions:**

- (I) All Rings are Noses.  
(II) Some Fingers are Ears.

- Ans**  **A. Only conclusion (I) follows.**  
 **B. Only conclusion (II) follows.**  
 **C. Both conclusions (I) and (II) follow.**  
 **D. Neither conclusion (I) nor (II) follows.**

- Q.33** If '−' means '×', '×' means '+', '+' means '÷', '÷' means '−', what will come in place of the question mark (?) in the following equation?

$$5 - 5 + 6 \times 6 + 3 = ?$$

- Ans**  **A. 21**  
 **B. 22**  
 **C. 32**  
 **D. 35**

- Q.34** In this question, the statement is followed by four conclusions. Find out which conclusion is true based on the given statement:

Statement:  $K \geq U = N > Q < R = T \leq P$

- Ans**  **A.  $K > Q$**   
 **B.  $K = N$**   
 **C.  $T < R$**   
 **D.  $Q > U$**

- Q.35** How many 7s are there in the following sequence which is immediately followed by 1 and immediately preceded by 5?

2 7 3 5 7 1 5 7 3 5 7 1 9 7 3 5 7 1 7 3 6 5 7 1 8 1 4 7 3 5

- Ans**  **A. Five**  
 **B. Four**  
 **C. Three**  
 **D. Two**

**Q.36** If '+' means '÷', '÷' means '×', '×' means '+', and '-' means '-', what will come in place of the question mark (?) in the following equation?

$$45 + 9 - 4 \times 15 \div 2 = ?$$

- Ans**
- ☒ A. 30
  - ☒ B. 31
  - ☒ C. 32
  - ☒ D. 33

**Q.37** Select the option that is related to the fifth letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster and the fourth letter-cluster is related to the third letter-cluster.

NALAYAK : KAYALAN :: BEAUTY : YTUAEB :: POWERTY : ?

- Ans**
- ☒ A. TPWEROY
  - ☒ B. YRTEWOP
  - ☒ C. YTREWOP
  - ☒ D. WOPREYT

**Q.38** A statement is followed by two conclusions. Find out which conclusion is true based on the given statement.

**Statement:**

$$L > M \geq N > O = P \leq Q < R$$

**Conclusions:**

I.  $O < R$

II.  $M > Q$

- Ans**
- ☒ A. Only conclusion I is true
  - ☒ B. Only conclusion II is true
  - ☒ C. Both conclusions I and II are true
  - ☒ D. Either conclusion I or II is true

**Q.39** G, H, I, J, K and L are six friends sitting around a circular table facing the centre of the table discussing the outcome of a cricket match. I is an immediate neighbour of both L and J. K is not the immediate neighbour of J. H is seated second to the left of L. Which of the following options represents I's position from G?

- Ans**
- ☒ A. Second to the right.
  - ☒ B. Second to the left.
  - ☒ C. Immediate right.
  - ☒ D. Third to the left.

**Q.40** Five boxes numbered 36, 74, 27, 51 and 92 are kept one above the other, not necessarily in the same order. Box 51 is on the topmost position. Only box 92 is between box 74 and box 36. Only one box is above box 27. Box 36 is not at the bottom most position. Which box is kept in the exact middle position?

- Ans**
- ☒ A. Box 36
  - ☒ B. Box 74
  - ☒ C. Box 92
  - ☒ D. Box 27

**Q.41** What will come in the place of the question mark (?) in the following equation, if '+' and '-' are interchanged and also '×' and '÷' are interchanged?

$$15 \div 3 - 10 \times 2 \div 18 \times 6 - 4 = ?$$

- Ans**
- ☒ A. 60
  - ☒ B. 61
  - ☒ C. 62
  - ☒ D. 64

**Q.42** Select the set in which the numbers are related in the same way as are the numbers of the following sets.  
(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding / subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

(13, 84, 8)  
(21, 136, 13)

**Ans** ✓ **A.** (27, 140, 8)

✗ **B.** (16, 23, 156)

✗ **C.** (8, 71, 19)

✗ **D.** (14, 56, 8)

**Q.43** Mani starts from Point A and drives 5 km towards the west. He then takes a right turn, drives 8 km, turns right and drives 13 km. He then takes a right turn and drives 19 km, takes a left turn and drives 4 km. He then takes left turn and drives 11 km and stops at Point B. How far and towards which direction should he drive in order to reach Point A from Point B? (All turns are 90 degree turns only)

**Ans** ✗ **A.** 9 km towards the south

✓ **B.** 12 km towards the west

✗ **C.** 6 km towards the east

✗ **D.** 8 km towards the south

**Q.44** Five girls, A, B, C, D, and E are sitting around a circular table facing the centre. E is the immediate neighbour of A and B. D is second to the right of E. C is an immediate neighbour of D and B. Where is A seated?

**Ans** ✗ **A.** To the immediate left of E

✗ **B.** Third to the right of D

✓ **C.** Second to the right of B

✗ **D.** To the immediate left of C

**Q.45** Three statements are given followed by two conclusions numbered I and II. You have to take the statements to be true, even if they seem to be at variance with commonly known facts and decide which of the conclusions logically follow(s) from the statements.

**Statements:**

All Pages are Books.

All Books are Catalogues.

Some Catalogues are Designs.

**Conclusions:**

(I) Some Books are Designs.

(II) All Pages are Catalogues.

**Ans** ✗ **A.** Only conclusion (I) follows.

✓ **B.** Only conclusion (II) follows.

✗ **C.** Both conclusions (I) and (II) follow.

✗ **D.** Neither conclusion (I) nor (II) follows.



- Q.46** Three statements are given followed by two conclusions numbered I and II. You have to take the statements to be true, even if they seem to be at variance with commonly known facts and decide which of the conclusions logically follow(s) from the statements.

**Statements:**

Some Waters are Stagnant.  
Some Waters are Rivers.  
All Stagnant are Mosquitos

**Conclusions:**

(I) Some Waters are Mosquitos.  
(II) Some Rivers are Stagnant.

- Ans** ☒ A. Only conclusion (I) follows.  
☐ B. Only conclusion (II) follows.  
☐ C. Both conclusions (I) and (II) follow.  
☐ D. Neither conclusion (I) nor (II) follows.

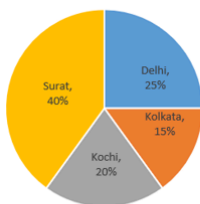
- Q.47** Which of the following terms will replace the question mark (?) in the given series to make it logically complete?

SKC33, OGY39, KCU45, GYQ51, ?

- Ans** ☐ A. MCN57  
☐ B. CUM59  
☐ C. MCN55  
☒ D. CUM57

- Q.48** Study the given pie-chart and answer the following question.

The given pie chart depicts the number of cars sold in four cities. The total number of cars sold in the given four cities together is 80.



In Delhi, the respective ratio between the number of cars sold to female and male customers is 2 : 3. What is the number of cars sold to female customers in Delhi?

- Ans** ☒ A. 8  
☐ B. 12  
☐ C. 6  
☐ D. 4

- Q.49** A statement is given followed by two possible conclusions numbered I and II. You have to assume everything in the statement to be true and on the basis of it, decide which of the conclusions logically follow(s).

**Statement:** "I want to start my own business of exporting cashews and hazelnuts to Turkey and America because I have many friends in these countries with similar business interests, which I think will be helpful." — A told B.

**Conclusions:**

I. It's always beneficial to have good contacts in the domains of work.  
II. B is not interested in doing business with A.

- Ans** ☒ A. Only conclusion I follows  
☐ B. Only conclusion II follows  
☐ C. Both the conclusions follow  
☐ D. Neither conclusion follows

**Q.50** Select the option that is related to the third term in the same way as the second term is related to the first term and the sixth term is related to the fifth term.

231 : 334 :: 289 : ? :: 319 : 422

- Ans**
- ☒ A. 393
  - ☒ B. 392
  - ☒ C. 395
  - ☒ D. 394

**Q.51** At what time between 2:30 p.m. and 3:30 p.m. will the hands of a clock be together?

- Ans**
- ☒ A.  $14 + \frac{6}{11}$
  - ☒ B.  $11 + \frac{4}{16}$
  - ☒ C.  $16 + \frac{4}{11}$
  - ☒ D.  $14 + \frac{16}{11}$

**Q.52** R, S, T, U, V and W live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it is numbered 2 and so on till the topmost floor is numbered 6. Only two people between T and W. T does not live on the topmost floor. Neither U nor V lives on the lowermost floor. Only one person lives above S. U lives immediately below T and immediately above V. Who lives on floor number 2?

- Ans**
- ☒ A. V
  - ☒ B. U
  - ☒ C. T
  - ☒ D. S

**Q.53** Study the given number series and answer the question that follows.

(Left) 5 3 4 7 2 8 6 5 3 9 4 2 6 8 9 5 (Right)

How many such odd numbers are there each of which is immediately preceded by an even number and also immediately followed by an even number?

- Ans**
- ☒ A. 4
  - ☒ B. 3
  - ☒ C. 2
  - ☒ D. 1

**Q.54** Which of the following numbers will replace the question mark (?) in the given series?

4, 9.6, 23.04, ?, 132.7104, 318.50496

- Ans**
- ☒ A. 60.913
  - ☒ B. 55.296
  - ☒ C. 58.269
  - ☒ D. 51.865

**Q.55** Which of the following numbers will replace the question mark (?) in the given series?

2, 3, 4, 9, 6, 27, 8, 81, 10, ?

- Ans**
- ☒ A. 111
  - ☒ B. 183
  - ☒ C. 243
  - ☒ D. 333

**Q.56** Double displacement reaction takes place with:

- i) Precipitates are formed.
- ii) Evolution of a gas
- iii) Change in colour.

**Ans** ☒ A. Only i and ii  
☒ B. Only iii  
☒ C. Only iii and i  
☒ D. i, ii and iii

**Q.57** The element 'x' in the modern periodic table has an electronic configuration 2, 8, 8. The element 'x' is placed in the \_\_\_\_\_.

**Ans** ☒ A. 18<sup>th</sup> group  
☒ B. 10<sup>th</sup> group  
☒ C. 6<sup>th</sup> group  
☒ D. 8<sup>th</sup> group

**Q.58** The value of resistance gets doubled if its length is \_\_\_\_\_ (keeping other parameters constant).

**Ans** ☒ A. doubled  
☒ B. halved  
☒ C. squared  
☒ D. unaltered

**Q.59** In the following table, where would a broken plastic bucket be placed?

|                | Safely combustible | Not safely combustible |
|----------------|--------------------|------------------------|
| Recyclable     | A                  | B                      |
| Non-recyclable | C                  | D                      |

**Ans** ☒ A. Cell A or C  
☒ B. Cell A or B  
☒ C. Cell B or D  
☒ D. Cell C or D

**Q.60** Which of the following transports products of photosynthesis from the leaves to the other parts of the plant?

**Ans** ☒ A. Xylem  
☒ B. Phloem  
☒ C. Sclerenchyma  
☒ D. Collenchyma

**Q.61** Select the correct property/properties from among the following, with respect to the reflection of light by a concave mirror.

- (a) Light does not obey the laws of reflection as the concave surface is a curved surface.  
(b) A light ray directed on to the pole of a concave mirror retraces the path of incidence in the opposite direction.

**Ans** ☒ A. Only (a) is correct  
☒ B. Only (b) is correct  
☒ C. Both (a) and (b) are correct  
☒ D. Both (a) and (b) are incorrect

**Q.62** If light enters from air to some medium A having a refractive index of 1.33, then what is the speed of light in the medium A?

**Ans** ☒ A.  $2.67 \times 10^8 \frac{\text{m}}{\text{s}}$   
☒ B.  $1.67 \times 10^8 \frac{\text{m}}{\text{s}}$   
☒ C.  $2.26 \times 10^8 \frac{\text{m}}{\text{s}}$   
☒ D.  $1.97 \times 10^8 \frac{\text{m}}{\text{s}}$

**Q.63** Which of the following elements is NOT present as a diatomic molecule in nature?

**Ans** ☒ A. Chlorine  
☒ B. Hydrogen  
☒ C. Helium  
☒ D. Nitrogen

**Q.64** Which of the following solutions will turn pH paper blue?

**Ans** ☒ A. Gastric juice  
☒ B. Hydrochloric acid  
☒ C. Sodium hydroxide  
☒ D. Lemon juice

**Q.65** Which of the following is primarily responsible for the movement of the human body?

**Ans** ☒ A. Combination of nervous and epithelial tissues  
☒ B. Combination of muscular and connective tissues  
☒ C. Combination of nervous and muscular tissues  
☒ D. Combination of nervous and connective tissues

**Q.66** Which of the following statements is FALSE?

**Ans** ☒ A. Genes are located on chromosomes.  
☒ B. Each gene controls one character.  
☒ C. The two alleles are brought together at the time of gamete formation  
☒ D. Every germ cell will take one chromosome from each pair.

**Q.67** A light ray is travelling from air medium to water medium (refractive index = 1.3) such that angle of incidence is  $x$  degree and angle of refraction is  $y$  degree. The value of ratio  $(\sin y)/(\sin x)$  is:

- Ans**
- ✓ A.  $1/1.3$
  - ✗ B. 1.3
  - ✗ C. 1
  - ✗ D. 0.3

**Q.68** Naphthalene balls used to repel moths and other insects are obtained from:

- Ans**
- ✓ A. coal tar
  - ✗ B. coke
  - ✗ C. coal
  - ✗ D. coal gas

**Q.69** Which elements show similar valency as that of silicon?

- Ans**
- ✗ A. Mg and K
  - ✓ B. C and Ge
  - ✗ C. Cl and Br
  - ✗ D. Na and H

**Q.70** A student takes a ribbon and burns it in the presence of oxygen. It changes into magnesium oxide. Which process has occurred?

- Ans**
- ✓ A. Oxidation
  - ✗ B. Reduction
  - ✗ C. Hydrogenation
  - ✗ D. Decomposition

**Q.71** Resistors of  $0.2\ \Omega$ ,  $0.4\ \Omega$ ,  $0.6\ \Omega$ ,  $0.8\ \Omega$  are connected in series across a voltage of 20 V. What is the net power of the electric circuit?

- Ans**
- ✓ A. 200 Watt
  - ✗ B. 20 J/s
  - ✗ C. 800 Watt
  - ✗ D. 80 J/s

**Q.72** The induced current is \_\_\_\_\_ when the direction of the motion of the coil is at right angles to the magnetic field.

- Ans**
- ✓ A. Maximum
  - ✗ B. Minimum
  - ✗ C. Zero
  - ✗ D. Infinity

**Q.73** Girls should take special care with respect to health and hygiene during the time of menstrual flow to avoid infections and ill health. Which of the following statements in this regard is FALSE?

- Ans**
- ✗ A. Girls should keep track of their menstrual cycle and be prepared for the onset of menstruation.
  - ✗ B. Girls should use sanitary napkins or clean homemade pads.
  - ✗ C. Girls should change pads after every 4–5 hours or as per the requirement.
  - ✓ D. Girls should consume chips and packed or tinned snacks to meet nutritional needs.

**Q.74** What is the number of water of crystallisation molecules present in plaster of Paris?

- Ans**
- ✓ A.  $\frac{1}{2}$
  - ✗ B. 1
  - ✗ C. 10
  - ✗ D. 2

**Q.75** A battery of 12V supplies a current of 3 A to a lamp connected to it. The energy supplied to it in 15 minutes will be:

- Ans**
- ✗ A. 32000 J
  - ✗ B. 32150 J
  - ✗ C. 540 J
  - ✓ D. 32400 J

**Q.76** Plant root cells also need oxygen to generate energy. So roots take up air from:

- Ans**
- ✗ A. cytoplasm
  - ✗ B. water
  - ✓ C. air spaces between soil particles
  - ✗ D. stomata

**Q.77** How many times on an average does an adult human being at rest breathe in and out in a minute?

- Ans**
- ✓ A. 15–18 times
  - ✗ B. 18–21 times
  - ✗ C. 20–23 times
  - ✗ D. 12–15 times

**Q.78** Study the given chemical reaction and find the values of x, y and z, respectively.



- Ans**
- ✓ A. 3, 4, 4
  - ✗ B. 4, 3, 4
  - ✗ C. 4, 4, 3
  - ✗ D. 2, 4, 3

**Q.79** If a copper wire is moving through a uniform magnetic field, then the direction of the induced current can be found using the:

- Ans**
- ✗ A. Fleming's left hand rule
  - ✓ B. Fleming's right hand rule
  - ✗ C. Maxwell's right hand screw rule
  - ✗ D. Maxwell's left hand screw rule

**Q.80** Magnification produced by a spherical mirror is equal to:

- Ans**
- ☐ A. height of an object – height of an image
  - ☐ B. height of an image – height of an object
  - ☐ C.  $\frac{(\text{height of an object})}{(\text{height of an image})}$
  - ☒ D.  $\frac{(\text{height of an image})}{(\text{height of an object})}$

Section : General Awareness and Current Affairs

**Q.81** In 1938, Congress President Subhash Chandra Bose set up a National Planning Committee. Who was its Chairman?

- Ans**
- ☒ A. Jawaharlal Nehru
  - ☐ B. Sardar Vallabhbhai Patel
  - ☐ C. Maulana Abul Kalam Azad
  - ☐ D. Lal Bahadur Shastri

**Q.82** As per Reserve Bank of India (Regulatory Framework for Microfinance Loans) Directions, 2022, a microfinance loan is defined as a collateral-free loan given to a household having annual household income up to \_\_\_\_\_. For this purpose, the household shall mean an individual family unit, i.e., husband, wife, and their unmarried children.

- Ans**
- ☐ A. ₹1,25,000
  - ☐ B. ₹2,00,000
  - ☒ C. ₹3,00,000
  - ☐ D. ₹5,00,000

**Q.83** In February 2022, which of the following became the 1<sup>st</sup> state in the country to launch night navigation mobile app in rivers?

- Ans**
- ☐ A. Haryana
  - ☐ B. Himachal Pradesh
  - ☐ C. Jharkhand
  - ☒ D. Assam

**Q.84** 'The official language of the Union shall be Hindi in Devanagari script' is prescribed in which Article of the Indian Constitution?

- Ans**
- ☐ A. Article 342
  - ☒ B. Article 343
  - ☐ C. Article 344
  - ☐ D. Article 345



**Q.85** Which of the following options is NOT a function of Gram Panchayats?

- Ans**
- ☐ A. Management of local public resources
  - ☐ B. Development of village facilities
  - ☐ C. Collection of local taxes
  - ☒ D. Scrutinises and approves budgets of the Block Samities

**Q.86** In Economics, 'multiplier' is defined as the ratio of increase in income to increase in \_\_\_\_\_.

- Ans**
- ☐ A. debt
  - ☒ B. investment
  - ☐ C. credit
  - ☐ D. liability

**Q.87** Identify the institute from the given description.

'The institute was founded on 1 June 1945 with support from the Sir Dorabji Tata Trust. The institute first began functioning within the Cosmic Ray Research Unit on the campus of the Indian Institute of Science, Bangalore and moved to Bombay in October that year.'

- Ans**
- ☐ A. Shavak Nanavati Technical Institute (SNTI)
  - ☐ B. Tata Institute of Social Science (TISS)
  - ☒ C. Tata Institute of Fundamental Research (TIFR)
  - ☐ D. National Institute of Advance Sciences (NIAS)

**Q.88** Energy Swaraj Yatra Bus has been designed and developed by Dr. Chetan Singh Solanki, who is a professor of \_\_\_\_\_, which plans to combine synergies of climate change mitigation efforts.

- Ans**
- ☐ A. IIT Kharagpur
  - ☐ B. IIT Madras
  - ☐ C. IIT Delhi
  - ☒ D. IIT Bombay

**Q.89** Which one of the following is NOT one of the objectives of 'Beti Bachao Beti Padhao' initiative?

- Ans**
- ☐ A. Prevention of gender biased sex selective elimination
  - ☐ B. Ensuring survival & protection of the girl child
  - ☐ C. Ensuring education and participation of the girl child
  - ☒ D. Cash transfer through DBT at the time of marriage of beneficiary girl

**Q.90** \_\_\_\_\_ is an Islamic finance term referring to the obligation that an individual has to donate a certain proportion of wealth each year to charitable causes.

- Ans**
- ☒ A. Zakat
  - ☐ B. Mudarabah
  - ☐ C. Musharakah
  - ☐ D. Ijarah



**Q.91** Which of the following states first receives the rain from the southwest monsoon?

- Ans**
- ✓ A. Kerala
  - ✗ B. West Bengal
  - ✗ C. Himachal Pradesh
  - ✗ D. Rajasthan

**Q.92** Which of the following is NOT a key feature of the Constitution of India?

- Ans**
- ✗ A. Establishment of federalism
  - ✗ B. Parliamentary form of government
  - ✓ C. Promotion of feudalism
  - ✗ D. Fundamental rights

**Q.93** Who is the first captain in cricketing history to wins 13 consecutive T20I matches?

- Ans**
- ✓ A. Rohit Sharma
  - ✗ B. Mahendra Singh Dhoni
  - ✗ C. Babar Azam
  - ✗ D. Virat Kohli

**Q.94** Gandhi Jayanti is an event held in India to commemorate Mahatma Gandhi's birthday in the month of \_\_\_\_\_.

- Ans**
- ✗ A. December
  - ✗ B. November
  - ✓ C. October
  - ✗ D. September

**Q.95** The \_\_\_\_\_ assesses the prospects of the economy with respect to the GDP growth rate, fiscal balance of the central government and external balance.

- Ans**
- ✗ A. Medium-term Fiscal Policy Statement
  - ✓ B. Macroeconomic Framework Statement
  - ✗ C. Fiscal Policy Strategy Statement
  - ✗ D. Revenue Expenditure

**Q.96** Which of the following is a Leadership Development Programme for Minority Women in India?

- Ans**
- ✓ A. Nai Roshni
  - ✗ B. Naya Ujala
  - ✗ C. Naya Savera
  - ✗ D. Nai Manzil

**Q.97** In which of the following years, Uttarakhand had received an unusual amount of rainfall, which led to the melting of the Chorabari glacier and the eruption of the Mandakini river?

- Ans**
- ✗ A. 2012
  - ✓ B. 2013
  - ✗ C. 2014
  - ✗ D. 2015

**Q.98** Girish Chandra Murmu held the post of \_\_\_\_\_ as on 31 March 2022.

**Ans** ☒ **A.** Comptroller and Auditor General of India

☐ **B.** Solicitor General of India

☐ **C.** Attorney General of India

☐ **D.** Chief Election Commissioner of India

**Q.99** Which football club clinched the I-League title in 2022?

**Ans** ☐ **A.** Mohammedan Sporting

☒ **B.** Gokulam Kerala FC

☐ **C.** Rajasthan FC

☐ **D.** RoundGlass Punjab

**Q.100** The Sone river belongs to which river system?

**Ans** ☐ **A.** Godavari

☐ **B.** Mahanadi

☐ **C.** Narmada

☒ **D.** Ganga



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 27/09/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** Shalini's age is four times the sum of the ages of her two sons. Six years hence, her age will be double the sum of their ages. What is Shalini's present age?

- Ans**
- ✓ **A. 36 years**
  - ✗ B. 26 years
  - ✗ C. 32 years
  - ✗ D. 40 years

**Q.2** A quadratic equation whose roots are  $\frac{5}{3}$  and  $-\frac{3}{4}$  is:

- Ans**
- ✗ A.  $6x^2 - 11x - 15 = 0$
  - ✗ B.  $6x^2 + 11x - 15 = 0$
  - ✓ **C.  $12x^2 - 11x - 15 = 0$**
  - ✗ D.  $12x^2 + 22x - 15 = 0$

**Q.3** If  $p \sin^2 \beta + q \cos^2 \beta = r$ , then the value of  $\cot^2 \beta$  is:

- Ans**
- ✗ A.  $\frac{r-p}{r-q}$
  - ✓ **B.  $\frac{p-r}{r-q}$**
  - ✗ C.  $\frac{r-q}{p-r}$
  - ✗ D.  $\frac{r-q}{r-p}$

Q.4 The value of  $\frac{(0.42)^2 + 36(0.05)^2}{9(0.21)^2 + (0.45)^2}$  is:

- Ans
- ☐ A.  $\frac{2}{9}$
  - ☐ B.  $\frac{2}{3}$
  - ☒ C.  $\frac{4}{9}$
  - ☐ D.  $\frac{5}{18}$

Q.5 Aditya can complete a piece of work alone in 8 days and Bhagawan can complete the same piece of work alone in 12 days. They started the work together, but Aditya had to leave 3 days before the completion of the work. In how many days will the work complete?

- Ans
- ☐ A.  $6\frac{2}{5}$  days
  - ☐ B.  $6\frac{4}{5}$  days
  - ☒ C.  $6\frac{3}{5}$  days
  - ☐ D.  $6\frac{1}{5}$  days

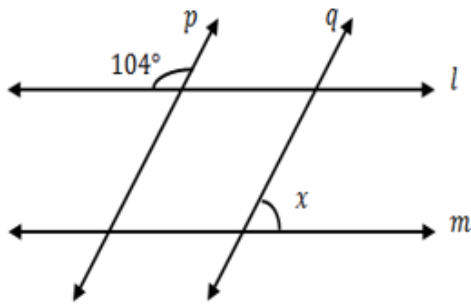
Q.6 If  $x = (\sqrt{2352} \div \sqrt{1200}) \div \sqrt{0.04}$ , then the value of  $\frac{x+1}{x-1}$  is:

- Ans
- ☐ A.  $\frac{3}{2}$
  - ☐ B.  $\frac{3}{4}$
  - ☐ C.  $\frac{2}{3}$
  - ☒ D.  $\frac{4}{3}$

Q.7 The ratio of boys and girls in a school that has 480 students is 7 : 9. What will be the ratio of boys and girls if 3 more girls are admitted to the school?

- Ans
- ☒ A. 10 : 13
  - ☐ B. 13 : 10
  - ☐ C. 7 : 9
  - ☐ D. 9 : 7

Q.8 In the given figure,  $l \parallel m$  and  $p \parallel q$ . The value of  $x$  is:



Ans ☒ A.  $76^\circ$

☐ B.  $82^\circ$

☐ C.  $96^\circ$

☐ D.  $104^\circ$

Q.9 After two successive discounts, a tie with a list price of ₹120 is available at ₹90. If the second discount is 9%, what is the first discount percentage? [Give your answer correct to 2 places of decimal.]

Ans ☐ A. 84.42%

☒ B. 17.58%

☐ C. 63.33%

☐ D. 71.58%

Q.10 If  $100 : 250 :: 250 : x$ , then what is the value of  $x$ ?

Ans ☒ A. 625

☐ B. 6.25

☐ C. 250

☐ D. 25

Q.11 Find the single percentage discount equivalent to three successive discounts of 30%, 20% and 10%.

Ans ☒ A. 49.6%

☐ B. 50.4%

☐ C. 60%

☐ D. 46.9%

Q.12 Find the average of 12, 15, 16, 17, 23 and 19.

Ans ☐ A. 13

☐ B. 15

☒ C. 17

☐ D. 18

**Q.13** If a sum of ₹2,000 amounts to ₹2,360 in 3 years at a certain rate of simple interest per annum, then what will the same sum amount to in 5 years, if the rate of simple interest per annum remains the same?

- Ans**
- ☒ A. ₹2,500
  - ☒ B. ₹2,600
  - ☒ C. ₹2,650
  - ☒ D. ₹2,605

**Q.14** If  $0.25a = 0.05b$ , then which of the options below gives the best approximation of the value of  $\frac{b-a}{b+a}$ ?

- Ans**
- ☒ A. 0.16
  - ☒ B. 1.6
  - ☒ C. 0.67
  - ☒ D. 6.6

**Q.15** Find the missing value of weight ( $x$ ) assigned if the weighted average of the data set provided below is 24.5.

| Object          | A  | B | C   | D  |
|-----------------|----|---|-----|----|
| Value of object | 15 | 2 | 30  | 43 |
| Assigned weight | 3  | 2 | $x$ | 1  |

- Ans**
- ☒ A. 4
  - ☒ B. 10
  - ☒ C. 5
  - ☒ D. 12

**Q.16** The 6-digit number 473  $xy$  5 is divisible by 125. How many such 6-digit numbers are there?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.17** Rashmika had to travel 612 km in a car travelling at a certain speed. If she reached her destination in 9 hours, find the speed of the car.

- Ans**
- ☒ A. 60 km/h
  - ☒ B. 65 km/h
  - ☒ C. 68 km/h
  - ☒ D. 70 km/h

**Q.18** Three numbers are in the ratio 3 : 5 : 7 and their LCM is 5250. What is the middle number?

- Ans**
- ☒ A. 200
  - ☒ B. 150
  - ☒ C. 350
  - ☒ D. 250

**Q.19** If 2 is a root of the equation  $x^2 - px + 6 = 0$  and the quadratic equation  $x^2 + 2px + q = 0$  has equal roots, then the value of  $q$  is:

- Ans**
- ☒ A. 12
  - ☒ B. 16
  - ☒ C. 25
  - ☒ D. 36

**Q.20** If one-third of a number is 6 more than the number itself, then find the number.

- Ans**
- ☒ A.  $-7$
  - ☒ B.  $-9$
  - ☒ C.  $-6$
  - ☒ D.  $-5$

**Q.21** The surface area of a  $12\text{ cm} \times 6\text{ cm} \times 4\text{ cm}$  brick is:

- Ans**
- ☒ A.  $274\text{ cm}^2$
  - ☒ B.  $288\text{ cm}^2$
  - ☒ C.  $296\text{ cm}^2$
  - ☒ D.  $312\text{ cm}^2$

**Q.22** What is the area of a regular hexagon the length of each of whose sides is  $4\text{ cm}$ ?

- Ans**
- ☒ A.  $24\sqrt{3}\text{ cm}^2$
  - ☒ B.  $25\sqrt{3}\text{ cm}^2$
  - ☒ C.  $26\sqrt{3}\text{ cm}^2$
  - ☒ D.  $27\sqrt{3}\text{ cm}^2$

**Q.23** The measure of  $\angle OQR = 48^\circ$ . Point V lies on OQ, VT  $\parallel$  QR and S is a point in the interior of  $\angle OQR$  such that V, S and T are collinear and S lies in between V and T. P is also a point on OQ, such that P lies in between O and V, and  $m\angle PST = 120^\circ$ . What is the measure of the complement of  $\angle QPS$ ?

- Ans**
- ☒ A.  $18^\circ$
  - ☒ B.  $22^\circ$
  - ☒ C.  $28^\circ$
  - ☒ D.  $32^\circ$

**Q.24** Simplify the given expression.

$$4\left(\frac{3}{2}x^2 - 4x + 3\right) - \frac{1}{2}(4x^2 + 8x - 18)$$

- Ans**
- ☒ A.  $4x^2 - 20x + 21$
  - ☒ B.  $4x^2 - 20x - 21$
  - ☒ C.  $4x^2 + 20x - 21$
  - ☒ D.  $4x^2 + 20x + 21$

**Q.25** Simplify the given expression.

$$(x^2 + xy + y^2)^2 - (x^2 - xy + y^2)^2$$

- Ans**
- ☒ A.  $4xy(x^2 + y^2)$
  - ☒ B.  $2xy(x^2 + y^2)$
  - ☒ C.  $4xy(x^2 - y^2)$
  - ☒ D.  $2xy(x^2 - y^2)$

- Q.26** What will come in the place of the question mark (?) in the following equation, if '+' and '-' are interchanged and also '×' and '÷' are interchanged?

$$28 \div 12 + 18 \times 6 + 4 = ?$$

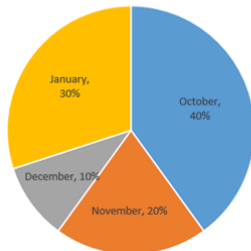
- Ans**
- ☒ A. 229
  - ☒ B. 329
  - ☐ C. 429
  - ☐ D. 529

- Q.27** In a certain code language, 'DUCAT' is written as 'GYHGA' and 'INDIA' is written as 'LRIOH'. How will 'CHAIR' be written in that language?

- Ans**
- ☒ A. FLFOY
  - ☐ B. GMGPZ
  - ☐ C. GNGPZ
  - ☐ D. FLFPY

- Q.28** Study the given pie-chart and answer the following question.

The given pie chart depicts the number of orders placed in four months. The total number of orders placed in the given four months together is 90.

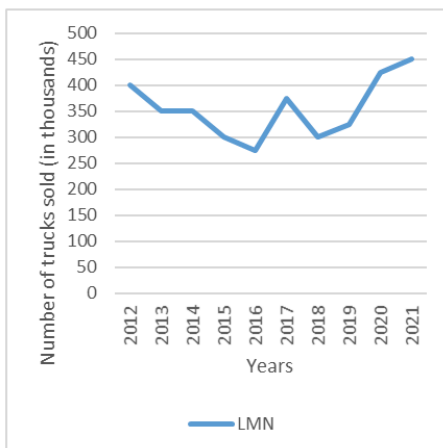


The number of orders placed in February is 24 more than the number of orders placed in November. What is the number of orders placed in February?

- Ans**
- ☐ A. 40
  - ☐ B. 41
  - ☒ C. 42
  - ☐ D. 44

- Q.29** Study the given line-graph and answer the question that follows.

The line-graph shows the number of trucks sold (in thousands) by company LMN over the years.

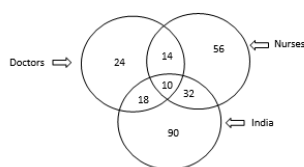


What is the ratio of total trucks sold in 2012, 2013, 2014 and 2015 to the trucks sold in 2016, 2017, 2018 and 2020?

- Ans**
- ☒ A. 56 : 55
  - ☐ B. 50 : 51
  - ☐ C. 55 : 56
  - ☐ D. 51 : 50



- Q.30** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



How many such nurses are there who are from India but are NOT doctors?

**Ans** ✓ A. 32

✗ B. 24

✗ C. 42

✗ D. 28

- Q.31** In the word 'CLIPBOARD', if each vowel is changed to the letter immediately following it and each consonant is changed to the letter immediately preceding it in the English alphabetical order, then how many vowels will be there in the group of letters thus formed?

**Ans** ✓ A. Two

✗ B. Three

✗ C. One

✗ D. Four

- Q.32** Study the given letter series and answer the question that follows.

(Left) K L A P A P S T U D A Q R T S X B Y (Right)

How many such consonants are there each of which is immediately preceded by a vowel and also immediately followed by a vowel?

**Ans** ✗ A. 4

✗ B. 3

✓ C. 2

✗ D. 6

- Q.33** Which of the following numbers will replace the question mark (?) in the given series?

144 ? 196 225 256

**Ans** ✓ A. 169

✗ B. 121

✗ C. 196

✗ D. 179

- Q.34** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

7 : 56 :: 5 : 30 :: 9 : ?

**Ans** ✗ A. 81

✗ B. 86

✓ C. 90

✗ D. 101

**Q.35** Select the number that will replace the question mark (?) in the given series.

64    343    36    125    16    ?

- Ans**
- ☒ A. 9
  - ☒ B. 27
  - ☒ C. 243
  - ☒ D. 8

**Q.36** In a row of people, all facing north, Anil is 5<sup>th</sup> from the right end. Mona is 13<sup>th</sup> from the right end. Mona is exactly between Anil and Ritu. If Ritu is 5<sup>th</sup> from the left end of the row, how many people are there in the row?

- Ans**
- ☒ A. 25
  - ☒ B. 22
  - ☒ C. 24
  - ☒ D. 21

**Q.37** Which of the following terms will replace the question mark (?) in the given series to make it logically complete?  
E12JZ, M16RH, U20ZP, C24HX, ?

- Ans**
- ☒ A. K28PF
  - ☒ B. K29FP
  - ☒ C. P28KF
  - ☒ D. P31FK

**Q.38** Refer to the given number, symbol series and answer the question that follows.

(Left)  $5 \wedge 3 * 4 2 \$ 7 5 \% 9 @ \& \# 8 3 = 9 3 + 2 \% 8$  (Right)

How many such symbols are there which are immediately preceded by a symbol and also immediately followed by a symbol?

- Ans**
- ☒ A. 0
  - ☒ B. 1
  - ☒ C. 2
  - ☒ D. 3

**Q.39** Seven students, A, B, C, D, E, F and G, are sitting around a circular table facing the centre (but not necessarily in the same order). D is sitting second to the left of C. D is sitting to the immediate right of G. B is sitting third to the left of F. E is sitting to the immediate left of B.

Who among the following is an immediate neighbour of B and D?

- Ans**
- ☒ A. F
  - ☒ B. G
  - ☒ C. C
  - ☒ D. E

**Q.40** Three statements are given followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide

which of the conclusions logically follow(s) from the statements.

Statements:

All bridges are roads.

Some footpaths are roads.

Some footpaths are bricks.

Conclusions:

I. Some bridges are bricks.

II. Some roads are bridges.

III. Some footpaths are bridges.

- Ans**
- ☒ A. Only conclusions I and II follow
  - ☒ B. Only conclusions I and III follow
  - ☒ C. Only conclusions II and III follow
  - ☒ D. Only conclusion II follows

**Q.41** In a certain code language, 'HOUSE' is written as 'FOSUC' and 'RAHUL' is written as 'PAUHL'. How will 'ABOVE' be written in that language?

- Ans**
- ☒ A. ZCMXC
  - ☒ B. XCNMB
  - ☒ C. CDMXC
  - ☒ D. YBVOC

**Q.42** Select the option that is related to the fifth letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster and the fourth letter-cluster is related to the third letter-cluster.

ZCD : XAB :: MDV : KBT :: RNT : ?

- Ans**
- ☒ A. PLR
  - ☒ B. POT
  - ☒ C. QRU
  - ☒ D. PMR

**Q.43** Sonal was returning from her coaching class one evening just before sunset. She was waiting for the bus at a square, where she met her friend Shalini coming from the front. At that time, Shalini's shadow was directly falling on Sonal. In which direction was Shalini facing towards?

- Ans**
- ☒ A. North
  - ☒ B. South
  - ☒ C. East
  - ☒ D. West

**Q.44** Aarush starts walking 9 m towards the north, then turns left and walks 17 m. He again turns left to walk 9 m. In which direction is he facing now? (All turns are 90 degree turns only)

- Ans**
- ☒ A. West
  - ☒ B. East
  - ☒ C. South
  - ☒ D. North

**Q.45** Refer to the following letter, symbol series and answer the question.

L J + K - Y % T # U P

How many symbols are there which are immediately preceded by a letter and also immediately followed by a letter?

- Ans**
- ☐ A. 1
  - ☐ B. 2
  - ☐ C. 3
  - ☒ D. 4

**Q.46** In a queue, Rajul is 16<sup>th</sup> from the front end and Rekha is 4<sup>th</sup> from the rear end, and there are 5 people between them. How many people are there in the queue?

- Ans**
- ☐ A. 18
  - ☐ B. 19
  - ☒ C. 25
  - ☐ D. 21

**Q.47** Amongst six friends A, B, C, D, E and F, each has a different height. B is taller than E but shorter than F. Only one person is shorter than C. Only three people are taller than A. E is not the shortest. Who is the tallest among all the friends?

- Ans**
- ☐ A. A
  - ☒ B. F
  - ☐ C. D
  - ☐ D. B

**Q.48** Three statements are given followed by two conclusions numbered I and II. You have to take the statements to be true, even if they seem to be at variance with commonly known facts and decide which of the conclusions logically follow(s) from the statements.

**Statements:**

All Locks are Blocks.  
Some Blocks are Toys.  
Some Toys are Dolls.

**Conclusions:**

(I) Some Locks are Toys.  
(II) Some Blocks are Dolls.

- Ans**
- ☐ A. Only conclusion (I) follows.
  - ☐ B. Only conclusion (II) follows.
  - ☐ C. Both conclusions (I) and (II) follow.
  - ☒ D. Neither conclusion (I) nor (II) follows.

**Q.49** Two statement are given below, followed by four conclusions given in the options. Find out which conclusion is true based on the given statements.

Statement:  $T < P < Q$ ,  $N < M < S < T$

- Ans**
- ☐ A.  $P < M$
  - ☐ B.  $Q < S$
  - ☐ C.  $P < N$
  - ☒ D.  $N < Q$

**Q.50** Select the option in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding/deleting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(289,192,95)

(375,278,181)

**Ans** ☒ A. (420,324,227)

☒ B. (421,324,227)

☒ C. (421,322,227)

☒ D. (421,324,225)

**Q.51** A certain number of people are sitting in a row, facing south. Neha sits fourth to the right of Shilu. Only four people sit between Neha and Kirti. Ram sits to the immediate right of Kirti. Only two persons sit between Kirti and Kunti. Alam sits third to the right of Kunti. If no other person is sitting in the row, what is the total number of persons seated?

**Ans** ☒ A. 12

☒ B. 14

☒ C. 16

☒ D. 18

**Q.52** Five friends, Q,R,S,T, and U are sitting around a circular table facing the centre. U is the immediate neighbour of Q and S. T is second to the left of U and an immediate neighbour of both R and S. Where is R seated?

**Ans** ☒ A. To the immediate right of T

☒ B. Second to the left of U

☒ C. Third to the left of S

☒ D. Third to the left of U

**Q.53** Read the given statement and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statement.

Statement:

Prices of pulses have doubled in the last 15 days due to shortages artificially created by large-scale hoarding by a few traders.

Conclusions:

I. Hoarding is the only factor that leads to an increase in the price of pulses

II. Fifteen days ago, there was no shortage in availability of pulses

**Ans** ☒ A. Only conclusion I follows

☒ B. Only conclusion II follows

☒ C. Neither conclusion I nor II follows

☒ D. Both conclusions I and II follow

**Q.54** If 3 is added to each odd digit and 2 is subtracted from each even digit in the number 6452851, what will be difference between the largest and smallest digits thus formed?

**Ans** ☒ A. 6

☒ B. 2

☒ C. 4

☒ D. 8

**Q.55** Which of the following options is the closest approximate value which will come in place of the question mark (?) in the following equation?

$$75.02 \div 16.89 \times 13.47 + 749.98 - 79.29 = ?$$

- Ans**
- ☒ A. 622
  - ☒ B. 532
  - ☒ C. 727
  - ☒ D. 795

Section : General Science

**Q.56** A concave lens of focal length 30 cm forms an image of an object placed at 60 cm from it. The position and nature of the image formed will be :

- Ans**
- ☒ A. 20 cm, real and Inverted
  - ☒ B. -20 cm, real and inverted
  - ☒ C. -20 cm, virtual and erect
  - ☒ D. 20 cm, virtual and erect

**Q.57** The heat generated H due to Joule's heating effect is directly proportional to \_\_\_\_\_.

- Ans**
- ☒ A. cube of the current
  - ☒ B. square root of the current
  - ☒ C. cube root of the current
  - ☒ D. square of the current

**Q.58** The correct increasing order of metallic character is:

- Ans**
- ☒ A.  $\text{Ge} < \text{Ga} < \text{Sc} < \text{Ca}$
  - ☒ B.  $\text{Ge} < \text{As} < \text{Ga} < \text{Ca}$
  - ☒ C.  $\text{Ge} < \text{Zn} < \text{Cu} < \text{As}$
  - ☒ D.  $\text{Ga} < \text{Ge} < \text{Ca} < \text{Sc}$

**Q.59** Some plants produce a sticky substance in the stem which is used to prepare gum adhesives. What is the use of this gum to the plant?

- Ans**
- ☒ A. It attracts insect pollinators.
  - ☒ B. It is a waste product of metabolism.
  - ☒ C. It has medicinal value.
  - ☒ D. It helps in the transport of water.

**Q.60** When iron nails come in contact with copper sulphate solution their colour changes to \_\_\_\_\_.

- Ans**
- ☒ A. brown
  - ☒ B. yellow
  - ☒ C. red
  - ☒ D. blue

- Q.61** In which cell organelle, the first step of cellular respiration, which is the breakdown of glucose, a six-carbon molecule, into a three-carbon molecule called pyruvate takes place?
- Ans** ☒ A. Mitochondria  
☒ B. Cytoplasm  
☒ C. Lysosomes  
☒ D. Nucleus
- Q.62** After fertilization, what will be the future of these parts of a flower- stamens, style, stigma, petal and sepal?
- Ans** ☒ A. They shed off except sepal which may be persistent in some plants  
☒ B. Persistent except sepal shed off in mostly plants  
☒ C. Stigma, style, stamen shed off except petal and sepal in some plants  
☒ D. Stigma, style shed off except stamen, petal and sepal
- Q.63** Which of the following acts as the deciding factor in the determination of the valency of an atom?
- Ans** ☒ A. Number of electrons in the K shell  
☒ B. Number of electrons in the L shell  
☒ C. Number of electrons in the innermost shell  
☒ D. Number of electrons in the outermost shell
- Q.64** If an image formed after reflection from a mirror is virtual and highly diminished, then the position of the object and type of mirror is:
- Ans** ☒ A. infinity and concave mirror  
☒ B. infinity and convex mirror  
☒ C. centre of curvature and concave mirror  
☒ D. Between C and F and concave mirror
- Q.65** Which of the following is used to study the direction of rotation of a coil in a magnetic field in an electric motor?
- Ans** ☒ A. Right hand thumb rule  
☒ B. Left hand thumb rule  
☒ C. Fleming's left hand rule  
☒ D. Fleming's right hand rule
- Q.66** If the current flowing through a resistance of 5 ohm is 6 amp, then the current flowing through another resistance of 10 ohm connected in series to it is \_\_\_\_\_.
- Ans** ☒ A. 12 amp  
☒ B. 3 amp  
☒ C. 6 amp  
☒ D. 0 amp
- Q.67** Which of the following is NOT a goal of sustainable agriculture?
- Ans** ☒ A. Maximising economic value  
☒ B. Maximising environmental health  
☒ C. Minimising input of chemicals  
☒ D. Minimising labour and effort



**Q.68** A coin of diameter 10 cm is placed at a distance  $3.5f$  from the pole of a concave mirror of focal length  $f$ . The linear magnification and the diameter of the image are:

- Ans
- ☒ A.  $\frac{1}{5}$  and 2 cm, respectively
  - ☒ B.  $\frac{2}{5}$  and 4 cm, respectively
  - ☒ C.  $\frac{3}{5}$  and 5 cm, respectively
  - ☒ D.  $\frac{4}{5}$  and 8 cm, respectively

**Q.69** The number of double bonds present in Benzene is \_\_\_\_\_.

- Ans
- ☒ A. two
  - ☒ B. three
  - ☒ C. four
  - ☒ D. six

**Q.70** Carbon compounds that are linked by only a single bond are known as \_\_\_\_\_.

- Ans
- ☒ A. saturated compounds
  - ☒ B. unsaturated compounds
  - ☒ C. both saturated and unsaturated compounds
  - ☒ D. neither saturated nor unsaturated compounds

**Q.71** An aqueous solution of sodium chloride is known as?

- Ans
- ☒ A. lime
  - ☒ B. brine
  - ☒ C. Caustic soda
  - ☒ D. Lime stone

**Q.72** Which of the following is an example of double displacement reaction?

- Ans
- ☒ A.  $\text{CaO (s)} + \text{H}_2\text{O (l)} \longrightarrow \text{Ca(OH)}_2 \text{ (aq)} + \text{Heat}$
  - ☒ B.  $2\text{FeSO}_4 \text{ (s)} \longrightarrow \text{Fe}_2\text{O}_3 \text{ (s)} + \text{SO}_2 \text{ (g)} + \text{SO}_3 \text{ (g)}$
  - ☒ C.  $\text{CaO (s)} + \text{H}_2\text{O (l)} \longrightarrow \text{Ca(OH)}_2 \text{ (aq)} + \text{Heat}$
  - ☒ D.  $\text{Na}_2\text{SO}_4 \text{ (aq)} + \text{BaCl}_2 \text{ (aq)} \longrightarrow \text{BaSO}_4 \text{ (s)} + 2\text{NaCl (s)}$

**Q.73** \_\_\_\_\_ is a device used for varying the resistance of an electrical circuit.

- Ans
- ☒ A. Voltmeter
  - ☒ B. Ammeter
  - ☒ C. Rheostat
  - ☒ D. Galvanometer

**Q.74** Oxides of which of the following elements CANNOT be reduced by  $\text{H}_2$ , CO and C?

- Ans
- ☒ A. Ca
  - ☒ B. Fe
  - ☒ C. Pb
  - ☒ D. Cu



**Q.75** Which of the following ensures that the air passage does NOT collapse during respiration?

- Ans**
- ☐ A. Diaphragm
  - ☒ B. Rings of cartilage
  - ☐ C. Mucus
  - ☐ D. Cilia

**Q.76** Many unicellular algae like *Chlamydomonas* live in water. How do they take in oxygen for respiration?

- Ans**
- ☒ A. They absorb dissolved oxygen via diffusion like *Amoeba*.
  - ☐ B. They have tiny openings (spiracles) to take in gases.
  - ☐ C. They store oxygen evolved via photosynthesis in their vacuoles.
  - ☐ D. They live via anaerobic respiration.

**Q.77** In an electric motor, the direction of flow of current is reversed using:

- Ans**
- ☐ A. a motor brush
  - ☒ B. a split ring
  - ☐ C. armature winding
  - ☐ D. a carbon brush

**Q.78** The appearance of a stick at the interface when immersed in water is an example of \_\_\_\_\_.

- Ans**
- ☐ A. reflection of light
  - ☒ B. refraction of light
  - ☐ C. transmission of light
  - ☐ D. displacement of light

**Q.79** Which continent will suffer the most from global warming in terms of the number of people affected?

- Ans**
- ☒ A. Asia; oceans will rise
  - ☐ B. North America; Arctic ice melt
  - ☐ C. Europe; urban flooding
  - ☐ D. Antarctica; ocean warming

**Q.80** Is there a visible difference between sperms which contain X chromosomes and sperms which contain Y chromosomes?

- Ans**
- ☐ A. Yes, the X-containing sperms are larger.
  - ☐ B. Yes, the Y-containing sperms are more motile.
  - ☐ C. No, there is no difference in size but there is difference in motility
  - ☒ D. No, there is no difference in size or motility.

**Section : General Awareness and Current Affairs**

**Q.81** Solung celebrated on September 1 every year is the most popular festival of Adi Tribe of which state?

- Ans**
- ☐ A. Meghalaya
  - ☒ B. Arunachal Pradesh
  - ☐ C. Sikkim
  - ☐ D. Tripura

**Q.82** Under which Article of the Constitution of India is the President of India empowered to issue a "Proclamation of Emergency"?

- Ans**
- ☐ A. Article 315
  - ☐ B. Article 370
  - ☐ C. Article 356
  - ☒ D. Article 352

**Q.83** What is the name of the Light Combat Aircraft, which is designed and manufactured in India?

- Ans**
- ☐ A. Virat
  - ☒ B. Tejas
  - ☐ C. Pushpak
  - ☐ D. Pawan

**Q.84** Brahma Kamal is the state flower of which state?

- Ans**
- ☐ A. Himachal Pradesh
  - ☐ B. Sikkim
  - ☒ C. Uttarakhand
  - ☐ D. Tripura

**Q.85** In June 2022 researchers at the \_\_\_\_\_ have announced to have developed a robot to clean septic tanks without human intervention named HomoSEP.

- Ans**
- ☐ A. Indian Institute of Technology (IIT), Bombay
  - ☐ B. Indian Institute of Technology (IIT), Delhi
  - ☒ C. Indian Institute of Technology (IIT), Madras
  - ☐ D. Indian Institute of Technology (IIT), Guwahati

**Q.86** The famous Majuli island is located on which river?

- Ans**
- ☐ A. Godavari
  - ☐ B. Indus
  - ☐ C. Ganga
  - ☒ D. Brahmaputra

**Q.87** Which Five-Year Plan is also called 'Gadgil Yojna', after the Deputy Chairman of the Planning Commission DR Gadgil?

- Ans**
- ☒ A. Third
  - ☐ B. Fourth
  - ☐ C. Fifth
  - ☐ D. Sixth

**Q.88** Under which Article of the Indian Constitution is there provision that "the Governor of a State shall at the expiration of every fifth year, constitute a Finance Commission to review the financial position of the Panchayats and to make recommendations to him"?

- Ans**
- ☐ A. 243 H
  - ☒ B. 243 I
  - ☐ C. 243 X
  - ☐ D. 243 Y

**Q.89** Which is the second official language of Telangana?

- Ans**
- ☐ A. Hindi
  - ☐ B. Tulu
  - ☒ C. Urdu
  - ☐ D. English

**Q.90** In which country did the Buddhist teachings of Nichiren Daishonin begin?

- Ans**
- ☒ A. Japan
  - ☐ B. Vietnam
  - ☐ C. Philippines
  - ☐ D. South Korea

**Q.91** Which set of statements is true about the river Ganga?

1. The Ganga rises in the Gangotri glacier near Gaumukh. Here, it is known as the Bhagirathi.
2. At Devprayag, the Bhagirathi meets the Alaknanda; hereafter, it is known as the Ganga.
3. The Alaknanda has its source in the Satopanth glacier above Kedarnath.
4. The Ganga enters the plains at Haridwar

- Ans**
- ☐ A. 1, 2 and 3
  - ☒ B. 1, 2 and 4
  - ☐ C. 2, 3 and 4
  - ☐ D. 1, 3 and 4

**Q.92** Who among the following won a gold at the IWF Junior World Championships in May 2022?

- Ans**
- ☒ A. Harshada Sharad
  - ☐ B. Mirabai Chanu
  - ☐ C. Archita Serali
  - ☐ D. Anjali Patel

**Q.93** What is non-tax revenue?

- Ans**
- ☒ A. Recurring income earned by the government from sources other than taxes
  - ☐ B. Income earned by the government through the public sector units only
  - ☐ C. Any liabilities for the government
  - ☐ D. Financial help in the form of grants, gifts from foreign governments and international organisations

**Q.94** The Pradhan Mantri Shram Yogi Maandhan Yojana (PM-SYM) is aimed at providing:

- Ans**
- ☐ A. loans for small farmers
  - ☐ B. education subsidies to students in professional education
  - ☐ C. protection for girls against dowry exploitation
  - ☒ D. protection for old age unorganized workers

**Q.95** Who inaugurated the University Grants Commission (UGC)?

- Ans**
- ☒ A. Dr. S Radhakrishnan
  - ☒ B. Maulana Abul Kalam Azad
  - ☒ C. Pandit Jawaharlal Nehru
  - ☒ D. Dr. BR Ambedkar

**Q.96** As on 30<sup>th</sup> June 2022, how many Schedules are there in the Indian Constitution?

- Ans**
- ☒ A. 8
  - ☒ B. 12
  - ☒ C. 22
  - ☒ D. 395

**Q.97** The Nehru Rozgar Yojana (NRY) was launched in which Five-Year Plan in India?

- Ans**
- ☒ A. Second
  - ☒ B. Fifth
  - ☒ C. Ninth
  - ☒ D. Seventh

**Q.98** What is the minimum monthly assured pension for a person after attaining the age of 60 years in the Pradhan Mantri Shram Yogi Maan-Dhan Yojana? (As of July 2022)

- Ans**
- ☒ A. ₹5,000
  - ☒ B. ₹4,000
  - ☒ C. ₹3,000
  - ☒ D. ₹1,500

**Q.99** As per National Mineral Inventory data 2015, which state of India has the highest reserves of gold ore (primary)?

- Ans**
- ☒ A. Andhra Pradesh
  - ☒ B. Bihar
  - ☒ C. Karnataka
  - ☒ D. Maharashtra

**Q.100** Who was the captain of the Lucknow Super Giants in the fifteenth edition of the Indian Premier League (IPL)?

- Ans**
- ☒ A. Hardik Pandya
  - ☒ B. Kane Williamson
  - ☒ C. KL Rahul
  - ☒ D. Rishabh Pant



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 27/09/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

Q.1 Simplify the following.

$$0.\overline{06} \times 8.\overline{3}$$

Ans ☒ A.  $0.0\overline{50}$

☒ B.  $0.0\overline{50}$

☒ C.  $0.5\overline{0}$

☒ D.  $0.1\overline{50}$

Q.2 The nominal marks obtained by students who appeared in a test are given below. Find the median marks of the students.

|                 |    |    |    |    |    |    |
|-----------------|----|----|----|----|----|----|
| Marks           | 11 | 20 | 8  | 16 | 29 | 22 |
| No. of students | 14 | 5  | 11 | 9  | 3  | 8  |

Ans ☒ A. 8

☒ B. 10.5

☒ C. 13.5

☒ D. 13

Q.3 The value of  $(\sin \theta + \operatorname{cosec} \theta)^2 + (\cos \theta + \sec \theta)^2$  is:

Ans ☒ A.  $5 - \cot^2 \theta + \tan^2 \theta$

☒ B.  $5 + \cot^2 \theta + \tan^2 \theta$

☒ C.  $7 - \cot^2 \theta + \tan^2 \theta$

☒ D.  $7 + \cot^2 \theta + \tan^2 \theta$

Q.4 Simplify  $\frac{(5p-q)^3 - (3p-2q)^3 - (q+2p)^3}{13pq - 15p^2 - 2q^2}$ .

Ans ☒ A.  $6p+3q$

☒ B.  $-6p-3q$

☒ C.  $6p-3q$

☒ D.  $-6p+3q$

Q.5 Simplify the given expression.

$$\frac{5}{2}x^2 + 4x + \frac{3}{2} + \frac{x^2}{2} - 6x + \frac{5}{2}$$

Ans ☒ A.  $3x^2 + 2x - 4$

☒ B.  $3x^2 - 2x + 4$

☒ C.  $3x^2 + 2x + 4$

☒ D.  $3x^2 - 2x - 4$

Q.6 Six equal cubes, each of side 7 cm, are placed adjacent to each other. The volume of the new solid formed will be:

Ans ☒ A.  $2058 \text{ cm}^3$

☒ B.  $2124 \text{ cm}^3$

☒ C.  $2206 \text{ cm}^3$

☒ D.  $2312 \text{ cm}^3$

Q.7 In what time will a sum of ₹6,400 amount to ₹7,168 at 6% simple interest per annum?

Ans ☒ A. 2.5 years

☒ B. 3 years

☒ C. 4 years

☒ D. 2 years

Q.8 Which of the following are exactly divisible by 44?

(a) 155232

(b) 155248

(c) 156944

(d) 156992

Ans ☒ A. Only (a) and (c)

☒ B. Only (b) and (c)

☒ C. Only (b) and (d)

☒ D. Only (a) and (d)

Q.9 Simplify the given expression.

$$(\sqrt{1008} \div \sqrt{448}) \times \sqrt{0.16}$$

Ans ☒ A. 0.6

☒ B. 0.8

☒ C. 0.3

☒ D. 0.9

**Q.10** A dishonest shopkeeper promises to sell his goods at cost price. However, he uses a weight that actually weighs 40% less than what is written on it. Find his profit percentage.

**Ans**

☒ A.  $62\frac{2}{3}\%$

☒ B.  $65\frac{2}{3}\%$

☒ C.  $66\frac{2}{3}\%$

☒ D.  $66\frac{1}{3}\%$

**Q.11** Consider two numbers whose LCM + HCF = 504, and LCM - HCF = 456. If one of these two numbers is 96, find the other number.

**Ans**

☒ A. 126

☒ B. 130

☒ C. 100

☒ D. 120

**Q.12** Ravi's age is 5 years more than Gowri's age. The sum of their ages is 31 years. What is Gowri's age?

**Ans**

☒ A. 13 years

☒ B. 18 years

☒ C. 15 years

☒ D. 16 years

**Q.13** Express  $0.\overline{12}$  in the form  $\frac{p}{q}$ , where p and q are integers and  $q \neq 0$ .

**Ans**

☒ A.  $\frac{4}{33}$

☒ B.  $\frac{5}{33}$

☒ C.  $\frac{6}{33}$

☒ D.  $\frac{7}{33}$

**Q.14** Chakravarty drives a car at a speed of 52 km/h. How much time will he take to cover a distance of 364 km?

**Ans**

☒ A. 4 hours

☒ B. 5 hours

☒ C. 6 hours

☒ D. 7 hours

**Q.15** Which of the following equations is NOT a quadratic equation?

**Ans**

☒ A.  $(2x + 1)(3x - 4) = 2x^2 + 3$

☒ B.  $x^2 + 2\sqrt{x} - 5 = 0$

☒ C.  $\sqrt{3} x^2 - 2x + \frac{1}{\sqrt{2}} = 0$

☒ D.  $(x + 2)^3 = x^3 - 5$



**Q.16** Two trains are running in opposite directions on parallel tracks. If their speeds are 50 km/h and 58 km/h, find their relative speed.

- Ans**
- ☒ A. 20 m/s
  - ☒ B. 30 m/s
  - ☒ C. 40 m/s
  - ☒ D. 50 m/s

**Q.17** From the salary of Hari, 15% is deducted as house rent, 20% of the remaining amount is spent on children's education, and 10% of the remaining balance is his medical expenses. Finally, he is left with ₹42,840. Find his total salary.

- Ans**
- ☒ A. ₹65,000
  - ☒ B. ₹70,000
  - ☒ C. ₹75,000
  - ☒ D. ₹72,500

**Q.18** If the marked price of an article is ₹2,850 and the discount is 21%, then find the selling price.

- Ans**
- ☒ A. ₹2,251.50
  - ☒ B. ₹2,521.50
  - ☒ C. ₹2,215.50
  - ☒ D. ₹2,259.50

**Q.19** Giri and Kamal invested their capitals in a business in the ratio 5 : 7, respectively. If ₹1,728 was the total money invested in the business, what is Giri's share in the business?

- Ans**
- ☒ A. ₹1,008
  - ☒ B. ₹720
  - ☒ C. ₹702
  - ☒ D. ₹1,080

**Q.20** If the median of a set of data is 12 and its mean is 10, then find the mode of this data set, using the empirical formula.

- Ans**
- ☒ A. 14
  - ☒ B. 16
  - ☒ C. 15
  - ☒ D. 17

**Q.21** If  $r$  and  $s$  are the roots of  $x^2 - 3x + 2 = 0$ , then the quadratic equation in  $x$  whose roots are  $r^2 + s^2$  and  $(rs)^2$  is:

- Ans**
- ☒ A.  $x^2 + 9x - 20 = 0$
  - ☒ B.  $x^2 + 9x + 20 = 0$
  - ☒ C.  $x^2 - 9x - 20 = 0$
  - ☒ D.  $x^2 - 9x + 20 = 0$

**Q.22** If the perimeter of a square is 44 cm, then find the perimeter of a circle whose radius is equal to the length of a side of the given square.

- Ans**
- ☒ A.  $22\pi$
  - ☒ B.  $12\pi$
  - ☒ C.  $21\pi$
  - ☒ D.  $11\pi$



**Q.23** The length of a rectangular plot is 60% more than its breadth. If the difference between the length and the breadth of that rectangle is 30 cm, what is the perimeter of that rectangle?

- Ans**
- ☒ A. 330 cm
  - ☒ B. 300 cm
  - ☒ C. 270 cm
  - ☒ D. 260 cm

**Q.24** A regular polygon in which each interior angle is  $140^\circ$  is a/an:

- Ans**
- ☒ A. heptagon
  - ☒ B. octagon
  - ☒ C. nonagon
  - ☒ D. decagon

**Q.25** The quadrilateral formed by joining the mid-points of the sides of a quadrilateral PQRS, taken in order, is a rhombus, if

- Ans**
- ☒ A. PQRS is a rhombus
  - ☒ B. PQRS is a trapezium
  - ☒ C. Diagonals of PQRS are equal
  - ☒ D. Diagonals of PQRS are perpendicular

#### Section : General Intelligence and Reasoning

**Q.26** A certain number of people are sitting in a row, facing north. Q is second to the right of P. Only three people sit between Q and S. T is fourth to the right of S. If no other person is sitting in the row, what is the total number of people seated in the row?

- Ans**
- ☒ A. 10
  - ☒ B. 11
  - ☒ C. 8
  - ☒ D. 12

**Q.27** Which of the following terms will replace the question mark (?) in the given series to make it logically complete?

YSL 22, WQJ 25, UOH 28, SMF 31, ?

- Ans**
- ☒ A. QLD 34
  - ☒ B. RKD 32
  - ☒ C. QKD 34
  - ☒ D. SLE 35

**Q.28** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

15 : 230 :: 13 : 174 :: 11 : ?

- Ans**
- ☒ A. 149
  - ☒ B. 121
  - ☒ C. 144
  - ☒ D. 126

**Q.29** Which of the following numbers will replace the question mark (?) in the given series?

3    7    23    59    ?    223

- Ans**
- ☒ A. 113
  - ☒ B. 123
  - ☒ C. 133
  - ☒ D. 143

**Q.30** Five boxes X, Y, Z, A and B are kept one above the other but not necessarily in the same order. Only X is kept between Y and B. Z is not kept immediately above or immediately below A. A is not kept on the top most position. Which box is kept at the bottom most position?

- Ans**
- ☒ A. A
  - ☒ B. B
  - ☒ C. Y
  - ☒ D. Z

**Q.31** R, S, T, U, V and W live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it is numbered 2 and so on till the topmost floor is numbered 6. V lives on floor number 5. S does not live on an even numbered floor. U lives immediately below T. Neither R nor S lives on the topmost floor. Only two people live between V and T. Who lives immediately below R?

- Ans**
- ☒ A. S
  - ☒ B. T
  - ☒ C. U
  - ☒ D. V

**Q.32** If 2 is multiplied to each even digit and 2 is added to each odd digit in the number 2434251, what will be the sum of the digits which will appear more than once in the new number thus formed?

- Ans**
- ☒ A. 13
  - ☒ B. 15
  - ☒ C. 14
  - ☒ D. 12

**Q.33** Refer to the following letter, number, symbol series and answer the question.

(Left) S 7 & D M # Z 6 % 3 T 2 \* H G = C ? 4 Y B (Right)

How many such symbols are there which are immediately preceded by a number and also immediately followed by a letter?

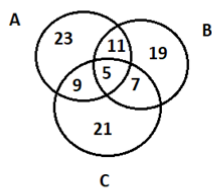
- Ans**
- ☒ A. One
  - ☒ B. Two
  - ☒ C. Three
  - ☒ D. Four

**Q.34** One evening, Ram and Shyam are talking face-to-face with each other. If Shyam's shadow was exactly to the right of Ram, in which direction was Shyam facing?

- Ans**
- ☒ A. West
  - ☒ B. South
  - ☒ C. East
  - ☒ D. North

**Q.35** Study the given Venn diagram carefully and answer the question that follows. The numbers in different sections indicate the number of gardeners assigned with the following tasks.

A = Watering the plants; B = Growing new plants; C = Beautification of the park



How many such gardeners are there who are assigned with the task of only growing new plants?

- Ans**
- ☒ A. 11
  - ☒ B. 12
  - ☒ C. 19
  - ☒ D. 21

**Q.36** Select the set in which the numbers are related in the same way as are the numbers of the following sets.  
(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding / subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

(11, 24, 57)  
(7, 39, 60)

- Ans**
- ☒ A. (17, 58, 91)
  - ☒ B. (12, 55, 19)
  - ☒ C. (14, 25, 43)
  - ☒ D. (15, 41, 86)

**Q.37** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

Some markers are pens.

Some pens are colours.

Some colours are wax.

Conclusions:

(I) Some colours are markers.

(II) Some pens are wax.

- Ans**
- ☒ A. Only conclusion (I) follows.
  - ☒ B. Only conclusion (II) follows.
  - ☒ C. Both conclusion (I) and conclusion (II) follow.
  - ☒ D. Both conclusion (I) and conclusion (II) do not follow.

**Q.38** In a certain code language, 'PURPLE' is written as 'VQQSFM' and 'YELLOW' is written as 'FZMMXP'. How will 'VIOLET' be written in the same code language?

- Ans**
- ☒ A. AMFUPW
  - ☒ B. JWMPUF
  - ☒ C. XMPWUF
  - ☒ D. JMWPFU

**Q.39** Select the option that is related to the fifth term in the same way as the fourth term is related to the third term and the second term is related to the first term.

DOLPHIN : ALIMEFK :: GROUP : DOLRM :: SHARK : ?

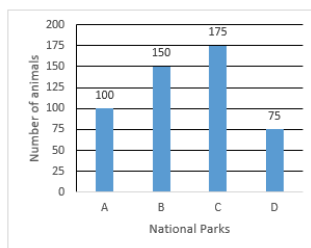
- Ans**
- ☒ A. PFXOH
  - ☒ B. PEYOH
  - ☒ C. VKDUN
  - ☒ D. PEXOH

**Q.40** Amongst six friends A, B, C, D, E and F, each has a different height. Only two people are taller than A. F is not the tallest. E is shorter than B but taller than D. Only one person is shorter than E. B is not taller than F. Who is the second tallest among all the friends?

- Ans**
- ☒ A. A
  - ☒ B. C
  - ☒ C. F
  - ☒ D. B

**Q.41** Study the given bar graph and answer the following question.

The given bar graph depicts the number of animals in four national parks.



Out of the total number of animals in National Parks A and C together, the respective ratio between the number of herbivores and carnivores was 11 : 14. What was the total number of herbivores in National Parks A and C together? (All national parks mentioned above contain herbivore and carnivore animals only)

- Ans**
- ☒ A. 99
  - ☒ B. 132
  - ☒ C. 110
  - ☒ D. 121

**Q.43** Which of the following options is the closest approximate value which will come in place of the question mark (?) in the following equation?

$$(325 \div 17.99 - 8.99)^2 = ?$$

- Ans**
- ☒ A. 25
  - ☒ B. 121
  - ☒ C. 81
  - ☒ D. 196

**Q.44** A, B, C, D, E and F are sitting around a circular table facing the centre. A is sitting second to the right of C. B is sitting to the immediate left of F. C is an immediate neighbour of both D and F. Who is sitting second to the left of B?

- Ans**
- ☒ A. C
  - ☒ B. E
  - ☒ C. A
  - ☒ D. F

**Q.45** Study the given table and answer the following question.

|        | Number of pages read in |        |
|--------|-------------------------|--------|
|        | Book 1                  | Book 2 |
| Aayush | 485                     | 392    |
| Bhakti | 642                     | 198    |

If the total number of pages that can be read in Book 1 was 750, how many pages were left unread by Bhakti in Book 1?

- Ans**
- ☒ A. 120
  - ☒ B. 96
  - ☒ C. 108
  - ☒ D. 98

**Q.46** In the number 482818259, if 1 is added to all the digits placed at the even places starting from left and 1 is subtracted from the digits placed at the odd places starting from left, what will be the sum of the last 4 digits ?

(Example- 697 – First digit = 6, second digit = 9 and third digit = 7)

NOTE - All operations to be done from left to right.

- Ans**
- ☒ A. 24
  - ☒ B. 22
  - ☒ C. 20
  - ☒ D. 32

**Q.47** Which of the following numbers will replace the question mark (?) in the given series?

171, 140, 110, 81, 53, ?

- Ans**
- ☒ A. 20
  - ☒ B. 25
  - ☒ C. 26
  - ☒ D. 32

**Q.48** Refer to the following letter, number and symbol series and answer the question.

(Left) F D 3 & S\* 9 J 5 @ 6 A & 2 R U # 3 E 7 E % Z (Right)

If all the numbers are dropped from the series, how many such symbols will be there which are immediately preceded by a vowel and also immediately followed by a consonant?

- Ans**
- ☒ A. One
  - ☒ B. Two
  - ☒ C. Three
  - ☒ D. Four

**Q.49** In a certain code language, 'WORTH' is coded as 'SRNWD' and 'MODEL' is coded as 'IRZHH'. How will 'COAST' be coded in that language?

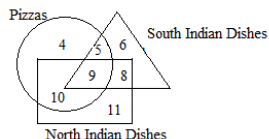
- Ans**
- ☒ A. FKDOV
  - ☒ B. YKWOP
  - ☒ C. FRDVV
  - ☒ D. YRWVP

**Q.51** In this question, the statement is followed by four conclusions. Find out which conclusion is true based on the given statement:

Statement:  $X \geq W > U \leq Y = V > Z$

- Ans**
- ☒ A.  $Z = Y$
  - ☒ B.  $V < U$
  - ☒ C.  $W < V$
  - ☒ D.  $U < X$

**Q.52** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of restaurants famous for various dishes.



How many restaurants are famous for their South Indian dishes and North India Dishes but NOT for pizzas?

- Ans**
- ☒ A. 8
  - ☒ B. 17
  - ☒ C. 13
  - ☒ D. 22

**Q.53** Six persons (L, M, N, O, P and Q) are sitting around a circular table facing the centre. Q is sitting second to the right of N. P is sitting second to the left of M. Q is an immediate neighbour of L and P. L is sitting second to the right of M. Who is sitting third to the left of O?

- Ans**
- ☒ A. L
  - ☒ B. N
  - ☒ C. Q
  - ☒ D. P

**Q.54** If today is Thursday, what will be the day after 560 days from today?

- Ans**
- ☒ A. Wednesday
  - ☒ B. Friday
  - ☒ C. Thursday
  - ☒ D. Sunday

**Q.55** Refer to the following number series and answer the question.

(Left) 6 1 4 6 2 7 5 3 8 6 9 1 3 9 5 3 (Right)

Find the sum of all the even numbers in the above number series.

- Ans**
- ☒ A. 54
  - ☒ B. 44
  - ☒ C. 32
  - ☒ D. 24

**Q.56** Which of the following statements is correct with regard to the reflection of light by a spherical mirror?

- (a) A convex mirror converges the light rays incident parallel to its principal axis.
- (b) A concave mirror converges the light rays incident parallel to its principal axis.
- (c) Convex mirror can form both, real and virtual images.
- (d) Concave mirror can form both, real and virtual images.

**Ans** ☒ A. Only (a) and (c)

☒ B. Only (b) and (d)

☒ C. Only (a) and (d)

☒ D. Only (b) and (c)

**Q.57** The Forest Department changed its strategy, making a beginning in the Arabari forest range of Midnapore district, at the insistence of a far-seeing forest officer named:

**Ans** ☒ A. KA Midhun

☒ B. AK Banerjee

☒ C. ED Arun Ghosh

☒ D. TA Chatterjee

**Q.58** Which of the following groups represents metals?

**Ans** ☒ A. Group 2

☒ B. Group 18

☒ C. Group 17

☒ D. Group 16

**Q.59** Copper is used in \_\_\_\_\_ due to its low resistivity.

**Ans** ☒ A. electric bulbs

☒ B. heaters

☒ C. transmission lines

☒ D. toasters

**Q.60** Refractive index of flint glass is 1.56. Then the critical angle( $I_c$ ) for glass air interface can also be expressed as  $\sin I_c$  equals :

**Ans** ☒ A. 0.64

☒ B. 0.74

☒ C. 0.84

☒ D. 0.94

**Note:** For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

**Q.61** The general formula  $C_nH_{2n-2}$  represents:

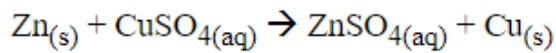
**Ans** ☒ A. alkane

☒ B. alkene

☒ C. alkyne

☒ D. acyclic compound

Q.63 The given reaction is an example of a \_\_\_\_\_.



- Ans
- ☐ A. combination reaction
  - ☐ B. double displacement reaction
  - ☐ C. decomposition reaction
  - ☒ D. displacement reaction

Q.64 When light passes from water to air then \_\_\_\_\_ changes.

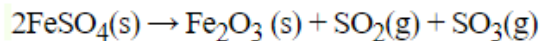
- Ans
- ☐ A. its frequency
  - ☐ B. Wave length
  - ☐ C. its speed
  - ☐ D. its colour

Note: For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

Q.65 The gaseous waste product generated during photosynthesis is:

- Ans
- ☐ A. carbon monoxide
  - ☐ B. carbon dioxide
  - ☐ C. nitrogen
  - ☒ D. oxygen

Q.66 What is the colour of ferrous sulphate in the given chemical reaction?



- Ans
- ☐ A. Blue
  - ☒ B. Green
  - ☐ C. Yellow
  - ☐ D. Red

Q.67 Arrange the following elements in the order of increasing atomic number.

B, Ne, K, O

- Ans
- ☐ A. B, K, O, Ne
  - ☒ B. B, O, Ne, K
  - ☐ C. K, B, O, Ne
  - ☐ D. Ne, K, B, O

Q.68 One of the natural sources of lactic acid is:

- Ans
- ☒ A. Curd
  - ☐ B. Orange
  - ☐ C. Tomato
  - ☐ D. Vinegar



**Q.69** The direction of a magnetic field can be obtained from the \_\_\_\_\_ drawn at any point of the magnetic lines of force.

- Ans**
- ☐ A. slope
  - ☒ B. tangent
  - ☐ C. secant
  - ☐ D. subtangent

**Q.70** Which of the following statements regarding HIV transmission is FALSE?

- Ans**
- ☐ A. HIV can be transmitted from an infected mother to her new born child.
  - ☐ B. Transfusion of HIV infected blood transmits HIV.
  - ☒ C. HIV can be transmitted through a mosquito bite after it has bitten an HIV infected person.
  - ☐ D. HIV can be transmitted through unsafe sexual contact with an infected person.

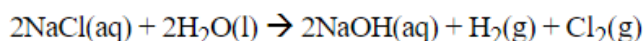
**Q.71** Carbon compounds DO NOT conduct electricity in the molten state because \_\_\_\_\_.

- Ans**
- ☐ A. they are non-covalent in nature
  - ☐ B. they are ionic in nature
  - ☐ C. bonding in carbon compounds involve formation of ions
  - ☒ D. bonding in carbon compounds does not involve formation of any ions

**Q.72** An ice-ball of 6 cm diameter is placed 30 cm in front of a concave mirror and its principal focus is double the distance of the object. Following the new Cartesian sign convention, the diameter of the image is:

- Ans**
- ☐ A. 10 cm
  - ☒ B. 12 cm
  - ☐ C. 14 cm
  - ☐ D. 16 cm

**Q.73** Which product is formed near the cathode in the given chemical reaction?



- Ans**
- ☐ A.  $\text{H}_2$ ,  $\text{Cl}_2$
  - ☒ B. NaOH
  - ☐ C. NaOH,  $\text{H}_2$
  - ☐ D. NaOH,  $\text{Cl}_2$

**Q.74** Energy flow through the various trophic levels in the ecosystem is \_\_\_\_\_.

- Ans**
- ☐ A. random
  - ☐ B. bidirectional
  - ☒ C. reduced with each higher trophic level
  - ☐ D. increased with each higher trophic level

Q.75 The current in a short circuit \_\_\_\_\_.

- Ans
- ☐ A. does not change
  - ☐ B. reduces enormously
  - ☒ C. increases enormously
  - ☐ D. varies continuously

Q.76 Which cell organelle is known as the 'suicide bags of a cell'?

- Ans
- ☐ A. Centrosome
  - ☐ B. Mitochondria
  - ☐ C. Nucleus
  - ☒ D. Lysosome

Q.77 Resistance is represented by \_\_\_\_\_.

- Ans
- ☒ A. work done / (charge  $\times$  current)
  - ☐ B. work done / charge
  - ☐ C. work done / current  $\times$  time
  - ☐ D. work done  $\times$  time

Q.78 The full form of ATP is \_\_\_\_\_.

- Ans
- ☒ A. Adenosine Triphosphate
  - ☐ B. Adenosine Tetraphosphate
  - ☐ C. Adenine Triphosphate
  - ☐ D. Adenine Tetraphosphate

Q.79 Which of the following is an example of the barrier method of contraception?

- Ans
- ☐ A. Loops
  - ☐ B. Oral pills
  - ☒ C. Condoms
  - ☐ D. Vasectomy

Q.80 The resistance of a wire of length  $l$ , radius  $r$ , and resistivity  $\rho$  is \_\_\_\_\_.

- Ans
- ☒ A.  $R = \frac{\rho l}{\pi r^2}$
  - ☐ B.  $R = \frac{\rho l}{4\pi r^2}$
  - ☐ C.  $R = \frac{\rho l}{4\pi r}$
  - ☐ D.  $R = \frac{\rho l}{2\pi r}$

Section : General Awareness and Current Affairs

**Q.81** Which language is a descendant of Sanskrit and is influenced by the languages of Dravidian, Arabic, Portuguese, English, Persian and Turkey?

- Ans**
- ☒ A. Tamil
  - ☒ B. Hindi
  - ☒ C. Bengali
  - ☒ D. Urdu

**Q.82** The Cardamom hills are located in which state of India?

- Ans**
- ☒ A. Maharashtra
  - ☒ B. Goa
  - ☒ C. Karnataka
  - ☒ D. Kerala

**Q.83** Who among the following was the Prime Minister of India during the Eighth Five-Year Plan?

- Ans**
- ☒ A. Manmohan Singh
  - ☒ B. Chandra Shekhar
  - ☒ C. Rajiv Gandhi
  - ☒ D. PV Narasimha Rao

**Q.84** Who is the ex-officio Chairman of the Rajya Sabha?

- Ans**
- ☒ A. Prime Minister of India
  - ☒ B. Vice-President of India
  - ☒ C. President of India
  - ☒ D. Home Minister of India

**Q.85** If  $C = 400$  and  $Y = 1000$ , then what is the average propensity to consume?

- Ans**
- ☒ A. 0.4
  - ☒ B. 2.5
  - ☒ C. 40
  - ☒ D. 250

**Q.86** Which of the following is a result of the federal form of Government in India?

- Ans**
- ☒ A. Council of Ministers headed by Prime Minister
  - ☒ B. Multi-tiered government – Union, State and Local
  - ☒ C. Three organs of government – the Legislature, the Executive and the Judiciary
  - ☒ D. Rights of individuals against the State as well as against other individuals

**Q.87** The Home Rule League was established in India by Indian nationalist Bal Gangadhar Tilak and Indian independence leader \_\_\_\_\_ in September 1916 in Madras, with the objective of achieving self-government in India.

- Ans**
- ☒ A. Annie Besant
  - ☒ B. Bipin Chandra Pal
  - ☒ C. Lala Lajpat Rai
  - ☒ D. Swami Vivekananda

**Q.88** In March 2022, a captive floating solar power plant which is claimed to be the country's first and largest floating power plant, set up by the agri-nutrient and fertilisers company Southern Petrochemicals Industries Corporation Limited, popularly known as SPIC Limited, formally went on stream at which place?

- Ans**
- ✓ **A. Thoothukudi**
  - ✗ **B. Udaipur**
  - ✗ **C. Bhopal**
  - ✗ **D. Kodaikanal**

**Q.89** What is the term used for interest rates that change during the tenure of the loan?

- Ans**
- ✓ **A. Floating rate**
  - ✗ **B. Prime rate**
  - ✗ **C. Drifting rate**
  - ✗ **D. Buoyant rate**

**Q.90** Who became the first Indian to bag a medal at the IBSA Judo Grand Prix, in 2022?

- Ans**
- ✗ **A. Navjot Chana**
  - ✓ **B. Kapil Parmar**
  - ✗ **C. Akram Shah**
  - ✗ **D. Avtar Singh**

**Q.91** On 1 March 2022, the National Commission for Protection of Child Rights (NCPCR) marked its \_\_\_\_\_ Foundation Day.

- Ans**
- ✗ **A. 11<sup>th</sup>**
  - ✗ **B. 13<sup>th</sup>**
  - ✗ **C. 15<sup>th</sup>**
  - ✓ **D. 17<sup>th</sup>**

**Q.92** What is the name of the cell created in 2016 by the Government of India in which a dedicated team has been established to promote Korean investment in India?

- Ans**
- ✗ **A. Korea Sigma**
  - ✗ **B. Korea Multiply**
  - ✗ **C. Korea Combined**
  - ✓ **D. Korea Plus**

**Q.93** In which season do the dry and hot winds known as 'Loo' blow in the afternoon?

- Ans**
- ✗ **A. The Cold Weather Season**
  - ✓ **B. The Hot Weather Season**
  - ✗ **C. The Southwest Monsoon Season**
  - ✗ **D. The Retreating Monsoon Season**

**Q.94** Panchayats have been defined in which Article of the Indian Constitution?

- Ans**
- ✗ **A. Article 242**
  - ✓ **B. Article 243**
  - ✗ **C. Article 244**
  - ✗ **D. Article 245**

**Q.95** Which Indian state is the host of the FIH Hockey Men's World Cup 2023?

- Ans**
- ☐ A. Tamil Nadu
  - ☐ B. New Delhi
  - ☒ C. Odisha
  - ☐ D. Haryana

**Q.96** The Sunni and Shia are the two major sects in which religion or belief?

- Ans**
- ☐ A. Parsi
  - ☐ B. Sikhism
  - ☒ C. Islam
  - ☐ D. Judaism

**Q.97** National Unity Day in India is observed on 31 October, coinciding with the birthday of \_\_\_\_\_.

- Ans**
- ☒ A. Sardar Vallabhbhai Patel
  - ☐ B. Jawaharlal Nehru
  - ☐ C. Indira Gandhi
  - ☐ D. Dr. BR Ambedkar

**Q.98** On the occasion of 'World Day against Human Trafficking' (30 July, 2022), National Commission for Protection of Child Rights (NCPCR) launched a \_\_\_\_\_ campaign called 'Combating Child Trafficking' in 75 bordering districts of India in August 2022.

- Ans**
- ☒ A. 25 day
  - ☐ B. 15 day
  - ☐ C. 10 day
  - ☐ D. 7 day

**Q.100** India's first indigenous COVID-19 vaccine 'COVAXIN' is developed by BBIL in collaboration with the Indian Council of Medical Research (ICMR) - National Institute of Virology (NIV). The 'BBIL' is stand for -

- Ans**
- ☐ A. Bharat Biological International Limited
  - ☒ B. Bharat Biotech International Limited
  - ☐ C. Bharat Biotechnology International Limited
  - ☐ D. Bharat Biochemistry and International Limited



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 27/09/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

Q.1 By selling an article for ₹940 a man incurs a loss of 6%. What is its cost price?

- Ans
- ☐ A. ₹1,250
  - ☐ B. ₹480
  - ☐ C. ₹960
  - ☒ D. ₹1,000

Q.2 Find the arithmetic mean of the following data.

|     |   |    |    |    |    |    |
|-----|---|----|----|----|----|----|
| $x$ | 5 | 10 | 15 | 20 | 25 | 30 |
| $f$ | 3 | 5  | 6  | 2  | 1  | 3  |

- Ans
- ☐ A. 12.5
  - ☐ B. 13.5
  - ☐ C. 14.5
  - ☒ D. 15.5

Q.3 If  $\tan q + \cot q = 14$ , then find the value of  $7\tan^2 q + 7\cot^2 q$ .

- Ans
- ☐ A. 194
  - ☐ B. 1386
  - ☒ C. 1358
  - ☐ D. 198

Q.4 A shopkeeper bought articles A and B for a total of ₹2,540. He sold A at a gain of 15% and sold B at a loss of 25%. The selling price of A was ₹109 more than that of B. His profit or loss percentage in the entire transaction is (correct to one decimal place):

- Ans
- ☐ A. profit, 8.3%
  - ☒ B. loss, 8.3%
  - ☐ C. loss, 8.5%
  - ☐ D. profit, 8.5%

Q.5 Simplify the given expression.

$$(y - z)^3 + (z - x)^3 + (x - y)^3$$

Ans

☒ A.  $(x - y)(y - z)(z - x)$

☒ B.  $3(x - y)(y - z)(z + x)$

☒ C.  $3(x - y)(y - z)(z - x)$

☒ D.  $3(x - y)(y - z)(x - z)$

Q.6 Ramu works in shop for ₹125 per hour. If his pay is increased to ₹145 per hour, find his percentage increase in pay.

Ans

☒ A. 12%

☒ B. 14%

☒ C. 16%

☒ D. 18%

Q.7 Which of the following statements is NOT necessarily true?

Ans

☒ A. The diagonals of a rectangle bisect each other.

☒ B. The diagonals of a parallelogram bisect each other.

☒ C. The diagonals of a rhombus bisect each other.

☒ D. The diagonals of a kite bisect each other.

Q.8 If  $0.045 + 0.154 - 0.09 + 1.5 - (0.3 \times 0.8) = x - 0.231$ , then the value of  $x$  lies between:

Ans

☒ A. 1.1 and 1.3

☒ B. 1.3 and 1.5

☒ C. 1.5 and 1.8

☒ D. 1.8 and 2.0

Q.9 If an investment earns a simple interest rate of 4% per annum, then how many years will it take for the investment to double itself?

Ans

☒ A. 10

☒ B. 20

☒ C. 25

☒ D. 15

Q.10 Express  $3.\overline{31}$  in the form  $\frac{p}{q}$ , where  $p$  and  $q$  are integers and  $q \neq 0$ .

Ans

☒ A.  $\frac{109}{33}$

☒ B.  $\frac{328}{99}$

☒ C.  $\frac{329}{99}$

☒ D.  $\frac{10}{3}$



**Q.11** If the sum of two numbers is 48, while the HCF of these two numbers is 6, then the total number of such pairs of numbers  $(x, y)$ , where  $x > y$ , is:

- Ans**
- ☒ A. 4
  - ☒ B. 3
  - ☒ C. 2
  - ☒ D. 1

**Q.12** The average score of a cricketer in his first 7 innings is 28 runs. His average score in the next 3 innings is 32 runs. Determine the score he should get in his 11<sup>th</sup> inning so that his overall average score becomes 33 runs.

- Ans**
- ☒ A. 49
  - ☒ B. 50
  - ☒ C. 55
  - ☒ D. 71

**Q.13** If  $x = b + c$ ,  $y = c - a$ ,  $z = a - b$ , then find the value of  $x^2 + y^2 + z^2 - 2xy - 2xz + 2yz$ .

- Ans**
- ☒ A.  $4c^2$
  - ☒ B.  $4a^2$
  - ☒ C.  $4b^2$
  - ☒ D.  $2b$

**Q.14** Find the area of a rhombus whose diagonals measure 24.6 cm and 28.6 cm, respectively.

- Ans**
- ☒ A.  $657.46 \text{ cm}^2$
  - ☒ B.  $251.78 \text{ cm}^2$
  - ☒ C.  $703.56 \text{ cm}^2$
  - ☒ D.  $351.78 \text{ cm}^2$

**Q.15** Which of the following represents a quadratic equation?

- Ans**
- ☒ A.  $5x^2 + 4x - 2 = 7x$
  - ☒ B.  $(x + 7)4 = 14$
  - ☒ C.  $3x + 7 = 7x^3$
  - ☒ D.  $4x^2 + 6x + 5 = 4x(x + 1)$

**Q.16** Two pipes can fill a cistern, individually, in 60 min and 75 min, respectively. There is a pipe located at the bottom of the cistern to empty it. If all the three pipes are opened simultaneously, then the empty cistern gets filled in 50 min. How long will the pipe at the bottom of the tank take to empty the completely filled cistern if no other pipe is then open?

- Ans**
- ☒ A. 75 min
  - ☒ B. 100 min
  - ☒ C. 150 min
  - ☒ D. 200 min

**Q.17** The difference between the total surface area and the lateral surface area of a cube is  $4050 \text{ units}^2$ . Find the length of each side of the cube.

- Ans**
- ☒ A. 40 units
  - ☒ B. 54 units
  - ☒ C. 45 units
  - ☒ D. 35 units



Q.18 Simplify the given expression.

$$[(x - y) + \frac{y^2}{x + y}] \div [x^2 + y^2 + \frac{y^4}{x^2 - y^2}] \times \frac{y^2}{x - y}$$

Ans

☒ A.  $\frac{x^2}{y^2}$

☒ B.  $\frac{y^2}{x^2}$

☒ C.  $\frac{x^2 - y^2}{x^2 y^2}$

☒ D.  $x^2 y^2$

Q.19 The units digit of a 2-digit number is three times its tens digit. If the units digit is 6, what is the value of twice the number?

Ans

☒ A. 26

☒ B. 52

☒ C. 24

☒ D. 48

Q.20 Let  $x = 55^{100} + 55^{101} + 55^{102}$ . Which of the following prime number is NOT a factor of  $x$ ?

Ans

☒ A. 3

☒ B. 11

☒ C. 71

☒ D. 79

Q.21 Navya and Bhavya can paint a house in 20 days and 30 days, respectively. If they work on alternate days, starting with Bhavya, in how many days can the duo complete painting that house?

Ans

☒ A. 40 days

☒ B. 48 days

☒ C. 24 days

☒ D. 12 days

Q.22 145 is divided into two parts,  $a$  and  $b$ , such that  $a : b :: 2 : 3$ . Also,  $a : c :: c : b$  and  $c > 0$ . Find the value of  $c$ , correct to the nearest integer.

Ans

☒ A. 61

☒ B. 65

☒ C. 71

☒ D. 75

Q.23  $[(324 \div 9) \div 4] \times 25 + 186$  equals:

Ans

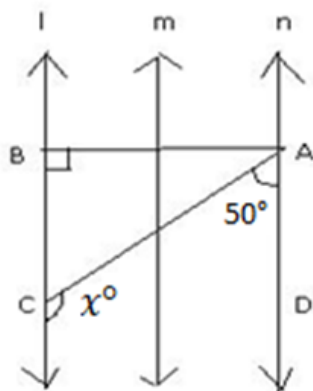
☒ A. 411

☒ B. 114

☒ C. 386

☒ D. 141

**Q.24** In the given figure,  $l$  is parallel to  $m$  and  $m$  is parallel to  $n$ . Find the value of  $x^\circ$ .



- Ans**
- ☒ A.  $30^\circ$
  - ☒ B.  $50^\circ$
  - ☒ C.  $100^\circ$
  - ☒ D.  $130^\circ$

**Q.25** If  $x = \frac{2}{3}$  is one of the solutions of the quadratic equation  $7x^2 + kx - 3 = 0$ , then the value of  $k$  satisfies the equation:

- Ans**
- ☒ A.  $6k^2 - 5k + 1 = 0$
  - ☒ B.  $6k^2 - 3k - 1 = 0$
  - ☒ C.  $12k^2 + 4k - 1 = 0$
  - ☒ D.  $12k^2 - 4k - 1 = 0$

#### Section : General Intelligence and Reasoning

**Q.26** Refer to the given number, symbol series and answer the question that follows.

(Left)  $9 + \$ 5 @ \$ 2 6 3 \% 2 \& 8 \# * 2 9 ! 4 3$  (Right)

How many such symbols are there (from left to right) which are immediately preceded by a symbol and also immediately followed by an even number?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.27** Which of the following numbers will replace the question mark (?) in the given number series?

2.9, 4.4, 5.9, 7.4, 8.9, ?

- Ans**
- ☒ A. 9.4
  - ☒ B. 10.4
  - ☒ C. 9.9
  - ☒ D. 10.9

**Q.28** If 1 is added to each even digit and 2 is subtracted from each odd digit in the number 38572352, what will be the sum of the digits which are second from the left and fourth from the right in the number thus formed?

- Ans**
- ☒ A. 4
  - ☒ B. 10
  - ☒ C. 11
  - ☒ D. 12

**Q.29** If '-' means '+', '+' means '×', '×' means '+', '+' means '-', what will come in place of the question mark (?) in the following equation?

$$3 + 8 \times 2 + 1 - 5 = ?$$

- Ans**
- ☒ A. 6
  - ☒ B. 7
  - ☒ C. 5
  - ☒ D. 4

**Q.30** OT 05 is related to SX 07 in a certain way. In the same way, GK 09 is related to KO 11. To which of the following is BG 13 related following the same logic?

- Ans**
- ☒ A. FK 15
  - ☒ B. KF 51
  - ☒ C. FK 20
  - ☒ D. KF 15

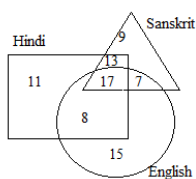
**Q.31** A, B, C, D, E and F are sitting around a circular table facing the centre. B is sitting second to the right of D. C is sitting third to the right of A. A is an immediate neighbour of both E and F. D sits to the immediate right of E. Who is sitting to the immediate left of B?

- Ans**
- ☒ A. C
  - ☒ B. D
  - ☒ C. A
  - ☒ D. F

**Q.32** M, N, O, P, Q and R live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 6. Q lives on an odd-numbered floor but not on the lowermost floor. Only one person lives between Q and N. R lives immediately above Q. Only two people live between O and Q. If P lives immediately above R, where does M live?

- Ans**
- ☒ A. 4th floor
  - ☒ B. 6th floor
  - ☒ C. 1st floor
  - ☒ D. 2nd floor

**Q.33** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of students speaking various languages.



How many students can speak all three languages i.e. Sanskrit, Hindi and English?

- Ans**
- ☒ A. 17
  - ☒ B. 25
  - ☒ C. 24
  - ☒ D. 30

**Q.34** Study the given table and answer the following question.

|         | Number of cushions sold in |       |
|---------|----------------------------|-------|
|         | February                   | March |
| Store X | 196                        | 114   |
| Store Y | 72                         | 98    |
| Store Z | 84                         | 155   |

The total number of cushions sold by store X in February and March is what percentage more than the number of cushions sold by store Z in March?

- Ans**
- ✓ A. 100%
  - ✗ B. 50%
  - ✗ C. 200%
  - ✗ D. 155%

**Q.35** Which two numbers, from among the given options, should be interchanged to make the given equation correct?

$$21 \div 9 + 99 - 81 \times 5 = 3$$

- Ans**
- ✗ A. 21 and 5
  - ✗ B. 9 and 81
  - ✗ C. 9 and 5
  - ✓ D. 21 and 81

**Q.36** This question consists of a statement followed by two arguments I and II. Read the statement and the arguments carefully and select the appropriate answer from the given options.

Statement:

Waking up early in the morning has many benefits.

Arguments:

I. Waking up early gives you ample amount of time to exercise.

II. Waking up early keeps you stress free.

- Ans**
- ✗ A. I weakens while II strengthens the statement.
  - ✗ B. II weakens while I strengthens the statement.
  - ✗ C. Both I and II weaken the statement.
  - ✓ D. Both I and II strengthen the statement.

**Q.37** Which of the following letter-clusters will replace the question mark (?) in the given series to make it logically complete?

FAN 15, KFS 20, PKX 25, UPC 30, ?

- Ans**
- ✗ A. ZVI 35
  - ✗ B. YSL 40
  - ✓ C. ZUH 35
  - ✗ D. YLS 45

**Q.38** A statement is given followed by four conclusions. Find out which conclusion is **INCORRECT** based on the given statement.

Statement:  $G \geq B > D > P < H = C$

**Conclusions:**

- 1)  $P < C$
- 2)  $G > P$
- 3)  $D < C$
- 4)  $B > P$

**Ans** ☒ A. 1  
☒ B. 2  
☒ C. 3  
☒ D. 4

**Q.39** Which of the following numbers will replace the question mark (?) in the given number series?

19, 19, 21, 63, 67, ?

**Ans** ☒ A. 72  
☒ B. 335  
☒ C. 196  
☒ D. 330

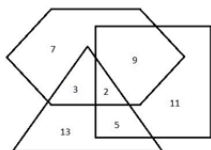
**Q.40** Bharti starts from point T and drives 7 km towards north. Then she turns right, drives 4 km, turns right and drives 10 km. She then turns right and walks 6 km. She takes a final right turn, drives 3 km and stops at point E. How far and in which direction should she drive to reach point T from point E?

(All turns are  $90^\circ$  turns only)

**Ans** ☒ A. 2 km towards north  
☒ B. 2 km towards south  
☒ C. 2 km towards east  
☒ D. 2 km towards west

**Q.41** In the following Venn diagram, the square represents 'creative people', the hexagon represents 'painters', and the triangle represents 'people who live in rural areas'.

Select the option which represents the number of creative painters who live in rural areas.

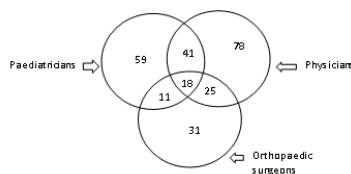


**Ans** ☒ A. 3  
☒ B. 9  
☒ C. 5  
☒ D. 2

- Q.42** Select the set in which the numbers are related in the same way as are the numbers of the following sets.  
(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)  
(17, 238, 7)  
(23, 414, 9)

**Ans** ☒ A. (15, 225, 15)  
☒ B. (19, 360, 9)  
☒ C. (27, 270, 5)  
☒ D. (13, 273, 7)

- Q.43** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



How many such persons are there who are paediatricians and also orthopaedic surgeons but NOT physicians?

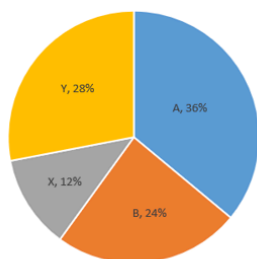
**Ans** ☒ A. 36  
☒ B. 19  
☒ C. 11  
☒ D. 40

- Q.44** Five friends live on five different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 5. Only Meera lives on the floor between Shrishti and Richa. Anshul lives on the floor immediately below Richa. Chandan lives on the first floor. No one lives above Shrishti. Who lives on the second floor?

**Ans** ☒ A. Meera  
☒ B. Richa  
☒ C. Anshul  
☒ D. Shrishti

- Q.45** Study the given pie-chart and answer the following question.

The given pie chart depicts the number of chairs manufactured of four brands (A, B, X and Y). The total number of chairs manufactured of the four brands together is 200.



The total manufacturing cost of chairs of Brand A was ₹14,400. What was the manufacturing cost of one chair of Brand A?

**Ans** ☒ A. ₹150  
☒ B. ₹220  
☒ C. ₹240  
☒ D. ₹200

**Q.46** How many such pairs of letters are there in the word INTERNATIONAL (in both forward and backward directions) which have as many letters between them in the word as there are in the English alphabetical order?

- Ans**
- ☒ A. 7
  - ☒ B. 6
  - ☒ C. 5
  - ☒ D. 4

**Q.47** A group of friends are playing a game sitting together facing north. Rehana is to the left of Arjun, who is seated exactly in front of Somil. If Arjun exchanges his position with Somil, to which direction of Arjun is Rehana seated now?

- Ans**
- ☒ A. North
  - ☒ B. North-East
  - ☒ C. North-West
  - ☒ D. South-West

**Q.48** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. EXAMPLE: 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(11, 117, 2)

(9, 56, 5)

- Ans**
- ☒ A. (7, 46, 1)
  - ☒ B. (10, 98, 2)
  - ☒ C. (13, 169, 2)
  - ☒ D. (12, 108, 6)

**Q.49** In a certain code language, 'BFKMT' is written as 'CHNQY' and 'XUAFL' is written as 'YWDJQ'. How will 'GESIO' be written in that language?

- Ans**
- ☒ A. HFUJQ
  - ☒ B. HGVOT
  - ☒ C. HGUMT
  - ☒ D. HGVMT

**Q.50** Refer to the following letter, number, symbol series and answer the question.

(Left) B & Z S 6 N M @ 4 X & 7 L # 3 T Z \* 5 (Right)

How many such symbols are there which are immediately preceded by a letter and also immediately followed by a number?

- Ans**
- ☒ A. Two
  - ☒ B. Three
  - ☒ C. Four
  - ☒ D. Five

**Q.51** In a certain code language, 5, 8, 2, 3, 4, 1, 7 and 6 are coded as P, W, D, L, X, T, A and G, respectively.

If the last two digits of the number-cluster are odd, then the first and last digits are to be coded as Q.

If the last two digits of the number-cluster are even, then the first and last digits are to be coded as L.

How will '231578' be coded in that language?

- Ans**
- ☒ A. LLTPAL
  - ☒ B. DLTPAL
  - ☒ C. LLTPAW
  - ☒ D. DLTPAW

**Q.52** This question is based on the five, five-digit numbers given below.  
(Left) 72238 83745 52227 72253 63776 (Right)  
(Example: 697 – first digit = 6, second digit = 9, third digit = 7)  
(NOTE: All operations to be done from left to right)  
If 1 is subtracted from the first digit of every number, in how many numbers will the first digit be exactly divisible by 3?

**Ans** ☒ A. Two  
☒ B. Three  
☒ C. Four  
☒ D. Five

**Q.53** In a group of six friends, Teena, Monu, Lalit, Rekha, Garima and Suman, each has a different height. Lalit is shorter than Garima and Rekha but taller than Monu. Suman is shorter than only Teena. Who is the shortest among all the six friends?

**Ans** ☒ A. Garima  
☒ B. Suman  
☒ C. Monu  
☒ D. Lalit

**Q.54** Five friends live on five different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 5. Namita lives on the floor which is second from the top. Sanjana lives on one of the floor between Anand and Ritu. Avdhesh lives on the floor immediately above Namita. Ritu lives on the lowermost floor. Who lives on the fourth floor from the top?

**Ans** ☒ A. Sanjana  
☒ B. Namita  
☒ C. Anand  
☒ D. Avdhesh

**Q.55** Five friends, Hiba, Suhani, Pritam, Ahmed, and Rosy are sitting around a circular table facing the centre. Rosy is second to the right of Pritam, and is an immediate neighbour to both Suhani and Ahmed. If Ahmed is second to the left of Pritam, where is Hiba seated?

**Ans** ☒ A. Third to the left of Suhani  
☒ B. To the immediate left of Suhani  
☒ C. Second to the left of Suhani  
☒ D. Second to the right of Suhani

#### Section : General Science

**Q.56** In an electrical circuit, five identical bulbs are connected in parallel to each other to a battery of 20 V (negligible internal resistance). When all the five bulbs glow, a current of 5 A is recorded. Then the power dissipated in the circuit and the resistance of each bulb are \_\_\_\_ and \_\_\_\_, respectively.

**Ans** ☒ A. 31.25 W, 1.25  $\Omega$   
☒ B. 56.25 W, 2.25  $\Omega$   
☒ C. 38.75 W, 1.55  $\Omega$   
☒ D. 46.25 W, 1.85  $\Omega$



**Q.57** Select the correct balanced chemical equation for the given reaction.

Zinc + Silver nitrate  $\rightarrow$  Zinc nitrate + Silver

- Ans**
- ☒ A.  $\text{Zn(s)} + \text{AgNO}_3 \text{ (aq)} \rightarrow \text{ZnNO}_3 \text{ (aq)} + \text{Ag(s)}$
  - ☒ B.  $2\text{Zn (s)} + \text{AgNO}_3 \text{ (aq)} \rightarrow 2\text{ZnNO}_3 \text{ (aq)} + \text{Ag(s)}$
  - ☒ C.  $\text{Zn (s)} + 2\text{AgNO}_3 \text{ (aq)} \rightarrow \text{Zn (NO}_3)_2 \text{ (aq)} + 2\text{Ag(s)}$
  - ☒ D.  $2\text{Zn (s)} + \text{AgNO}_3 \text{ (aq)} \rightarrow \text{ZnNO}_3 \text{ (aq)} + \text{Ag(s)}$

**Q.58** What is the most effective solution to reduce the production of waste?

- Ans**
- ☒ A. Reuse
  - ☒ B. Composting
  - ☒ C. Refuse
  - ☒ D. Combustion

**Note:** For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

**Q.59** In Mendel's experiments, crossing a pea plant bearing yellow-coloured peas with a plant bearing green-coloured peas gave plants that all had yellow-coloured peas. If these plants were allowed to self-pollinate and 500 peas were collected from them, how many would be green-coloured?

- Ans**
- ☒ A. Around 110
  - ☒ B. Around 220
  - ☒ C. Around 330
  - ☒ D. Around 440

**Q.60** Which of the following chemical reactions are examples of combination reactions?

- i)  $3\text{Fe(s)} + 4\text{H}_2\text{O(g)} \rightarrow \text{Fe}_3\text{O}_4 \text{ (s)} + 4\text{H}_2\text{(g)}$
- ii)  $\text{CO(g)} + 2\text{H}_2\text{(g)} \rightarrow \text{CH}_3\text{OH(l)}$
- iii)  $2\text{Mg(s)} + \text{O}_2 \text{ (g)} \rightarrow 2\text{MgO(s)}$
- iv)  $\text{Zn (s)} + 2\text{AgNO}_3\text{(aq)} \rightarrow \text{Zn(NO}_3)_2 \text{ (aq)} + 2\text{Ag(s)}$

- Ans**
- ☒ A. i and ii
  - ☒ B. ii and iii
  - ☒ C. i and iv
  - ☒ D. iii and iv

**Q.61** The potential difference across a resistor of 2 ohm when 200 joule of heat is produced each second is given by \_\_\_\_\_.

- Ans**
- ☒ A. 10 volt
  - ☒ B. 20 volt
  - ☒ C. 40 volt
  - ☒ D. 80 volt

**Q.62** Stars twinkle at night due to:

- Ans**
- ☐ A. atmospheric dispersion
  - ☐ B. atmospheric scattering of starlight
  - ☒ C. atmospheric refraction of starlight
  - ☐ D. atmospheric reflection of starlight

**Q.63** Name the tiny pores present on leaves of plants.

- Ans**
- ☐ A. Guard cells
  - ☒ B. Stomata
  - ☐ C. Chloroplasts
  - ☐ D. Lenticels

**Q.64** Suppose Ram has placed a ball in front of a concave mirror of focal length ( $f$ ) at various distances ( $u$ ) and he has measured the corresponding image distances ( $v$ ). From the values of  $u$  and  $v$ , Ram is able to plot a graph of  $1/v$  against  $1/u$ . From the graph, Ram has observed that  $x$  intercept and  $y$  intercept are 0.1 cm and 0.11 cm, respectively. Then the focal length of the mirror is:

- Ans**
- ☒ A. 9.55 cm
  - ☐ B. 11.25 cm
  - ☐ C. 8.5 cm
  - ☐ D. 12.65 cm

**Q.65** Direction of the magnetic field produced by the straight conductor carrying current in the east direction is along the \_\_\_\_\_ direction

- Ans**
- ☐ A. north
  - ☐ B. west
  - ☒ C. south
  - ☐ D. east

**Q.66** A man with blood group A, married to a woman blood group B, had a child with group AB. What does this mean in terms of genetics?

- Ans**
- ☐ A. Gene for blood group A is dominant and gene for blood group B is recessive.
  - ☐ B. Gene for blood group B is dominant and gene for blood group A is recessive.
  - ☒ C. Gene for blood group A and gene for blood group B are both dominant.
  - ☐ D. Gene for blood group A and gene for blood group B are both recessive.

**Q.67** Plants release excess water through a process called:

- Ans**
- ☐ A. evaporation
  - ☐ B. transportation
  - ☐ C. translocation
  - ☒ D. transpiration

**Q.68** Bleaching powder is produced by the action of chlorine on?

- Ans**
- ☐ A. Caustic soda
  - ☒ B. Slaked lime
  - ☐ C. Quick lime
  - ☐ D. Sodium chloride

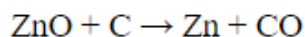
**Q.69** A square-shaped coil of copper wires is rotating in a magnetic field. Then direction of the induced current in the coil changes once in each:

- Ans**
- ☒ A. one-fourth of the revolution of the coil
  - ☒ B. one-eighth of the revolution of the coil
  - ☒ C. one-half of the revolution of the coil
  - ☒ D. one-sixth of the revolution of the coil

**Q.70** In the Modern Periodic Table, phosphorous is placed in the \_\_\_\_\_.

- Ans**
- ☒ A. 15<sup>th</sup> group and 2<sup>nd</sup> period
  - ☒ B. 15<sup>th</sup> group and 3<sup>rd</sup> period
  - ☒ C. 14<sup>th</sup> group and 2<sup>nd</sup> period
  - ☒ D. 14<sup>th</sup> group and 3<sup>rd</sup> period

**Q.71** Identify the substance that is reduced in the following reaction.



- Ans**
- ☒ A. C
  - ☒ B. ZnO
  - ☒ C. Zn
  - ☒ D. O

**Q.72** \_\_\_\_\_ helps to maintain potential difference across a conductor.

- Ans**
- ☒ A. Plug key
  - ☒ B. Battery
  - ☒ C. Resistance
  - ☒ D. Voltmeter

**Q.73** Which of the following is produced when magnesium ribbon burns in the presence of air?

- Ans**
- ☒ A. White powder of magnesium oxide
  - ☒ B. Blue powder of magnesium oxide
  - ☒ C. White powder of magnesium dioxide
  - ☒ D. White powder of magnesium carbonate

**Q.74** An object of height 3 cm is placed at a distance 30 cm in front of a convex lens of focal length 20 cm. The height of the image will be:

- Ans**
- ☒ A. 4 cm
  - ☒ B. 6 cm
  - ☒ C. 8 cm
  - ☒ D. 10 cm

**Q.75** Which of the following changes in our eating habits will have the biggest impact on our environment?

- Ans**
- ☐ A. Growing our own food
  - ☒ B. Giving up meat and animal products
  - ☐ C. Stopping wastage of food
  - ☐ D. Avoiding processed food

**Q.76** When copper oxide is added to dilute hydrochloric acid, the colour of the acid changes to blue-green, due to the formation of \_\_\_\_\_.

- Ans**
- ☒ A. copper (II) chloride
  - ☐ B. hydrogen gas
  - ☐ C. water
  - ☐ D. copper (I) chloride

**Q.77** How many triads were identified by Dobereiner in his system of classification of elements?

- Ans**
- ☐ A. Five
  - ☐ B. Six
  - ☐ C. Four
  - ☒ D. Three

**Q.78** Which of the following are the three-carbon molecules formed during respiration?

- Ans**
- ☐ A. Ethanol and lactic acid
  - ☒ B. Lactic acid and pyruvate
  - ☐ C. Pyruvate and ethanol
  - ☐ D. Ethanol and malic acid

**Q.79** What will happen if bubbles of air are sent through lime water taken in a container?

- Ans**
- ☐ A. The solution will foam and froth
  - ☒ B. The solution will turn milky due to insoluble suspension of Calcium carbonate
  - ☐ C. The temperature will rise due to an exothermic reaction
  - ☐ D. The solution will instantly red as reacts with lime

**Q.80** In the Leviathan telescope in Ireland, a concave mirror of focal length 3.0 m is used. If an image of height 80 cm is formed at a distance of 4.0 m, then the object height, object distance and magnification are (the object is placed in front of the mirror):

- Ans**
- ☐ A. 1.2 m, 12 m and  $\frac{1}{3}$  respectively
  - ☒ B. 2.4 m, 12 m and  $\frac{1}{3}$  respectively
  - ☐ C. 2.4 m, 12 m and  $\frac{1}{2}$  respectively
  - ☐ D. 2.4 m, 6 m and  $\frac{1}{3}$  respectively

Section : General Awareness and Current Affairs

**Q.81** Which of the following days marked the 17<sup>th</sup> Foundation Day of the National Commission for Protection of Child Rights?

- Ans**
- ✓ A. 1 March 2022
  - ✗ B. 2 March 2022
  - ✗ C. 3 March 2022
  - ✗ D. 4 March 2022

**Q.82** Which of the following types of soils found in India cover about 40 per cent of the total area of the country?

- Ans**
- ✓ A. Alluvial soils
  - ✗ B. Black soils
  - ✗ C. Red and yellow soils
  - ✗ D. Laterite soils

**Q.83** Who won the third edition of the BBC Indian Sportswoman of the Year Award in 2021?

- Ans**
- ✓ A. Mirabai Chanu
  - ✗ B. Radha Yadav
  - ✗ C. PV Sindhu
  - ✗ D. Saina Nehwal

**Q.84** What is name of the grant-in-aid scheme of the department under Tribal Sub Plan that aims at improving living conditions and empowerment of scheduled tribes based on sustainable science and technology (S & T) activities/application?

- Ans**
- ✗ A. Technological Involvements for Tribal Empowerment (TITE)
  - ✗ B. Technical Interventions for Tribal Empowerment (TITE)
  - ✗ C. Technological Interventions for Tribal Enablement (TITE)
  - ✓ D. Technological Interventions for Tribal Empowerment (TITE)

**Q.85** In which of the following years, was the Article 21-A inserted in the Constitution of India, which deals with the Fundamental Right of getting compulsory education for all children in the age group of six to fourteen years?

- Ans**
- ✗ A. 2001
  - ✓ B. 2002
  - ✗ C. 2003
  - ✗ D. 2004

**Q.86** Select the correct group of statements that support the criteria of being a classical language in India according to the Government of India.

The language in its property should have:

- A) high antiquity of its early texts/recorded history over a period of 1500-2000 years.
- B) a body of ancient literature/texts, which is considered a valuable heritage by a generations of speakers
- C) original literary tradition that is not borrowed from another speech community
- D) been spoken by at least two million active speakers

- Ans**
- ✗ A. B, C and D
  - ✓ B. A, B and C
  - ✗ C. A, C and D
  - ✗ D. A, B and D

**Q.87** An integrated scheme for school education, 'Samagra Shiksha Scheme' of the Government of India has been continued for which of the following periods?

- Ans**
- ☐ A. 2019-20 to 2024-25
  - ☐ B. 2020-21 to 2025-26
  - ☒ C. 2021-22 to 2025-26
  - ☐ D. 2022-23 to 2026-27

**Q.88** With reference to cost, what is the full form of SMC from the following?

- Ans**
- ☒ A. Short run Marginal Cost
  - ☐ B. Special Marginal Cost
  - ☐ C. Silent Marginal Cost
  - ☐ D. Subjective Marginal Cost

**Q.89** Which of the following is the largest fair of West Bengal?

- Ans**
- ☐ A. Rass Mela
  - ☐ B. Joydeb Kenduli Mela
  - ☐ C. Ramkeli Mela, Malda
  - ☒ D. Gangasagar Mela

**Q.90** The 73<sup>rd</sup> and 74<sup>th</sup> Amendments to the Indian Constitution provide for elections to local bodies \_\_\_\_\_.

- Ans**
- ☐ A. every year
  - ☒ B. after every five years
  - ☐ C. after every three years
  - ☐ D. after every two years

**Q.91** In which year was the AU Small Finance Bank founded?

- Ans**
- ☐ A. 2005
  - ☐ B. 1996
  - ☐ C. 2012
  - ☐ D. 2000

**Note:** For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

**Q.92** During the revolt of 1857, which of the following Jat leaders mobilised the headmen and cultivators in and around pargana Barut in Uttar Pradesh to rebel against the British?

- Ans**
- ☐ A. Maulvi Ahmadullah Shah
  - ☐ B. Maulvi Liyakat Ali
  - ☐ C. Gajadhar Singh
  - ☒ D. Shah Mal

**Q.93** The \_\_\_\_\_ is a macroeconomic term that refers to the proportion of income that is saved rather than spent on current goods and services.

- Ans**
- ☐ A. Marginal propensity to save
  - ☐ B. Average propensity to consume
  - ☒ C. Average propensity to save
  - ☐ D. Marginal propensity to consume



Q.94

In March 2022, Narasingapettai Nagaswaram of which state has received the Geographical Indication Tag?

Ans

☐ A. Haryana

☐ B. Kerala

☐ C. Punjab

☒ D. Tamil Nadu

Q.95 Which Gana did Gautam Buddha belong to?

Ans

☐ A. Malla

☐ B. Lichchavi

☐ C. Moriya

☒ D. Sakya

Q.96 Which of the following national sports events is NOT associated with cricket?

Ans

☐ A. Ranji Trophy

☐ B. Vijay Hazare Trophy

☐ C. Deodhar Trophy

☒ D. Durand Cup

Q.97 The Constitution of India does NOT consider \_\_\_\_\_ as a part of the Union Executive.

Ans

☐ A. President of India

☐ B. Prime Minister of India and her/his Council of Ministers

☒ C. Advocate-General of State

☐ D. Vice President

Q.98 In which of the following years did the Twelfth Five Year Plan end?

Ans

☐ A. 2016

☒ B. 2017

☐ C. 2018

☐ D. 2019

Q.99 Integrated approach in S&T for Sustainable Future' is the theme for which one of the following?

Ans

☐ A. National Engineers Day 2022

☒ B. National Science Day 2022

☐ C. National Teachers Day 2022

☐ D. National Doctors' Day 2022

**Q.100** The most widespread forests in India are of what type?

- Ans**
- ☐ A. Montane Forests
  - ☐ B. Tropical Evergreen Forests
  - ☐ C. Mangrove Forests
  - ☒ D. Tropical Deciduous Forests





# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 28/09/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** The sum of two consecutive even numbers is 842. What is the smaller number?

- Ans**
- ☐ A. 421
  - ☐ B. 422
  - ☒ C. 420
  - ☐ D. 423

**Q.2** A cistern has a hole in the bottom through which the water is leaking. A tap can fill the cistern in 3 hours and the hole in the bottom can empty the fully filled cistern in 5 hours. If both the tap and the hole are open, then what will be the time taken to completely fill the empty cistern?

- Ans**
- ☒ A. 7.5 hours
  - ☐ B. 7 hours
  - ☐ C. 8.5 hours
  - ☐ D. 6.5 hours

**Q.3** The following is a cumulative frequency distribution (less than type) of 900 persons, each of age 30 years and above. What is the modal age (in years) (correct to one decimal place)?

|                      |     |     |     |     |     |
|----------------------|-----|-----|-----|-----|-----|
| Age below (in years) | 40  | 50  | 60  | 70  | 80  |
| Number of persons    | 120 | 250 | 650 | 850 | 900 |

- Ans**
- ☐ A. 54.5
  - ☐ B. 54.8
  - ☐ C. 55.2
  - ☒ D. 55.7

**Q.4** Simplify the given expression.

$$x^2 + 3x + 12 - 2(x^3 - x + 4)$$

- Ans**
- ☐ A.  $4 + 5x - x^2 - 2x^3$
  - ☐ B.  $4 + 5x + x^2 + 2x^3$
  - ☒ C.  $4 + 5x + x^2 - 2x^3$
  - ☐ D.  $4 - 5x + x^2 - 2x^3$

Q.5 Express  $1.\bar{2}$  in the form  $\frac{p}{q}$ , where p and q are integers and  $q \neq 0$ .

Ans ☒ A.  $\frac{10}{9}$

☒ B.  $\frac{11}{9}$

☒ C.  $\frac{4}{3}$

☒ D.  $\frac{13}{9}$

Q.6 A trader claims to sell rice at a profit of 25%, but also dishonestly uses a weight which is 15% less than what is mentioned on it. Find the total percentage of profit earned by the trader. (Round the answer to the nearest whole number.)

Ans ☒ A. 57%

☒ B. 50%

☒ C. 49%

☒ D. 47%

Q.7 Raju's sister is 6 years older than Raju. If his sister's age is 38 years, then find Raju's age?

Ans ☒ A. 28 years

☒ B. 23 years

☒ C. 32 years

☒ D. 30 years

Q.8 If p and q are the roots of  $x^2 + 4x - 21 = 0$  and  $p < q$ , then the quadratic equation in x whose roots are  $(p - 1)$  and  $(q + 1)$  is:

Ans ☒ A.  $x^2 + 4x + 32 = 0$

☒ B.  $x^2 + 4x - 32 = 0$

☒ C.  $x^2 + 6x + 16 = 0$

☒ D.  $x^2 + 6x - 16 = 0$

Q.9 The height of a right circular cylinder is 23 cm and circumference of its base is 77 cm. What is its curved surface area?

Ans ☒ A.  $1771 \text{ cm}^2$

☒ B.  $1823 \text{ cm}^2$

☒ C.  $1979 \text{ cm}^2$

☒ D.  $2014 \text{ cm}^2$

Q.10 On selling an article X at a loss of 10% and an article Y at a gain of 15%, a man gains ₹7. If he had sold article X at a gain of 12% and article Y at a gain of 5%, he would have gained ₹10. What is the total original cost price (in ₹) of X and Y?

Ans ☒ A. 120

☒ B. 125

☒ C. 130

☒ D. 140

**Q.11** If in a parallelogram ABCD, E and F are points on the diagonal AC such that  $\overline{AE} = \overline{FC}$ , then quadrilateral BEDF is a:

- Ans**
- ☒ A. square
  - ☒ B. trapezium, but not a parallelogram
  - ☒ C. parallelogram
  - ☒ D. rectangle

**Q.12** A person 1.75 m tall casts a 2 m shadow. At the same instance, a lamp-post casts a shadow of 6.4 m. The height of the lamp-post is:

- Ans**
- ☒ A. 5.6 m
  - ☒ B. 5.7 m
  - ☒ C. 5.8 m
  - ☒ D. 5.9 m

**Q.13** If three metallic spheres of radii 3 cm, 4 cm and 5 cm respectively are melted to form a single sphere, then what will be the volume of the new sphere? [Use  $\pi = \frac{22}{7}$ ]

- Ans**
- ☒ A.  $905\frac{1}{7} \text{ cm}^3$
  - ☒ B.  $825\frac{2}{7} \text{ cm}^3$
  - ☒ C.  $675\frac{3}{7} \text{ cm}^3$
  - ☒ D.  $345\frac{5}{7} \text{ cm}^3$

**Q.14** 100 eggs were purchased for ₹100. 12 eggs broke in transit. The trader sold the remaining eggs at ₹1.20 per egg. Find his profit.

- Ans**
- ☒ A. ₹7.60
  - ☒ B. ₹17.60
  - ☒ C. ₹15.60
  - ☒ D. ₹5.60

**Q.15** Find the median of the below data.

2, 6, 5, 2, 4, 9, 6, 2, 6, 4, 10, 12, 6, 3, 4, 9

- Ans**
- ☒ A. 4.5
  - ☒ B. 6
  - ☒ C. 5
  - ☒ D. 5.5

**Q.16** Azim borrowed a certain sum which amounted to ₹19,800 in 36 months at 12.5% per annum simple interest. What is the borrowed sum?

- Ans**
- ☒ A. ₹12,800
  - ☒ B. ₹14,400
  - ☒ C. ₹13,600
  - ☒ D. ₹9,600

**Q.17** If  $a$  and  $b$  are the roots of the equation  $x^2 - 5x - 6 = 0$ , then the value of  $(a - b)^2$  is:

- Ans**
- ☒ A. 25
  - ☒ B. 49
  - ☒ C. 24
  - ☒ D. 18

**Q.18** Two trains of equal length are running on parallel lines in the same direction at speeds of 36 km/h and 26 km/h. The faster train passes the slower train in 18 seconds. The length of each train is:

- Ans**
- ☒ A. 75 metres
  - ☒ B. 70 metres
  - ☒ C. 50 metres
  - ☒ D. 25 metres

**Q.19** When a number is divided by 15, it leaves a remainder of 3. If the same number is divided by 17, the remainder is 11. Which of the options below gives such a number?

- Ans**
- ☒ A. 183
  - ☒ B. 185
  - ☒ C. 190
  - ☒ D. 198

**Q.20** Simplify the following.

$$0.\overline{1} + 0.\overline{5}$$

- Ans**
- ☒ A.  $\frac{1}{90}$
  - ☒ B.  $\frac{2}{3}$
  - ☒ C.  $\frac{4}{9}$
  - ☒ D.  $\frac{1}{9}$

**Q.21** Simplify the given expression.

$$\frac{\sqrt{2187} \times \sqrt{432}}{\sqrt{324}}$$

- Ans**
- ☒ A. 42
  - ☒ B. 48
  - ☒ C. 54
  - ☒ D. 56

**Q.22** If  $\alpha$  is an acute angle and  $\tan^2 \alpha - \sec \alpha = 19$ , then the value of  $\cos \alpha$  is:

**Ans**

☐ A.  $\frac{2}{3}$

☒ B.  $\frac{1}{5}$

☐ C.  $\frac{1}{4}$

☐ D.  $\frac{1}{2}$

**Q.23** The simplest form of the ratio 722 : 1083 is:

**Ans**

☐ A. 3 : 2

☒ B. 2 : 3

☐ C. 1 : 3

☐ D. 3 : 5

**Q.24** The population of a city increased by 10% in 2020 and then decreased by 8% in 2021. Find the percentage change in the population of the city at the end of 2021 with respect to its population at the beginning of 2020.

**Ans**

☐ A. 0.9% decrease

☐ B. 0.9% increase

☐ C. 1.2% decrease

☒ D. 1.2% increase

**Q.25** The product of the LCM and the HCF of two numbers is 270. If one of the numbers is 18, find the other number.

**Ans**

☒ A. 15

☐ B. 30

☐ C. 20

☐ D. 27

#### Section : General Intelligence and Reasoning

**Q.26** Rahul drives 80 km towards the north, and then he turns towards the west and drives 100 km. After that, he turns south and drives 80 km, and in the end, he turns east and drives 120 km. How far is the end point from the initial point?

**Ans**

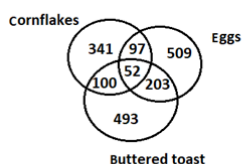
☐ A. 80 km

☐ B. 50 km

☐ C. 140 km

☒ D. 20 km

- Q.27** Study the given Venn diagram carefully and answer the question that follows. The numbers in different sections indicate the number of persons who consume a certain type of breakfast.



How many such persons are there, who consume both cornflakes and buttered toast?

- Ans** ☒ A. 341  
☒ B. 52  
☒ C. 100  
☒ D. 152

- Q.28** Select the option that is related to the third term in the same way as the second term is related to the first term and the sixth term is related to the fifth term.

12 : 20 :: 30 : ? :: 56 : 72

- Ans** ☒ A. 44  
☒ B. 42  
☒ C. 45  
☒ D. 41

- Q.29** Study the given table and answer the following question.

|       | Distance travelled (in km) by |         |
|-------|-------------------------------|---------|
|       | Train A                       | Train B |
| Day 1 | 362                           | 480     |
| Day 2 | 282                           | 596     |
| Day 3 | 421                           | 640     |

What was the average of the distance travelled (in km) by Train A on the given three days?

- Ans** ☒ A. 336  
☒ B. 345  
☒ C. 356  
☒ D. 355

- Q.30** A, B, C, D, E and F live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 6.

Only one person lives below E. A does not live on the topmost floor. Only three people live between A and C. C lives below A. D lives immediately above B. Who lives immediately above A?

- Ans** ☒ A. F  
☒ B. D  
☒ C. E  
☒ D. B

**Q.31** Select the set in which the numbers are related in the same way as are the numbers of the following sets.  
(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)  
(24, 42 )  
(36, 63)

- Ans**
- ☒ A. 48, 96
  - ☒ B. 36, 91
  - ☒ C. 40, 82
  - ☒ D. 52, 91

**Q.32** Six friends, A, B, C, D, E, and F are sitting around a circular table facing the centre.  
C is the immediate neighbour of A and E. F is second to the right of C and third to the left of A. If B is second to the left of C, where is D seated?

- Ans**
- ☒ A. Second to the left of A
  - ☒ B. Second to the left of B
  - ☒ C. Fourth to the right of C
  - ☒ D. Third to the right of E

**Q.33** How many 6s are there in the following sequence each of which is NOT immediately preceded by 3 but immediately followed by 3?

8 6 3 6 4 8 6 8 1 8 6 3 6 5 4 8 6 2 4 3 6 8 6 9 8 8 6 4 6 9

- Ans**
- ☒ A. Five
  - ☒ B. Four
  - ☒ C. Two
  - ☒ D. Six

**Q.34** The position of how many letters will remain unchanged if each of the letters in the word 'NOTED' is arranged in alphabetical order?

- Ans**
- ☒ A. None
  - ☒ B. Three
  - ☒ C. Four
  - ☒ D. Five

**Q.35** Which of the following numbers will replace the question mark (?) in the given series?

8   ?   4   6   12   30

- Ans**
- ☒ A. 6
  - ☒ B. 2
  - ☒ C. 4
  - ☒ D. 8

**Q.36** Select the term from among the given options that can replace the question mark (?) in the following alpha-numeric series to make it logically complete.

OSU, L7S, I10Q, F14O, ?

- Ans**
- ☒ A. D19N
  - ☒ B. D20N
  - ☒ C. C20N
  - ☒ D. C19M

**Q.37** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

YVQ : TQL  
WKG : RFB

- Ans**
- ☒ A. QHK : JSP
  - ☒ B. DUR : APM
  - ☒ C. SIY : NDT
  - ☒ D. FHL : CIU

**Q.38** If each of the digits in the number 25731640 is arranged in descending order, the position of how many digits will remain unchanged as compared to that in the original number?

- Ans**
- ☒ A. One
  - ☒ B. None
  - ☒ C. Three
  - ☒ D. Two

**Q.39** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

1. Some cheese are custards.
2. All milk are cheese.
3. Some curds are cheese.

Conclusions:

I-All cheese are milk.

II-Some custards are cheese.

- Ans**
- ☒ A. Only conclusion I follows.
  - ☒ B. Only conclusion II follows.
  - ☒ C. Both conclusions I and II follow.
  - ☒ D. Neither conclusion I nor II follows.

**Q.40** Read the given statement(s) and conclusions carefully and decide which of the conclusions logically follow(s) on basis of the statement(s).

Statements:  $B < D$ ,  $C = E$ ,  $F > D$ ,  $E < G$ ,  $K = G$ ,  $C < F$

Conclusions:

1.  $G > C$
2.  $G < C$

- Ans**
- ☒ A. Only conclusion 1 follows.
  - ☒ B. Only conclusion 2 follows.
  - ☒ C. Both conclusions 1 and 2 follow.
  - ☒ D. Neither conclusion 1 nor 2 follows.

**Q.41** A, B, C, D, E and F are sitting around a circular table facing the centre. B is sitting third to the right of F. F is an immediate neighbour of both C and A. C sits second to the right of B. D is not the immediate neighbour of C. Who is sitting to the immediate left of E?

- Ans**
- ☒ A. D
  - ☒ B. C
  - ☒ C. A
  - ☒ D. B



**Q.42** This question consists of a statement followed by two arguments I and II. Read the statement and the arguments carefully and select the appropriate answer from the given options.

Statement – Prices of tomatoes in Kerala will rise sharply as many trucks carrying them from other states have been stopped at the border

- I. Tomatoes are mostly brought to Kerala from outside.  
II. The quantity of tomatoes grown in Kerala is not enough to meet the demand in the state.

**Ans** ☒ A. I weakens while II strengthens the statement  
☒ B. II weakens while I strengthens the statement  
☒ C. Both I and II weaken the statement  
☒ D. Both I and II strengthen the statement

**Q.43** In a certain code language, 'SMART' is written as 'VKDPW' and 'FRAUD' is written as 'IPDSG'. How will 'PURGE' be written in that language?

**Ans** ☒ A. SSUEH  
☒ B. QTSFF  
☒ C. RWTIG  
☒ D. RSTEG

**Q.44** A certain number of people are sitting in a row, facing north. No one is sitting to the right of E. Only two people are sitting to the left of B. D is sitting third to the right of B. Only four people are seated between B and F. Only eight people are seated between D and C. E is seated second to the right of C. If no other person is sitting in the row, what is the total number of persons seated?

**Ans** ☒ A. 16  
☒ B. 22  
☒ C. 17  
☒ D. 21

**Q.45** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the condition is your answer.

| Number/Symbol | / | # | 9 | 7 | @ | % | > | 2 | ! | ? | 6 | 4 | < | = |
|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code          | D | F | T | J | N | G | E | X | V | W | K | U | P | Z |

Conditions:

- (i) If the first element is a number and the last a symbol, the codes for these two are to be interchanged.  
(ii) If the first element is an odd number and the last an even number, the first and the last elements are to be coded as Ø.  
(iii) If both the second and third elements are perfect squares, the third element is to be coded as the code for the second element.

How will '< 9 4 # 2' be coded?

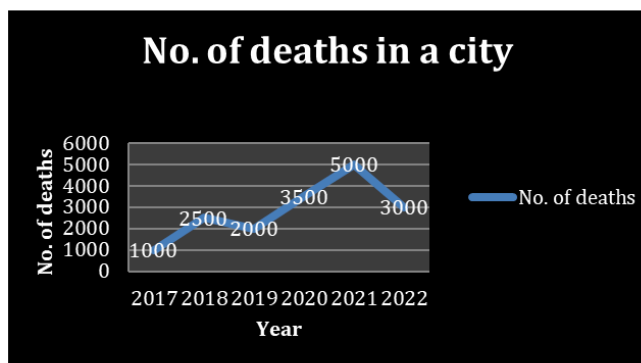
**Ans** ☒ A. PTUFX  
☒ B. PUUFEX  
☒ C. PTTFX  
☒ D. PTPFV

**Q.46** Select the option that is related to the fifth number in the same way as the second number is related to the first number, the fourth number is related to the third number.

48 : 5 :: 96 : 7 :: 6 : ?

**Ans** ☒ A. 36  
☒ B. 2  
☒ C. 10  
☒ D. 4

- Q.47** The given line graph shows the number of deaths in a city from the year 2017 to 2022. Study the graph and answer the question that follows.



What is the approximate percentage decrease in deaths from 2021 to 2022 and increase in deaths from 2020 to 2021, respectively?

- Ans**
- ☒ A. 30% and 32.93%
  - ☒ B. 40% and 42.83%
  - ☒ C. 42.83% and 40%
  - ☒ D. 32.93% and 30%

- Q.48** Three statements are followed by three conclusions numbered I, II and III. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts. Decide which of the given conclusions logically follow(s) from the given statements.

**Statements:**

Some pliers are levers  
All levers are ramps  
Some cutters are pliers.

**Conclusions:**

(I) Some cutters are levers  
(II) Some ramps are cutters  
(III) All pliers are ramps

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Either conclusion I or III follows
  - ☒ D. None of the conclusions follow

- Q.49** In the evening, a person was standing such that his shadow was to his left. In which direction was he facing?

- Ans**
- ☒ A. East
  - ☒ B. West
  - ☒ C. North
  - ☒ D. South

- Q.50** How many such pairs of letters are there in the word 'ADVERSE' (in both forward and backward directions) which have as many letters between them in the word as there are in the English alphabetical order?

- Ans**
- ☒ A. 4
  - ☒ B. 3
  - ☒ C. 2
  - ☒ D. 1

**Q.51** If '+' means '×', '×' means '+', '-' means '÷', and '÷' means '-', then what will be the value of the given expression?

$$93 - 91 \times 7 + 8 \div 3$$

- Ans**
- ☒ A. 201
  - ☒ B. 194
  - ☒ C. 89
  - ☒ D. 198

**Q.52** Five friends have their interview on different dates in the month February of a leap year. All have their interviews on even dates. There are exactly five days gap between each interview. On which date does the first person will have the interview, if none of them have their interview on 28<sup>th</sup> February?

- Ans**
- ☒ A. 8<sup>th</sup>
  - ☒ B. 6<sup>th</sup>
  - ☒ C. 2<sup>nd</sup>
  - ☒ D. 4<sup>th</sup>

**Q.53** Refer to the following number series and answer the question that follows.

(left) 3 7 9 2 1 5 3 9 2 6 5 8 7 9 1 3 5 9 4 6 (right)

Which is the eighth digit to the left of the twelfth digit from the left end of the series?

- Ans**
- ☒ A. 2
  - ☒ B. 9
  - ☒ C. 1
  - ☒ D. 5

**Q.54** Which of the following numbers will replace the question mark (?) in the given number series?

35, 34, 36, 33, 37, ?

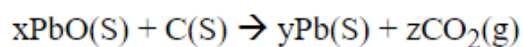
- Ans**
- ☒ A. 41
  - ☒ B. 32
  - ☒ C. 34
  - ☒ D. 42

**Q.55** Each of six sports persons, Falak, Bala, Renu, Rekha, Priya and Pallavi, has a different weight. Rekha is heavier than only Falak and Renu but lighter than Bala and Priya. Pallavi is the heaviest. Priya is heavier than Bala and Falak is heavier than Renu. Who is the lightest among all the sports persons?

- Ans**
- ☒ A. Bala
  - ☒ B. Falak
  - ☒ C. Renu
  - ☒ D. Priya

#### Section : General Science

**Q.56** What is the value of x, y and z in the following chemical equation?



- Ans**
- ☒ A. x = 2, y = 1, z = 1
  - ☒ B. x = 2, y = 2, z = 1
  - ☒ C. x = 2, y = 1, z = 2
  - ☒ D. x = 1, y = 1, z = 2

Q.57 Respiration reaction in humans is an example of \_\_\_\_\_.

- Ans
- ☐ A. endothermic reaction
  - ☐ B. redox reaction
  - ☐ C. displacement reaction
  - ☒ D. exothermic reaction

Q.58 At what pH level does tooth decay start?

- Ans
- ☐ A. pH 7
  - ☒ B. pH below 5.5
  - ☐ C. pH above 7
  - ☐ D. pH 6

Q.59 Which among the following is not a change noticed among children who entered teenage (boys and girls)?

- Ans
- ☐ A. Hair growth in some parts of the body
  - ☐ B. Skin in many becomes oily
  - ☒ C. Hair growth is seen in all parts of the body
  - ☐ D. Some develop pimples

Q.60 Three resistors, each of resistance  $2\ \Omega$ ,  $3\ \Omega$  and  $5\ \Omega$ , are connected in series to a battery of voltage  $V$ . If the current through the  $2\ \Omega$  resistor is  $4\text{ A}$ , then  $V$  is \_\_\_\_\_.

- Ans
- ☐ A.  $20\text{ V}$
  - ☒ B.  $40\text{ V}$
  - ☐ C.  $60\text{ V}$
  - ☐ D.  $80\text{ V}$

Q.61 Which of the following statements is correct about striated muscles?

- Ans
- ☐ A. Cells are long, cylindrical, non-tapering and are unbranched
  - ☐ B. Cells are long with tapering ends and are unbranched
  - ☐ C. Cells are non-tapering and cylindrical in shape and are branched
  - ☒ D. Prominent light and dark bands are present

Q.62 Which of the following is a symptom of Beriberi?

- Ans
- ☐ A. Poor vision or partial blindness
  - ☐ B. Weak teeth and bleeding gums
  - ☐ C. Poor skin health and swollen belly
  - ☒ D. Weak muscles and low energy

Q.63 Why is HIV spread through sexual contact?

- Ans
- ☐ A. The virus lives inside sperms
  - ☒ B. Viral particles are abundant in seminal fluids
  - ☐ C. The virus is present in the skin of sex organs
  - ☐ D. Blood is mixed during sexual contact

**Q.64** If the forefinger indicates the direction of magnetic field and the thumb shows the direction of motion of a conductor, then the middle finger will show the direction of induced current, when the thumb, forefinger and middle finger are stretched perpendicular to each other. This is called \_\_\_\_\_.

- Ans**
- ☒ A. Fleming's left hand rule
  - ☒ B. Fleming's right hand rule
  - ☒ C. right hand thumb rule
  - ☒ D. cork screw rule

**Q.65** Which of the following minerals help crops withstand pests?

- Ans**
- ☒ A. Potassium, Calcium and Magnesium
  - ☒ B. Sodium, Calcium and Magnesium
  - ☒ C. Calcium, Potassium and Sodium
  - ☒ D. Magnesium, Iron and Boron

**Q.66** Festival lights in buildings are an example of \_\_\_\_\_.

- Ans**
- ☒ A. a series circuit
  - ☒ B. electromagnetic induction
  - ☒ C. a parallel circuit
  - ☒ D. magnetic effect

**Q.67** What is the primary reason that river Ganga is called an endangered river?

- Ans**
- ☒ A. The river is drying up
  - ☒ B. Aquatic life is diminishing
  - ☒ C. The water is not potable
  - ☒ D. There are too many dams on it

**Q.68** Which of the following elements is a metal?

- Ans**
- ☒ A. B
  - ☒ B. C
  - ☒ C. Fe
  - ☒ D. Si

**Q.69** Law of Octaves became irrelevant after the discovery of:

- Ans**
- ☒ A. radioactivity
  - ☒ B. noble gases
  - ☒ C. fullerene
  - ☒ D. isotopes

**Q.70** The phenomena behind the working of an electric oven is \_\_\_\_\_.

- Ans**
- ☒ A. Joule's heating effect
  - ☒ B. electromagnetic induction
  - ☒ C. induced current
  - ☒ D. induced voltage

**Q.71** Which of the following allotropes of carbon is a good conductor of electricity?

- Ans**
- ☐ A. Fullerene
  - ☒ B. Graphite
  - ☐ C. Charcoal
  - ☐ D. Diamond

**Q.72** Which of the following is an example of a combination reaction between two compounds to form new compound?

- Ans**
- ☐ A. Formation of ammonia
  - ☐ B. Formation of water
  - ☐ C. Formation of carbon dioxide
  - ☒ D. Formation of calcium hydroxide

**Q.73** A normal adult human being produces \_\_\_\_\_ mL per day of urine daily.

- Ans**
- ☐ A. 10 – 20
  - ☐ B. 100 – 200
  - ☒ C. 1000 – 2000
  - ☐ D. 10000 – 20000

**Q.74** The thick white and yellowish clouds of the planet Venus are made up of which of the following acids?

- Ans**
- ☐ A. Acetic acid
  - ☐ B. Hydrochloric acid
  - ☐ C. Nitric acid
  - ☒ D. Sulphuric acid

**Q.75** A concave mirror forms a real image of three times the size of an object on a screen. The object and screen are then moved until the image is six times the size of the object. If the shift of the screen is 39 cm, then the focal length of the mirror is:

- Ans**
- ☐ A. 10 cm
  - ☒ B. 13 cm
  - ☐ C. 26 cm
  - ☐ D. 39 cm

**Q.76** Which of the following is/are correct with respect to the reflection by spherical mirrors?

- (a) A concave mirror will diverge the rays of light if the object is placed between the pole and the focus.
- (b) A convex mirror can converge a beam of rays.

- Ans**
- ☒ A. (a) is only correct
  - ☐ B. (b) is only correct
  - ☐ C. (a) and (b) both are correct
  - ☐ D. Both (a) and (b) are incorrect

**Q.77** In case of an alternating current, \_\_\_\_\_.

- Ans**
- ☐ A. the direction of current as well as magnitude of current does not change with time
  - ☒ B. the direction of current as well as magnitude changes with time
  - ☐ C. the direction of current changes but magnitude is constant
  - ☐ D. the direction of current is same but the magnitude changes with time



**Q.78** If a 12 V power supply supplies a power of 24 W to a bulb, then the power supplied would be when connected to a 6 V supply:

- Ans**
- ☒ A. 12W
  - ☒ B. 18W
  - ☒ C. 6W
  - ☒ D. 9W

**Q.79** A ray of light is travelling from medium A to medium B. The incident ray makes an angle  $75^\circ$  with respect to the normal, and the refracted ray makes an angle  $40^\circ$  with respect to the normal. The refractive index of the medium A relative to the medium B is:

- Ans**
- ☒ A. 1.50
  - ☒ B. 0.67
  - ☒ C. 1.34
  - ☒ D. 0.87

**Note:** For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

**Q.80** Which state government's forest department recognised its failures in reviving the degraded Sal forests in the south-western districts of the state

- Ans**
- ☒ A. West Bengal
  - ☒ B. Odisha
  - ☒ C. Madhya Pradesh
  - ☒ D. Rajasthan

#### Section : General Awareness and Current Affairs

**Q.81** India's Jhulan Goswami was in the news on 16 March 2022 for becoming the highest wicket taker in Women's ODIs by claiming 250 wickets. Against which team did she achieve this feat?

- Ans**
- ☒ A. Australia
  - ☒ B. England
  - ☒ C. South Africa
  - ☒ D. New Zealand

**Q.82** To celebrate Azadi Ka Amrit Mahotsav (75 years of India's Independence), to which school did the Government of India donate 50 computers?

- Ans**
- ☒ A. Tokyo Metropolitan Asuka High School
  - ☒ B. The European School Copenhagen
  - ☒ C. Lycee Moderne Ampefiloha, Madagascar
  - ☒ D. Ermysted's Grammar School, Skipton

**Q.83** In which year was the Steel Authority of India Ltd incorporated?

- Ans**
- ☒ A. 1956
  - ☒ B. 1963
  - ☒ C. 1973
  - ☒ D. 1981

**Q.84** In which year was Lakhimi Baruah awarded the Padma Shri for social work?

- Ans**
- ✓ A. 2021
  - ✗ B. 2020
  - ✗ C. 2018
  - ✗ D. 2017

**Q.85** Where do mangroves flourish?

- Ans**
- ✓ A. Coastal areas
  - ✗ B. Hills
  - ✗ C. Deserts
  - ✗ D. Marshes

**Q.86** Extremely severe cyclonic storm 'Fani' hit Odisha in the year:

- Ans**
- ✗ A. 2017
  - ✗ B. 2018
  - ✓ C. 2019
  - ✗ D. 2020

**Q.87** 'Kendriya Hindi Sansthan' has head office at which place as on July 2022?

- Ans**
- ✗ A. New Delhi
  - ✓ B. Agra
  - ✗ C. Prayagraj
  - ✗ D. Varanasi

**Q.88** The power of Parliament to amend the Constitution of India is a constitutive power established in the:

- Ans**
- ✓ A. Twenty-Fourth Amendment Act
  - ✗ B. Twenty-Sixth Amendment Act
  - ✗ C. Forty-Second Amendment Act
  - ✗ D. Forty-Fourth Amendment Act

**Q.89** Which Article of the Constitution of India lays down that the State shall take steps to organise village panchayats and endow them with such powers and authority as may be necessary to enable them to function as units of self-government?

- Ans**
- ✓ A. Article 40
  - ✗ B. Article 41
  - ✗ C. Article 42
  - ✗ D. Article 44

**Q.90** Indira point is located in the southern part of which of the following islands?

- Ans**
- ✗ A. Little Andaman island
  - ✓ B. Great Nicobar island
  - ✗ C. Car Nicobar island
  - ✗ D. Middle Andaman island



**Q.91** In macroeconomic analysis, the ratio of the total increment in equilibrium value of final goods output to the initial increment in autonomous expenditure is called the \_\_\_\_\_ of the economy.

- Ans**
- ✓ **A. investment multiplier**
  - ✗ B. consumption multiplier
  - ✗ C. income multiplier
  - ✗ D. savings multiplier

**Q.92** Which part of the Constitution of India deals with rights of citizenship of certain persons who have migrated to India from Pakistan?

- Ans**
- ✗ A. PART I
  - ✓ **B. PART II**
  - ✗ C. PART III
  - ✗ D. PART IV

**Q.93** A curve that joins all points representing bundles which are considered indifferent by the consumer is called a/an \_\_\_\_\_.

- Ans**
- ✓ **A. indifference curve**
  - ✗ B. consumer curve
  - ✗ C. marginal curve
  - ✗ D. utility curve

**Q.94** Which of the following is a private sector bank in India?

- Ans**
- ✓ **A. Federal Bank**
  - ✗ B. UCO Bank
  - ✗ C. Punjab National Bank
  - ✗ D. Bank of Baroda

**Q.95** In which sports, Amit Panghal won a gold medal in Commonwealth Games 2022?

- Ans**
- ✗ A. Judo
  - ✗ B. Wrestling
  - ✓ **C. Boxing**
  - ✗ D. Athletics

**Q.96** The teachings of Mahavira and his followers were written down about 1500 years ago in the form in which they are presently available at which place?

- Ans**
- ✗ A. Vaishali in Bihar
  - ✗ B. Lachhuar in Bihar
  - ✗ C. Pawapuri in Bihar
  - ✓ **D. Valabhi in Gujarat**

**Q.97** Who among the following was one of the recipients of the Nobel Prize in Physics 2021?

- Ans**
- ✗ A. Dmitry Muratov
  - ✓ **B. Syukuro Manabe**
  - ✗ C. Maria Ressa
  - ✗ D. David Julius

**Q.98** In which city was Jawaharlal Nehru born?

- Ans**
- ☐ A. Delhi
  - ☐ B. Lucknow
  - ☒ C. Allahabad
  - ☐ D. Srinagar

**Q.99** What is the major aim of the INSPIRE Awards 'MANAK' being executed by the Department of Science and Technology, Government of India?

- Ans**
- ☐ A. To motivate farmers who are doing commercial agriculture
  - ☒ B. To motivate students studying in classes 6 to 10
  - ☐ C. To motivate scientists for technological development
  - ☐ D. To motivate scientists for space related research

**Q.100** The police of which of the following States developed an app called 'Disha' for women's safety in February 2020?

- Ans**
- ☐ A. Goa
  - ☐ B. Punjab
  - ☐ C. Uttarakhand
  - ☒ D. Andhra Pradesh



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 28/09/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** Pankaj can do one-fifth of a piece of work in 6 days and Jagath can do one-fourth of the same work in 8 days. Find the number of days taken to complete the work if both work together. (Round the answer to one decimal place.)

**Ans** ☒ A. 15.5

☐ B. 15.8

☐ C. 16.5

☐ D. 14.5

**Q.2** The following are the marks obtained in a test out of 20 by a group of 10 students. Find the mode of the data.

15, 12, 13, 14, 16, 15, 18, 19, 11, 15.

**Ans** ☒ A. 15

☐ B. 16

☐ C. 18

☐ D. 19

**Q.3** A man crosses a 375 m road in 75 sec. His speed (in km/h) is:

**Ans** ☒ A. 18

☐ B. 15

☐ C. 13

☐ D. 20

**Q.4** The price of a bike was increased by 10% and then again increased by 8%. The net percentage increase in the price of the bike is:

**Ans** ☐ A. 17%

☐ B. 18%

☒ C. 18.8%

☐ D. 19%

**Q.5** If the length of a rectangle is twice its breadth and the perimeter of that rectangle is 42 cm, then find its length (in cm).

**Ans** ☐ A. 7

☐ B. 8

☐ C. 11

☒ D. 14

**Q.6** The ratio of Teja's and his mother's present ages is 7 : 11. The difference between their ages is 20 years. The age of Teja after 3 years will be:

- Ans**
- ☐ A. 29 years
  - ☐ B. 32 years
  - ☐ C. 35 years
  - ☒ D. 38 years

**Q.7** Mr. Rao walks 45 minutes in a day. What fraction of a day does he walk per day, expressed as a fraction?

- Ans**
- ☒ A.  $\frac{1}{32}$
  - ☐ B.  $\frac{3}{4}$
  - ☐ C.  $\frac{1}{24}$
  - ☐ D.  $\frac{1}{80}$

**Q.8** Which of the following statements is/are always true?

- a) In a parallelogram, diagonals bisect each other.
- b) In a rectangle, the opposite angles are equal and each measure  $90^\circ$ .
- c) Diagonals of a kite intersect at right angles.

- Ans**
- ☐ A. Only (a)
  - ☐ B. Only (a) and (b)
  - ☐ C. Only (b) and (c)
  - ☒ D. All three of (a), (b) and (c)

**Q.9** The value of  $2 - \frac{\cos^2 \theta}{1 + \sin \theta} + \frac{1 + \sin \theta}{\cos \theta} - \frac{\cos \theta}{1 - \sin \theta}$  is:

- Ans**
- ☐ A.  $1 - \sin \theta$
  - ☒ B.  $1 + \sin \theta$
  - ☐ C.  $1 - \cos \theta$
  - ☐ D.  $1 + \cos \theta$

**Q.10** If the quadratic equation  $ax^2 - 4x + 1 = 0$  has equal roots, then the value of  $a$  is:

- Ans**
- ☒ A. 4
  - ☐ B. 3
  - ☐ C. 2
  - ☐ D. 1

**Q.11** If 5 is one root of  $x^2 - (a - 1)x + 10 = 0$ , then the other root is:

- Ans**
- ☒ A. 6
  - ☒ B. 4
  - ☒ C. 2
  - ☒ D. 1

**Q.12** Two mixtures A and B have the following compositions.

Mixture A has copper and tin in the ratio 1 : 2

Mixture B has copper and tin in the ratio 1 : 3

If equal quantities of mixtures A and B are used for producing mixture C, then find the ratio of copper and tin in mixture C.

- Ans**
- ☒ A. 1 : 5
  - ☒ B. 2 : 5
  - ☒ C. 7 : 12
  - ☒ D. 7 : 17

**Q.13** The value of  $3 - 25 \div [12 \div 4 \times 2 - (3 \times 7 \div 21)]$  is:

- Ans**
- ☒ A. -2
  - ☒ B. -1
  - ☒ C. 2
  - ☒ D. 1

**Q.14** Express  $0.\overline{25}$  in the form  $\frac{p}{q}$ , where p and q are integers and  $q \neq 0$ .

- Ans**
- ☒ A.  $\frac{25}{90}$
  - ☒ B.  $\frac{25}{99}$
  - ☒ C.  $\frac{25}{100}$
  - ☒ D.  $\frac{25}{10000}$

**Q.15** Mr. Rao sold a car at ₹1,64,000, thereby incurring a 20% loss. The cost price of the car was:

- Ans**
- ☒ A. ₹ 2,05,000
  - ☒ B. ₹ 2,50,000
  - ☒ C. ₹ 2,00,500
  - ☒ D. ₹ 2,00,050

**Q.16** If the area of the base of a cylinder is  $3850 \text{ cm}^2$  and its height is twice the radius of its base, then find the volume of the cylinder. [Use  $\pi = \frac{22}{7}$ ]

- Ans**
- ☒ A.  $245340 \text{ cm}^3$
  - ☒ B.  $235320 \text{ cm}^3$
  - ☒ C.  $269500 \text{ cm}^3$
  - ☒ D.  $201250 \text{ cm}^3$

Q.17 The measure of each interior angle of a regular octagon is:

- Ans ☒ A.  $135^\circ$   
☐ B.  $140^\circ$   
☐ C.  $165^\circ$   
☐ D.  $180^\circ$

Q.18 Find the arithmetic mean of the following data.

12, 13, 18, 12, 15, 15, 16, 13, 19, 17

- Ans ☐ A. 14  
☒ B. 15  
☐ C. 13.5  
☐ D. 15.5

Q.19 Pallavi bought a toy for ₹128, decorated it at a cost of ₹15, and sold the toy for ₹130. Find the loss or gain percentage.

- Ans ☒ A.  $\frac{100}{11}\%$  Loss  
☐ B.  $\frac{100}{11}\%$  Gain  
☐ C. 10% Gain  
☐ D. 10% Loss

Q.20 Two numbers are in the ratio 5 : 3, and the difference between these two numbers is 34. Find the smaller of the two numbers.

- Ans ☐ A. 85  
☐ B. 21  
☐ C. 31  
☒ D. 51

Q.21 A certain sum under simple interest at a certain rate of interest per annum amounts to ₹1,200 in 2 years and to ₹1,500 in 3 years. The rate of interest per annum is:

- Ans ☐ A. 10%  
☐ B. 15%  
☐ C. 25%  
☒ D. 50%

Q.22 What is the highest common prime factor of 7140 and 13200?

- Ans ☐ A. 2  
☐ B. 3  
☒ C. 5  
☐ D. 11

Q.23 The LCM of fractions is calculated as  $\frac{\text{LCM of the numerators}}{\text{HCF of the denominators}}$ . Find the LCM of  $\frac{5}{6}$ ,  $\frac{6}{5}$  and  $\frac{3}{2}$ .

- Ans ☐ A. 15  
☐ B. 20  
☐ C. 25  
☒ D. 30

Q.24 If  $x + y = 5$  and  $xy = 4$ , find the value of  $x^3 + y^3$ .

- Ans
- ☐ A. 125
  - ☐ B. 185
  - ☒ C. 65
  - ☐ D. 60

Q.25 Find the surface area of a sphere having a radius of 9 cm. [Use  $\pi = \frac{22}{7}$ ]

- Ans
- ☐ A.  $1020\frac{4}{7} \text{ cm}^2$
  - ☒ B.  $1018\frac{2}{7} \text{ cm}^2$
  - ☐ C.  $1013\frac{5}{7} \text{ cm}^2$
  - ☐ D.  $1010\frac{6}{7} \text{ cm}^2$

#### Section : General Intelligence and Reasoning

Q.26 Three statements are followed by three conclusions numbered I, II and III. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts. Decide which of the given conclusions logically follow(s) from the given statements.

**Statements:**

All grapes are lemons  
Some dates are papayas  
Some grapes are cherries

**Conclusions:**

- (I) Some lemons are dates
- (II) Some grapes are papayas
- (III) Some lemons are cherries

- Ans
- ☐ A. Only conclusion I follows
  - ☐ B. Only conclusion II follows
  - ☒ C. Only conclusion III follows
  - ☐ D. None of the conclusions follow

Q.27 Which of the following numbers will replace the question mark (?) in the given series?

1, 4, 11, 26, 57, 120, ?

- Ans
- ☒ A. 247
  - ☐ B. 246
  - ☐ C. 128
  - ☐ D. 254

Q.29 If '+' means '×', '-' means '+', '×' means '+', and '+' means '-', what will come in place of the question mark (?) in the following equation?

$$15 + 3 - 5 + 7 \times 6 = ?$$

- Ans
- ☐ A. 10
  - ☐ B. 12
  - ☐ C. 15
  - ☒ D. 8

**Q.30** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

TPN : XTR  
LSK : PWO

- Ans**
- ☒ A. DQG : ZMC
  - ☒ B. ZMC : DQG
  - ☒ C. QGD : CMZ
  - ☒ D. MZC : DGQ

**Q.31** Three statements are followed by three conclusions numbered I, II and III. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts. Decide which of the given conclusions logically follow(s) from the given statements.

**Statements:**

Some pencils are lanterns  
All lanterns are rubbers  
Some candies are pencils.

**Conclusions:**

(I) Some candies are lanterns  
(II) Some rubbers are candies  
(III) All pencils are rubbers

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Either conclusion I or III follows
  - ☒ D. None of the conclusions follow

**Q.32** A statement is followed by two conclusions. Find out which conclusion is true based on the given statement.

**Statement:**

$M \geq N < O = P > Q > R > S$

**Conclusions:**

I.  $M > Q$   
II.  $O > R$

- Ans**
- ☒ A. Only conclusion I is true
  - ☒ B. Only conclusion II is true
  - ☒ C. Neither conclusion I nor II is true
  - ☒ D. Both conclusions I and II are true

**Q.33** In a certain code language, 'LIST' is written as 'NKUV' and 'PACK' is written as 'RCEM'. How will 'PLANT' be written in that language?

- Ans**
- ☒ A. QMBOU
  - ☒ B. RNCPV
  - ☒ C. RMCOV
  - ☒ D. OMBSR



- Q.35** Read the given statement and conclusions carefully. Assuming that the information given in the statement is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statement.

Statement: Insufficient sleep is the major cause of swelling under eyes.

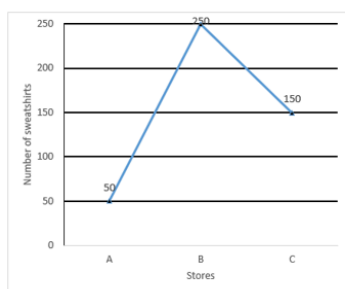
Conclusions:

- (I) A good night's sleep leads to increase in memory and concentration.  
(II) People who get sufficient sleep never have swelling under the eyes.

- Ans**
- ☒ A. Only conclusion I follows.
  - ☒ B. Only conclusion II follows.
  - ☒ C. Both conclusions I and II follow.
  - ☒ D. Neither conclusion I nor conclusion II follows.

- Q.36** Study the given line graph and answer the following question.

The given line graph depicts the number of sweatshirts in stores A, B and C.



Out of the number of sweatshirts in stores A and B, 20% and 40%, respectively were sold. What is the total number of sweatshirts sold by stores A and B?

- Ans**
- ☒ A. 120
  - ☒ B. 110
  - ☒ C. 90
  - ☒ D. 130

- Q.37** Refer to the following letter and symbol series and answer the question.

(Left) Z # U \* Y S K W P Q @ G & A % J B L % & H E # V (Right)

How many such symbols are there in the series which are immediately preceded by a vowel and also immediately followed by a consonant?

- Ans**
- ☒ A. Two
  - ☒ B. Four
  - ☒ C. Five
  - ☒ D. Three

- Q.38** Select the option that is related to the third term in the same way as the second term is related to the first term and the sixth term is related to the fifth term.

20 : 30 :: 42 : ? :: 72 : 90

- Ans**
- ☒ A. 55
  - ☒ B. 51
  - ☒ C. 56
  - ☒ D. 52

**Q.39** A certain number of people are sitting in a row and facing north. U is sitting 4<sup>th</sup> to the right of S. V is sitting 5<sup>th</sup> from the right end. V is seated at the immediate right of U. If no other person is sitting in the row, what is the total number of persons seated ?

- Ans** ☒ A. 10  
☐ B. 4  
☐ C. 8  
☐ D. 11

**Q.40** If '+' means '+', '-' means '+', '×' means '-', and '÷' means '×', what will come in place of the question mark (?) in the following equation?

$$15 \times 6 \div 12 + 4 - 5 = ?$$

- Ans** ☐ A. 8  
☐ B. 12  
☒ C. 2  
☐ D. 5

**Q.41** Six friends are sitting around a round table facing the centre with equal distances between two neighbours. Wasim is second to the right of Muskan. Ekta is sitting to the immediate left of Rohit. Anushri is sitting third to the left of Wasim. Suresh is second to the left of Ekta. Who is to the immediate right of Wasim?

- Ans** ☒ A. Ekta  
☐ B. Suresh  
☐ C. Muskan  
☐ D. Rohit

**Q.42** Seven boxes A, B, C, D, E, F and G are kept one over the other but not necessarily in the same order. Only two boxes are kept above C. Only E is kept between D and F. G is kept immediately below F. B is kept immediately below A. Only C is kept between B and D. How many boxes are kept between B and F?

- Ans** ☒ A. Three  
☐ B. Two  
☐ C. One  
☐ D. Four

**Q.43** A, B, C, D, E and F live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor, which is numbered 6. Only one person lives above C. Only three people live between C and B. A does not live on the topmost floor. Only one person lives between A and F. F lives below A. D lives on an even numbered floor. Who lives immediately below E?

- Ans** ☐ A. D  
☐ B. A  
☐ C. B  
☒ D. F

**Q.44** Which of the following numbers will replace the question mark (?) in the given series?

30, 54, 86, 126, 174, ?

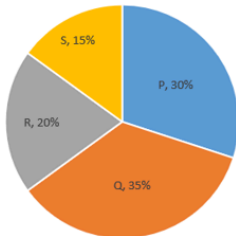
- Ans** ☐ A. 208  
☐ B. 210  
☐ C. 220  
☒ D. 230

**Q.45** In a certain alpha-numeric code, 'ACE' is written as 9 and 'FORT' is written as 59. How will 'CREAM' be written in the same code?

- Ans**
- ☒ A. 55
  - ☒ B. 40
  - ☒ C. 49
  - ☒ D. 69

**Q.46** Study the given pie-chart and answer the following question.

The given pie chart depicts the number of trousers purchased of four brands (P, Q, R and S). The total number of trousers purchased of the four brands together is 120.



Out of the total number of trousers purchased of brands Q and R, one-third were slim fit trousers. What is the total number of slim fit trousers purchased of brands Q and R?

- Ans**
- ☒ A. 18
  - ☒ B. 24
  - ☒ C. 22
  - ☒ D. 33

**Q.47** In this question, the statement is followed by four conclusions. Find out which conclusion is true based on the given statement:

Statement:  $G < L < T > Y = V \geq P > X$

- Ans**
- ☒ A.  $G \leq T$
  - ☒ B.  $Y > L$
  - ☒ C.  $G < Y$
  - ☒ D.  $P \leq Y$

**Q.48** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

All chocolates are balls.

All balls are festivals.

Some festivals are tennis.

Conclusions:

(I) All chocolates are festivals.

(II) Some balls are tennis.

- Ans**
- ☒ A. Only conclusion (I) follows.
  - ☒ B. Only conclusion (II) follows.
  - ☒ C. Both conclusion (I) and conclusion (II) follow.
  - ☒ D. Both conclusion (I) and conclusion (II) do not follow.

**Q.49** Amit starts moving in the north direction from his initial position. Before reaching his final destination, he turns two times right and one time left and again one time right. In which direction is he moving now? (All turns are 90 degree turns only)

- Ans**
- ✓ A. South
  - ✗ B. West
  - ✗ C. North
  - ✗ D. East

**Q.50** Town C is west of town D. Town E is south of the mid-point of the line joining C and D. Town F is south-west of C such that F and E are along the same straight line. What is the position of E with respect to F?

- Ans**
- ✓ A. East
  - ✗ B. West
  - ✗ C. North
  - ✗ D. South

**Q.51** Six friends are sitting around a round table facing the centre with equal distances between two neighbours. Gaurav is sitting second to the left of Yashvi. Sana is sitting third to the left of Aaliya. Danish is sitting to the immediate left of Aaliya. Varnit is sitting third to the left of Yashvi. Gaurav is sitting to the immediate right of Varnit. Who is sitting to the immediate left of Sana?

- Ans**
- ✗ A. Danish
  - ✗ B. Yashvi
  - ✗ C. Varnit
  - ✓ D. Gaurav

**Q.52** Which of the following letter-number clusters will replace the question mark (?) in the given series to make it logically complete?

P3WJ, R10TO, T24QT, V45NY, ?

- Ans**
- ✗ A. X67KC
  - ✗ B. X73LD
  - ✗ C. X67KD
  - ✓ D. X73KD

**Q.53** Select the option that is related to the third term in the same way as the second term is related to the first term and the sixth term is related to the fifth term.

8 : 63 :: 11 : ? :: 13 : 168

- Ans**
- ✗ A. 121
  - ✓ B. 120
  - ✗ C. 118
  - ✗ D. 119

**Q.54** If '+' means '-', '-' means '+', '+' means '×', '×' means '+', what will come in place of the question mark (?) in the following equation?

$78 \times 3 - 2 \div 6 + 4 = ?$

- Ans**
- ✗ A. 72
  - ✗ B. 45
  - ✗ C. 91
  - ✓ D. 83

**Q.55** In the word 'WEBSITE', if each vowel is replaced with the immediate next letter and each consonant is replaced with the immediate previous letter as per the English alphabetical order, then how many vowels will be there in the word so formed?

- Ans**
- ✓ A. One
  - ✗ B. Two
  - ✗ C. Three
  - ✗ D. None

Section : **General Science**

**Q.56** If the angle between the direction of current flowing through a conductor and the direction of magnetic field is zero, the force (F) acting on the conductor will be \_\_\_\_\_.

- Ans**
- ✓ A. Zero
  - ✗ B. F
  - ✗ C. 2F
  - ✗ D. F/2

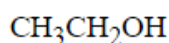
**Q.57** What is the best method to dispose of hospital waste?

- Ans**
- ✓ A. Sterilise and separate metals from cotton
  - ✗ B. Bury it in deep trenches
  - ✗ C. Segregate and recycle
  - ✗ D. Wash before burning

**Q.58** Which of the following statements for a parallel circuit is true?

- Ans**
- ✓ A. The net resistance of a parallel circuit is always less than the sum of individual resistances.
  - ✗ B. The net resistance of a parallel circuit is always greater than the sum of individual resistances.
  - ✗ C. The potential difference across individual resistances of a parallel circuit is always unequal.
  - ✗ D. The net current of a parallel circuit is always less than that of individual currents.

**Q.59** Which of the following is a correct nomenclature of the given structure?



- Ans**
- ✓ A. Ethan-1-ol
  - ✗ B. Methan-1-ol
  - ✗ C. Ethan-2-ol
  - ✗ D. Methan-2-ol

**Q.60** What will be the colour of pH paper when it is dipped in gastric juice?

- Ans**
- ✓ A. Red
  - ✗ B. Greenish-yellow
  - ✗ C. Blue
  - ✗ D. Yellow

**Q.61** Light travels from air into water with an index of refraction of 1.33. The light ray will:

- Ans**
- ✓ **A.** bend towards the normal
  - ✗ **B.** bend away from the normal
  - ✗ **C.** go parallel to the normal
  - ✗ **D.** go perpendicular to the normal

**Q.62** According to the Newland's law of octaves, how many elements are present in between Potassium and Copper?

- Ans**
- ✗ **A.** 5
  - ✗ **B.** 8
  - ✓ **C.** 7
  - ✗ **D.** 9

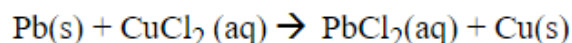
**Q.63** What is the pH of a neutral solution?

- Ans**
- ✗ **A.** 0
  - ✓ **B.** 7
  - ✗ **C.** 8
  - ✗ **D.** 14

**Q.64** Which of the following natural resources do we need to use judiciously to prevent intense global warming?

- Ans**
- ✓ **A.** Coal and petroleum
  - ✗ **B.** Petroleum and water
  - ✗ **C.** Coal and water
  - ✗ **D.** Metals and coal

**Q.65** In a given reaction, which element acts as an ion?



- Ans**
- ✗ **A.** Only Pb
  - ✗ **B.** Only Cu
  - ✓ **C.** Only  $\text{Cl}_2$
  - ✗ **D.** Both Pb and Cu

**Q.66** Which substance formed precipitates when a reaction occurs between potassium sulfate and barium chloride?

- Ans**
- ✓ **A.** Barium sulfate
  - ✗ **B.** Potassium sulfate
  - ✗ **C.** Barium chloride
  - ✗ **D.** Potassium chloride

**Q.67** Which hormone helps the body to adjust to stress when one is very angry, embarrassed or worried?

- Ans**
- ✗ **A.** Testosterone
  - ✗ **B.** Estrogen
  - ✓ **C.** Adrenalin
  - ✗ **D.** Thyroxine

**Q.68** The power of an electric equipment through which a charge of 15 coulomb is flowing per 5 seconds when it is connected to a 20 V source is \_\_\_\_\_.

- Ans**
- ☒ A. 1500 calorie
  - ☒ B. 60 watt
  - ☒ C. 60 calorie
  - ☒ D. 1500 watt

**Q.69** The mathematical form of Ohm's law is represented as \_\_\_\_\_. (Here V = potential difference, I = current flowing through a conductor and R = Resistance.)

- Ans**
- ☒ A.  $V = I/R$
  - ☒ B.  $I = V/R$
  - ☒ C.  $I = R/V$
  - ☒ D.  $I = R^2/V$

**Q.70** Which of the following statements with regard to the principal axis of a spherical mirror is/are correct?

- (a) The pole on the principal axis is similar to the origin of a Cartesian coordinate axes plane.
- (b) Distances measured from the pole, along the principal axis opposite to the direction of incident light are negative.
- (c) Heights of objects or images above the principal axis and perpendicular to it are considered negative.

- Ans**
- ☒ A. Only (a) and (b)
  - ☒ B. Only (b) and (c)
  - ☒ C. Only (a) and (c)
  - ☒ D. (a), (b) and (c)

**Q.71** Newlands arranged the elements into the periodic table on the basis of \_\_\_\_\_.

- Ans**
- ☒ A. increasing atomic mass
  - ☒ B. decreasing atomic mass
  - ☒ C. metallic character
  - ☒ D. non-metallic character

**Q.72** A concave mirror of focal length  $f$  produces a real image at a distance  $v$  from the pole, when an object is kept at the distance  $u$  from the pole. Here, focal length of the given mirror is:

- Ans**
- ☒ A.  $(u v) / (u + v)$
  - ☒ B.  $(u + v) / (u v)$
  - ☒ C.  $(1/u) - (1/v)$
  - ☒ D.  $(1/v) - (1/u)$

**Q.73** Which of the following rules or laws correctly describe the direction of force, magnetic field and current at the same instant?

- Ans**
- ☒ A. Palm rule
  - ☒ B. Right hand thumb rule
  - ☒ C. Fleming's left hand rule
  - ☒ D. Ampere's circuital law

Q.75 Which blood cells help in clotting of blood and stop bleeding?

- Ans
- ☐ A. Red blood cells
  - ☐ B. White blood cells
  - ☒ C. Platelets
  - ☐ D. Both platelets and red blood cells

Q.77 In a homologous series, which element is replaced by any functional group?

- Ans
- ☒ A. Hydrogen
  - ☐ B. Sodium
  - ☐ C. Sulphur
  - ☐ D. Helium

Q.78 Ravi injured his knee while playing and it was bleeding. After some time, he noticed that the bleeding had stopped and a dark red clot had plugged the wound. Which type of cells help in blood clotting?

- Ans
- ☐ A. Red blood corpuscles
  - ☐ B. Lymphocytes
  - ☐ C. Eosinophils
  - ☒ D. Platelets

Q.79 Anaerobic respiration of glucose in the muscles produces \_\_\_\_\_.

- Ans
- ☐ A. pyruvic acid
  - ☒ B. lactic acid
  - ☐ C. acetoacetic acid
  - ☐ D. citric acid

Q.80 Identify the following cell.



- Ans
- ☐ A. Bone cell
  - ☒ B. Nerve cell
  - ☐ C. Muscle cell
  - ☐ D. Kidney cell

Section : General Awareness and Current Affairs

Q.81 Who is the first Indian woman to score a century in a pink-ball Test cricket match in 2021?

- Ans
- ☐ A. Mithali Raj
  - ☐ B. Sneha Rana
  - ☐ C. Deepti Sharma
  - ☒ D. Smriti Mandhana



- Q.82** Which of the following statements is INCORRECT about the rivers of India?
- Ans** ☒ A. The Godavari rises in the Jabalpur district of Madhya Pradesh.  
☐ B. The Krishna River rises near Mahabaleshwar in Sahyadri.  
☐ C. The Mahanadi rises near Sihawa in Raipur district of Chhattisgarh.  
☐ D. The Kaveri rises in Brahmagiri hills of Kogadu district in Karnataka.

- Q.83** What is the name of the mission in which there is an attempt to boost Research and Development in the country by enabling and grooming potential PG / PhD level students by developing dedicated research skills in selected areas / disciplines / fields through high-end workshops and Training and Skill Internship?

- Ans** ☐ A. KARYASHALA  
☒ B. ABHYAAS  
☐ C. VRITIKA  
☐ D. DAKSHATA

- Q.84** Which of the following sports is NOT covered in the National Air Sports Policy 2022 of India?

- Ans** ☐ A. Drones  
☐ B. Ballooning  
☐ C. Aerobics  
☒ D. Rally Flying

- Q.85** MUDRA refers to \_\_\_\_\_

- Ans** ☐ A. Micro Units Developing and Regulatory Agency  
☒ B. Micro Units Development and Refinance Agency  
☐ C. Medium Units Development Regulatory Association  
☐ D. Medium Units Developed and Refinance Association

- Q.86** In the context of five year planning in India, the period from 1966 to 1969 was a period of \_\_\_\_\_.

- Ans** ☐ A. no plan  
☐ B. 3<sup>rd</sup> plan  
☒ C. three annual plans  
☐ D. 4<sup>th</sup> plan

- Q.87** Venkateshwara, also known as Venkatachalapati Srinivasa and Balaji, is a form of the Hindu God:

- Ans** ☐ A. Brahma  
☐ B. Shiva  
☒ C. Vishnu  
☐ D. Hanuman

- Q.88** Which mode of political organisation unites separate states or other polities within an overarching political system in a way that allows each to maintain its own integrity?

- Ans** ☒ A. Federalism  
☐ B. Democracy  
☐ C. Sovereignty  
☐ D. Integrity

**Q.89** Which of the following legendary wheat scientists was awarded the Padma Bhushan 2022 in the Science and Engineering category?

- Ans**
- ☒ A. Subbanna Ayyappan
  - ☒ B. Sanjaya Rajaram
  - ☐ C. Sanghamitra Bandyopadhyay
  - ☐ D. Aditya Prasad Dash

**Q.90** Bundelkhand and Baghelkhand are part of which physical feature of India?

- Ans**
- ☐ A. Himalayan Mountains
  - ☒ B. Peninsular Plateau
  - ☐ C. Northern Plains
  - ☐ D. Coastal Plains

**Q.91** The sum of average variable cost and average fixed cost is known as \_\_\_\_\_.

- Ans**
- ☒ A. average cost
  - ☐ B. actual cost
  - ☐ C. marginal cost
  - ☐ D. total cost

**Q.92** In September 2021, India's first pan-India toll-free helpline – 14567 which aims to provide information, guidance, emotional support, and in cases of abuse, immediate assistance too, was officially launched by the Ministry of Social Justice and Empowerment. What is this line called?

- Ans**
- ☒ A. Elder line
  - ☐ B. Senior line
  - ☐ C. Sahyog line
  - ☐ D. Sampark line

**Q.93** Annie Besant founded the Central Hindu College at Banaras which she later handed over to \_\_\_\_\_.

- Ans**
- ☒ A. Madan Mohan Malviya
  - ☐ B. Swami Vivekananda
  - ☐ C. Madame HP Blavatsky
  - ☐ D. Col. HS Olcott

**Q.94** Which of the following is the biggest Biosphere Reserve of India in terms of geographical area?

- Ans**
- ☐ A. Sunderbans
  - ☐ B. Nanda Devi
  - ☐ C. Gulf of Mannar
  - ☒ D. Kachchh

**Q.95** Which Article of the Constitution of India gives Advisory Jurisdiction to the Supreme Court of India?

- Ans**
- ☒ A. Article 143
  - ☐ B. Article 142
  - ☐ C. Article 132
  - ☐ D. Article 133

**Q.96** Which is one of the official languages of Andhra Pradesh?

- Ans**
- ☐ A. Banjara
  - ☐ B. English
  - ☒ C. Telugu
  - ☐ D. Kokborok

**Q.97** As per performance of the Indian states, which of the following states was in the 'Front Runner' category in the NITI Aayog SDG India Index 2020-21?

- Ans**
- ☒ A. Tripura
  - ☐ B. Manipur
  - ☐ C. West Bengal
  - ☐ D. Madhya Pradesh

**Q.98** The festival 'BONALU' is celebrated in which of the following states in India?

- Ans**
- ☒ A. Telangana
  - ☐ B. Kerala
  - ☐ C. Karnataka
  - ☐ D. Tamil Nadu

**Q.99** In relation to consumer behavior, two indifference curves \_\_\_\_\_.

- Ans**
- ☒ A. never intersect each other
  - ☐ B. intersect each other at 45 degrees.
  - ☐ C. always intersect each other at right angles.
  - ☐ D. intersect each other at 120 degrees.

**Q.100** Under the Constitutional Article 243 (C), who decides on the composition of the Panchayat?

- Ans**
- ☐ A. State Assembly
  - ☐ B. Lok Sabha
  - ☒ C. Legislature of State
  - ☐ D. Council of States



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 28/09/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** If a solid sphere of radius 10 cm is melted into 8 spherical solid balls of equal radius, then what will be the surface area of each such ball? [Use  $\pi = \frac{22}{7}$ ]

- Ans**
- ✓ A.  $314\frac{2}{7} \text{ cm}^2$
  - ✗ B.  $319\frac{1}{7} \text{ cm}^2$
  - ✗ C.  $324\frac{3}{7} \text{ cm}^2$
  - ✗ D.  $335\frac{5}{7} \text{ cm}^2$

**Q.2** The roots of the quadratic equation  $x + \frac{20}{x} = 9$  are:

- Ans**
- ✓ A. 4, 5
  - ✗ B. -4, -5
  - ✗ C. 3, 6
  - ✗ D. -3, -6

**Q.3** Nilesh bought some quantity of barley for ₹5,000. Half of it is sold at a profit of 20%. If Nilesh wishes to make a profit of 15% on the whole, find the selling price (in ₹) of the remaining barley.

- Ans**
- ✓ A. 2,750
  - ✗ B. 3,000
  - ✗ C. 3,250
  - ✗ D. 2,500

**Q.4** A man spends 30% of his salary on groceries, and is left with ₹3,500. Find his total salary.

- Ans**
- ✗ A. ₹11,000
  - ✗ B. ₹6,000
  - ✓ C. ₹5,000
  - ✗ D. ₹5,500

**Q.5** A cyclist covered a distance of 900 km in 25 hours. What is the speed of the cyclist (in m/s)?

- Ans**
- ☐ A. 8
  - ☐ B. 9
  - ☐ C. 11
  - ☒ D. 10

**Q.6** If  $\alpha$  and  $\beta$  are the roots of the equation  $x^2 + 5x + 6 = 0$ , then the value of  $\alpha\beta - \left(\frac{1}{\alpha} + \frac{1}{\beta}\right)$  is:

- Ans**
- ☒ A.  $\frac{41}{6}$
  - ☐ B.  $\frac{31}{6}$
  - ☐ C.  $-\frac{41}{6}$
  - ☐ D.  $-\frac{31}{6}$

**Q.7** The compound interest on ₹30,000 in 2 years at 7% rate of interest per annum compounded annually is:

- Ans**
- ☐ A. ₹3,347
  - ☒ B. ₹4,347
  - ☐ C. ₹2,347
  - ☐ D. ₹3,777

**Q.8** If the measures of the angles of a quadrilateral taken in order are in the ratio 1 : 3 : 1 : 3, then the quadrilateral is a:

- Ans**
- ☐ A. square
  - ☐ B. trapezium, but not a parallelogram
  - ☒ C. parallelogram
  - ☐ D. rectangle

**Q.9** Find x and y in the equivalent fraction given below.

$$\frac{x}{9} = \frac{105}{63} = \frac{5}{y}$$

- Ans**
- ☐ A.  $x = 3, y = 5$
  - ☐ B.  $x = 12, y = 3$
  - ☐ C.  $x = 15, y = 9$
  - ☒ D.  $x = 15, y = 3$

**Q.10** Which of the following is divisible by 17?

- Ans**
- ☐ A. 991
  - ☒ B. 1887
  - ☐ C. 2022
  - ☐ D. 2989

Q.11 Simplify  $3x(x + 2) - 5x(x - 3) + 7$ .

- Ans
- ☒ A.  $2x^2 + 11x + 7$
  - ☒ B.  $-2x^2 + 21x + 6$
  - ☒ C.  $2x^2 + 21x + 7$
  - ☒ D.  $-2x^2 + 21x + 7$

Q.12 The product of the LCM and the HCF of 18 and 25 is:

- Ans
- ☒ A. 270
  - ☒ B. 360
  - ☒ C. 450
  - ☒ D. 465

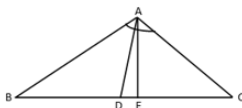
Q.13 The value of  $\sqrt{\frac{4-5\cos^2\theta}{\sin^2\theta}} + \cot^2\theta$  is:

- Ans
- ☒ A. 4
  - ☒ B. 3
  - ☒ C. 2
  - ☒ D. 1

Q.14 A tradesman allows a discount of 15% on the marked price. How much above the cost price must he mark his goods to gain 19% through the above transaction?

- Ans
- ☒ A. 30%
  - ☒ B. 40%
  - ☒ C. 50%
  - ☒ D. 25%

Q.15 In a triangle ABC, if AD is the angle bisector of  $\angle BAC$ ,  $AE \perp BC$ ,  $\angle B = 30^\circ$  and  $\angle C = 50^\circ$ , then  $\angle DAE$  is:



- Ans
- ☒ A.  $10^\circ$
  - ☒ B.  $20^\circ$
  - ☒ C.  $30^\circ$
  - ☒ D.  $40^\circ$

Q.16 A tank is attached with 30 pipes, some of these are filling pipes and the rest are emptying pipes. Each filling pipe can fill the tank completely in 24 hours and each emptying pipe can empty the tank completely in 18 hours. When all the pipes are opened together, it takes  $1\frac{1}{2}$  hours to fill the tank completely. How many of the given pipes are emptying pipes?

- Ans
- ☒ A. 6
  - ☒ B. 8
  - ☒ C. 9
  - ☒ D. 12

**Q.17** If the difference between two numbers is 4 and their product is 32, then the absolute difference between their cubes is:

- Ans**
- ☒ A. 484
  - ☒ B. 844
  - ☒ C. 448
  - ☒ D. 444

**Q.18** If the radius and the height of a cylinder are 7 cm and 15 cm, respectively, then find the volume of the cylinder.

[Use  $\pi = \frac{22}{7}$ ]

- Ans**
- ☒ A.  $2125 \text{ cm}^3$
  - ☒ B.  $2310 \text{ cm}^3$
  - ☒ C.  $2451 \text{ cm}^3$
  - ☒ D.  $2520 \text{ cm}^3$

**Q.19** Find the mode of the following data.

2, 6, 5, 2, 4, 9, 6, 2, 66, 4, 10, 12, 6, 22, 2, 44, 9

- Ans**
- ☒ A. 2
  - ☒ B. 6
  - ☒ C. 4
  - ☒ D. 9

**Q.20** A has a certain amount of money and B also has some money. If A gives ₹130 to B, then B will have 1.5 times the amount left with A. Instead, if B gives ₹70 to A, then A will have 2 times the amount left with B. What is the total amount of money that A and B together have between them?

- Ans**
- ☒ A. ₹700
  - ☒ B. ₹720
  - ☒ C. ₹750
  - ☒ D. ₹780

**Q.21** The population of a town increased by 12% in the first year and by 16% in the second year. What is the percentage increase in the population at the end of the second year with respect to the population at the beginning of the given 2- year period?

- Ans**
- ☒ A. 19.92%
  - ☒ B. 29.92%
  - ☒ C. 19.6%
  - ☒ D. 29.6%

**Q.22** Nine years ago, P's age was twice the age of Q. If the ratio of their present ages is 5 : 4, what is the sum of their present ages?

- Ans**
- ☒ A. 27 years
  - ☒ B. 30 years
  - ☒ C. 35 years
  - ☒ D. 40 years

Q.23 Express  $0.2\bar{7}$  in the form  $\frac{p}{q}$ , where p and q are integers and  $q \neq 0$ .

- Ans
- ☒ A.  $\frac{1}{6}$
  - ☒ B.  $\frac{2}{9}$
  - ☒ C.  $\frac{5}{18}$
  - ☒ D.  $\frac{1}{3}$

Q.24 A water tank can be filled in 9 minutes by using 15 pipes of the same capacity. In how many minutes will the water tank be filled if we use 20 pipes of the same capacity as above?

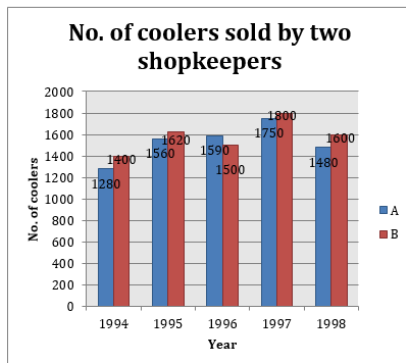
- Ans
- ☒ A. 13
  - ☒ B. 10
  - ☒ C. 6.75
  - ☒ D. 18

Q.25 If  $x = \frac{\sqrt{1125} \times \sqrt{405}}{\sqrt{729}}$ , then the value of  $\sqrt{x}$  is:

- Ans
- ☒ A. 3
  - ☒ B. 5
  - ☒ C. 9
  - ☒ D. 25

#### Section : General Intelligence and Reasoning

Q.26 The following bar graph shows the number of coolers sold by shopkeepers A and B in different years. Study the graph and answer the question that follows.



The total number of coolers sold by shopkeeper B in 1995 and 1998 together is approximately what percentage more/less than the total number of coolers sold by the shopkeeper A in 1996 and 1997 together?

- Ans
- ☒ A. 4% less
  - ☒ B. 4% more
  - ☒ C. 6% less
  - ☒ D. 6% more



**Q.27** Which two numbers from amongst the given options should be interchanged to make the given equation correct?

$$87 \times 122 - 369 - 13 \div 2 = 701$$

- Ans**
- ✓ A. 122 and 13
  - ✗ B. 369 and 2
  - ✗ C. 87 and 2
  - ✗ D. 87 and 13

**Q.28** Select the set in which the numbers are related in the same way as are the numbers of the given sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(1, 6, 4)  
(3, 15, 9)

- Ans**
- ✗ A. (2, 16, 8)
  - ✓ B. (9, 25, 7)
  - ✗ C. (10, 33, 11)
  - ✗ D. (3, 18, 8)

**Q.29** The position of how many letters will remain unchanged if each of the letters in the word FLAGSTONE is arranged in alphabetical order?

- Ans**
- ✗ A. 3
  - ✗ B. 1
  - ✓ C. 2
  - ✗ D. 4

**Q.30** If '+' means '×', '-' means '+', '×' means '-', and '÷' means '+', what will come in place of the question mark (?) in the following equation?

$$4 \times 5 + 3 \div 16 - 1 = ?$$

- Ans**
- ✗ A. 10
  - ✗ B. 12
  - ✗ C. 8
  - ✓ D. 5

**Q.31** A certain number of people are sitting in a straight line facing north. Only three people are sitting between D and I. There are only two people sitting between K and O. I is sitting to the immediate left of O. No one is sitting to the left of D. Only one person is sitting to the right of O. How many people are sitting in the row?

- Ans**
- ✓ A. 7
  - ✗ B. 5
  - ✗ C. 8
  - ✗ D. 6

**Q.32** Six teachers are sitting around a circular table facing the centre. Ruhi is sitting second to the left of Sophie. Gautam is sitting third to the right of Dinesh. Preeti is an immediate neighbour of both Sophie and Gautam. Mary is sitting to the immediate left of Ruhi. Who is an immediate neighbour of both Ruhi and Sophie?

- Ans**
- ✗ A. Mary
  - ✗ B. Preeti
  - ✓ C. Dinesh
  - ✗ D. Gautam

- Q.33** Three statements are given followed by two conclusions numbered I and II. You have to take the statements to be true, even if they seem to be at variance with commonly known facts and decide which of the conclusions logically follow(s) from the statements.

**Statements:**

Some Bears are Teddies.  
Some Rabbits are Teddies.  
All Rabbits are Soft.

**Conclusions:**

(I) Some Rabbits are Bears.  
(II) All Teddies are Soft.

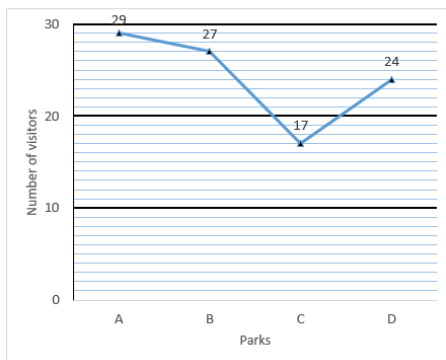
- Ans**
- ☒ A. Only conclusion (I) follows.
  - ☒ B. Only conclusion (II) follows.
  - ☒ C. Both conclusions (I) and (II) follow.
  - ☒ D. Neither conclusion (I) nor (II) follows.

- Q.34** In the word 'BACKGROUND', if each vowel is changed to the letter immediately following it and each consonant is changed to the letter immediately following it in the English alphabetical order, then how many vowels will be there in the group of letters thus formed?

- Ans**
- ☒ A. One
  - ☒ B. Two
  - ☒ C. Three
  - ☒ D. None

- Q.35** Study the given line graph and answer the following question.

The given line graph depicts the number of visitors in four parks – A, B, C and D.



If out of the total number of visitors in parks A and C, 50% were females, what was the total number of male visitors in parks A and C?

- Ans**
- ☒ A. 21
  - ☒ B. 23
  - ☒ C. 20
  - ☒ D. 18

- Q.36** If each of the letters in the word 'LEUCOMA' is arranged in alphabetical order, how many letters are there in the English alphabetical order between the letters which is third from the left and the one which is second from the right?

- Ans**
- ☒ A. Nine
  - ☒ B. Ten
  - ☒ C. Eight
  - ☒ D. Seven

**Q.37** In a row of people standing in a waiting area, facing North, Hari stands seventh from the left end of the row and there are three people between him and the person standing at the exact centre of the row. How many people are standing in the row?

- Ans**
- ☐ A. 20
  - ☒ B. 21
  - ☐ C. 18
  - ☐ D. 15

**Q.38** This question consists of a statement followed by two arguments I and II. Read the statement and the arguments carefully and select the appropriate answer from the given options.

Statement:

Eating junk food is not good for health.

Arguments:

I. Junk food has high amount of fats, chemical additives and sodium leading to obesity.

II. High intake of sugars and fats tend to suppress the function of the brain that helps in learning and memory formation.

- Ans**
- ☐ A. I weakens while II strengthens the statement.
  - ☐ B. II weakens while I strengthens the statement.
  - ☐ C. Both I and II weaken the statement.
  - ☒ D. Both I and II strengthen the statement.

**Q.39** While playing a game, P is standing to the south of D, who is to the west of A, who is to the north of J. If P exchanges his position with A, then what is the direction of J with respect to P?

- Ans**
- ☐ A. North
  - ☒ B. South
  - ☐ C. East
  - ☐ D. West

**Q.40** Shalika walked 15 km towards south from her house, then she turned towards east and covered a distance of 10 km. She then turned north and covered a distance of 25 km. Finally turning west, she covered a distance of 15 km. In which direction is she from her house now?

(All turns are 90° turns only)

- Ans**
- ☐ A. South-west
  - ☐ B. North-east
  - ☐ C. South-east
  - ☒ D. North-west

**Q.41** Refer to the given number, symbol series and answer the question that follows.

(Left) ¥ 1 λ 2 5 S 2 # 1 & 2 3 € 1 5 6 % ¥ 2 @ 6 (Right)

How many such symbols are there, each of which is immediately preceded by a symbol and also immediately followed by a number?

- Ans**
- ☐ A. 0
  - ☒ B. 1
  - ☐ C. 2
  - ☐ D. 3

**Q.42** A statement is given below, followed by four conclusions given in the options. Find out which conclusion is true based on the given statement.

Statement:  $E \leq D < K = A > P > Z$

- Ans**
- ☒ A.  $Z = E$
  - ☒ B.  $P > D$
  - ☒ C.  $A > E$
  - ☒ D.  $A \geq Z$

**Q.43** P, Q, R, S, T and U are six friends sitting around a circular table, facing the centre of the table in a café. S is seated third to the right of U. Q is the immediate neighbour of U and P. T is seated to the immediate left of S. Who are the immediate neighbours of R?

- Ans**
- ☒ A. T and S
  - ☒ B. U and T
  - ☒ C. P and S
  - ☒ D. Q and U

**Q.44** Which of the following numbers will replace the question mark (?) in the given series?

3    11    20    28    37    ?

- Ans**
- ☒ A. 44
  - ☒ B. 55
  - ☒ C. 45
  - ☒ D. 54

**Q.45** A statement is given followed by four conclusions as options. Select which conclusion is true based on the given statement.

Statement:  $Z > Q > L = J < R < P$

- Ans**
- ☒ A.  $J < Z$
  - ☒ B.  $Q < P$
  - ☒ C.  $R > Z$
  - ☒ D.  $P < L$

**Q.46** In a certain code language, 'TRAMP' is written as 'VOCJR' and 'BLANK' is written as 'DICKM'. How will 'AMPLE' be written in that language?

- Ans**
- ☒ A. CIRHG
  - ☒ B. DJSIH
  - ☒ C. CJRIG
  - ☒ D. BOSPJ

- Q.47** Three statements are given followed by two conclusions numbered I and II. You have to take the statements to be true, even if they seem to be at variance with commonly known facts and decide which of the conclusions logically follow(s) from the statements.

**Statements:**

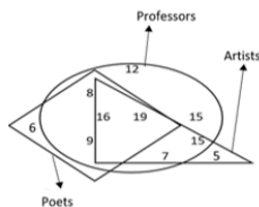
Some Cakes are Ice-Creams.  
Some Cakes are Butters.  
All Cakes are Eggs.

**Conclusions:**

(I) Some Butters are Ice-creams.  
(II) All Eggs are Ice-creams.

- Ans** ☒ A. Only conclusion (I) follows.  
☒ B. Only conclusion (II) follows.  
☒ C. Both conclusions (I) and (II) follow.  
☒ D. Neither conclusion (I) nor (II) follows.

- Q.48** Observe the given diagram carefully and answer the question that follows. The numbers in different sections indicate the number of persons.



How many such persons are there in the above group who are not artists and poets but are only professors?

- Ans** ☒ A. 22  
☒ B. 35  
☒ C. 17  
☒ D. 27

- Q.49** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

7 : 42 :: 5 : 20 :: 11 : ?

- Ans** ☒ A. 90  
☒ B. 110  
☒ C. 117  
☒ D. 132

- Q.50** A certain number of people are sitting in a row, facing north. B is sitting third to the right of C. No one is sitting to the left of C. Only four people are sitting between A and B. Only two people are seated to the right of D. Only four people are sitting between A and D. If no other person is sitting in the row, what is the total number of persons seated between C and D?

- Ans** ☒ A. 15  
☒ B. 13  
☒ C. 12  
☒ D. 17

**Q.51** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

RTO : OQL

KMD : HJA

- Ans**
- ☒ A. ABC : XWZ
  - ☒ B. JHG : FDS
  - ☒ C. UBF : RYC
  - ☒ D. LOP : IUY

**Q.52** Which of the following numbers will replace the question mark (?) in the given series?

240 240 120 40 10 ?

- Ans**
- ☒ A. 1
  - ☒ B. 8
  - ☒ C. 5
  - ☒ D. 2

**Q.53** In a certain code language, 'PEN' is written as 'KVM' and 'CAN' is written as 'XZM'. How will 'GUN' be written in that code language?

- Ans**
- ☒ A. TMF
  - ☒ B. FMT
  - ☒ C. TFM
  - ☒ D. TDM

**Q.54** If '+' means '-', '-' means '×', '×' means '÷', '÷' means '+', what will come in place of the question mark (?) in the following equation?

$25 \times 5 \div 7 - 10 \times 2 = ?$

- Ans**
- ☒ A. 38
  - ☒ B. 39
  - ☒ C. 40
  - ☒ D. 41

**Q.55** Select the combination of letters that when placed from left to right in the same sequence in the blanks of the given series will complete the series.

\_ \_ LMT \_ \_ PLMT KPL \_ \_ KPLMT \_

- Ans**
- ☒ A. KPTKTMTTT
  - ☒ B. KPTKTMTTM
  - ☒ C. LPTKTMTTT
  - ☒ D. KLTKTMTTT

#### Section : General Science

**Q.56** A mixture of sodium bicarbonate and a mild edible acid is known as \_\_\_\_.

- Ans**
- ☒ A. baking soda
  - ☒ B. baking powder
  - ☒ C. bleaching powder
  - ☒ D. washing soda

**Q.57** An electric motor is a device used for converting electrical energy into \_\_\_\_\_ energy.

- Ans**
- ☐ A. Magnetic
  - ☐ B. Heat
  - ☐ C. Light
  - ☒ D. mechanical

**Q.58** In Dobereiner's Triads, elements were written as:

- Ans**
- ☒ A. down the group with increasing atomic masses
  - ☐ B. down the group with decreasing atomic masses
  - ☐ C. Moving from left to right with increasing atomic masses
  - ☐ D. Moving from left to right with decreasing atomic masses

**Q.59** Identify the correct statement(s) with respect to the reflection of light by a spherical mirror from among the following.

- (a) A convex mirror can only form real and inverted images.
- (b) A concave mirror can form real, inverted and virtual, erect images.
- (c) Images formed by convex mirrors are either diminished, same size or enlarged depending on the position of object.
- (d) Images formed by concave mirrors are either diminished, same size or enlarged depending on the position of the object.

- Ans**
- ☐ A. (a) and (c) are only correct
  - ☒ B. (b) and (d) are only correct
  - ☐ C. (a) and (d) are only correct
  - ☐ D. (b) and (c) are only correct

**Q.60** To which of the following communities living in western Rajasthan on the border of the Thar desert has conservation of forest and wildlife been a religious tenet?

- Ans**
- ☒ A. Bishnoi community
  - ☐ B. Vaishya community
  - ☐ C. Bhil community
  - ☐ D. Chhipa community.

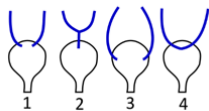
**Q.61** Three resistors of 12 ohm, 16 ohm and 48 ohm are connected in parallel. What is the net resistance?

- Ans**
- ☒ A. 6 ohm
  - ☐ B. 76 ohm
  - ☐ C. 1/6 ohm
  - ☐ D. 1/76 ohm

**Q.62** Which of the following is a saturated hydrocarbon?

- Ans**
- ☒ A. Ethane
  - ☐ B. Ethene
  - ☐ C. Benzene
  - ☐ D. Acetylene

**Q.63** Which of the following diagrams depicts the positions of the ureters (shown as blue lines) and the urinary bladder in the human excretory system?



**Ans** ☒ A. Diagram 1

☒ B. Diagram 2

☒ C. Diagram 3

☒ D. Diagram 4

**Q.64** What is covered under 'Maternal Health'?

**Ans** ☒ A. Care of pregnant woman

☒ B. Care of all new mothers (after childbirth)

☒ C. Care during pregnancy and childbirth

☒ D. Care during prenatal, natal and post-natal period

**Q.65** The physical quantity having a unit of volt/ampere is \_\_\_\_\_.

**Ans** ☒ A. current

☒ B. charge

☒ C. work

☒ D. resistance

**Q.66** The homologue of ethanol is \_\_\_\_\_.

**Ans** ☒ A. methanol

☒ B. ethanal

☒ C. propanal

☒ D. ethane

**Q.67** If a coin is placed at the bottom of a tumbler of height 30 cm filled with water of refractive index 1.33, then the apparent depth of the coin appears to be:

**Ans** ☒ A. 39.9 cm

☒ B. 22.6 cm

☒ C. 25.7 cm

☒ D. 36.7 cm

**Q.68** Which of the following chemicals are known to deplete the ozone layer in the atmosphere?

**Ans** ☒ A. SO<sub>2</sub>

☒ B. NO<sub>2</sub>

☒ C. CFCs

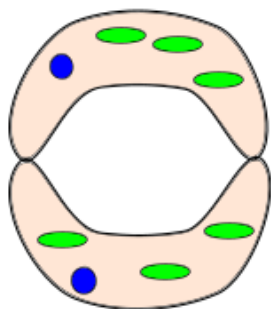
☒ D. CO



**Q.69** In an electric circuit, four equal resistors were in series, connected to a cell. These are now disconnected and connected back in parallel across the same cell. The ratio of current in the series circuit to the current in each resistor in the parallel circuit will be \_\_\_\_\_.

- Ans**
- ☒ A. 1 : 16
  - ☒ B. 1 : 4
  - ☒ C. 4 : 1
  - ☒ D. 16 : 1

**Q.70** Where can you find the type of cells shown in the following figure?



- Ans**
- ☒ A. Leaves and shoots
  - ☒ B. Stems and roots
  - ☒ C. Roots and flowers
  - ☒ D. Flowers and leaves

**Q.71** Which two elements were put in the same slot by Newland?

- Ans**
- ☒ A. Na and Al
  - ☒ B. Co and Ni
  - ☒ C. As and Se
  - ☒ D. Ca and Cu

**Q.72** The reaction in which two reactants participate and produce only one product is called:

- Ans**
- ☒ A. combination reaction
  - ☒ B. dissociation reaction
  - ☒ C. displacement reaction
  - ☒ D. double displacement reaction

**Q.73** Sexual reproduction in human beings involves the introduction of sperm in the vagina of the female. Where does fertilisation occur?

- Ans**
- ☒ A. In the vagina
  - ☒ B. In the uterus
  - ☒ C. In the fallopian tube
  - ☒ D. In the cervix

**Q.74** Which of the following metals is less reactive than silver?

- Ans**
- ☒ A. Fe
  - ☒ B. Cu
  - ☒ C. Hg
  - ☒ D. Au

**Q.75** Which of the following statements regarding blood pressure is FALSE?

**Ans** ☒ A. The pressure is measured using a sphygmomanometer.

☒ B. The pressure is much greater in veins than in arteries.

☒ C.

The pressure during ventricular contraction is called systolic pressure and during ventricular relaxation is called diastolic pressure.

☒ D.

The normal systolic pressure is about 120 mm of Hg and diastolic pressure is 80 mm of Hg.

**Q.76** Which of the following statement is INCORRECT for reduction?

**Ans** ☒ A. Loss of electrons

☒ B. Gain of electrons

☒ C. Addition of Hydrogen

☒ D. Removal of oxygen

**Q.77** The refractive index of a material can be linked with relative \_\_\_\_\_ of propagation of light in different media.

**Ans** ☒ A. acceleration

☒ B. displacement

☒ C. speed

☒ D. force

**Q.78** The centre of curvature of a concave mirror lies \_\_\_\_\_.

**Ans** ☒ A. in front of the mirror

☒ B. behind the mirror

☒ C. above the mirror

☒ D. below the mirror

**Q.79** In which part of the human body are villi present?

**Ans** ☒ A. Liver

☒ B. Eye

☒ C. Small intestine

☒ D. Kidney

**Q.80** The magnetic field produced by a current carrying conductor decreases as the \_\_\_\_\_ increases.

**Ans** ☒ A. current

☒ B. distance

☒ C. voltage

☒ D. resistance

Section : General Awareness and Current Affairs

**Q.81** Which of the following festivals is associated with Jharkhand?

- Ans**
- ☐ A. Chavang Kut
  - ☒ B. Tusu
  - ☐ C. Saga Dawa
  - ☐ D. Losar

**Q.82** 'Equality of opportunity in matters of public employment' as a Fundamental Right in the Indian Constitution is given in which Article of the Constitution?

- Ans**
- ☐ A. Article 14
  - ☐ B. Article 15
  - ☒ C. Article 16
  - ☐ D. Article 17

**Q.83** After formation of the Janata Party government at Centre, which of the following multinationals shut its India operations due to compliance issue with the Foreign Exchange Regulation Act that mandated foreign investors cannot own over 40% in Indian enterprises?

- Ans**
- ☒ A. Coca-Cola
  - ☐ B. Unilever
  - ☐ C. Colgate-Palmolive
  - ☐ D. Nestle

**Q.84** What is the name of India's first privately developed fully cryogenic rocket engine?

- Ans**
- ☒ A. Dhawan-1
  - ☐ B. Kalam-1
  - ☐ C. Sarabhai-1
  - ☐ D. Bhabha-1

**Q.85** The Ministry of Labour and Employment has developed eSHRAM portal for \_\_\_\_\_.

- Ans**
- ☐ A. creating a National Database of Organised Workers (NDOW)
  - ☒ B. creating a National Database of Unorganised Workers (NDUW)
  - ☐ C. creating a National Database of Government Workers (NDGW)
  - ☐ D. creating a National Database of Public Sector Undertakings Workers (NDPSUW)

**Q.86** Which of the following is the only permanent unit in the Panchayati Raj System?

- Ans**
- ☐ A. Panchayat Samiti
  - ☒ B. Gram Sabha
  - ☐ C. Zila Parishad
  - ☐ D. Nagar Panchayat

**Q.87** In Assembly Election 2022, how many seats did Aam Aadmi Party win in Punjab?

- Ans**
- ☒ A. 92
  - ☐ B. 93
  - ☐ C. 94
  - ☐ D. 95

**Q.88** Which is the first Indian mosque?

- Ans**
- ☐ A. Malik Dinar Mosque
  - ☐ B. Palaiya Jumma Palli
  - ☒ C. Cheraman Juma Mosque
  - ☐ D. Ziarat Shareef

**Q.89** The 'Hunar Haat' exhibition was organised in the Kota district of Rajasthan from 27 February to 7 March 2021 under the USTTAD scheme of the \_\_\_\_\_.

- Ans**
- ☐ A. Ministry of Home Affairs
  - ☐ B. Ministry of Finance
  - ☐ C. Ministry of Skill Development and Entrepreneurship
  - ☒ D. Ministry of Minority Affairs

**Q.90** In which of the following states in India is the largest mass nesting site for the Olive-ridley Turtles found?

- Ans**
- ☒ A. Odisha
  - ☐ B. Kerala
  - ☐ C. Gujarat
  - ☐ D. Tamil Nadu

**Q.91** Services e-Health Assistance and Teleconsultation (SeHAT) is a teleconsultation service launched by which of the following ministries?

- Ans**
- ☐ A. Ministry of Home Affairs
  - ☒ B. Ministry of Defence
  - ☐ C. Ministry of Women and Child Development
  - ☐ D. Ministry of AYUSH

**Q.92** As of April 2022, how much FDI is permitted in railways under automatic route in construction, operation, and maintenance of Rail Infrastructure projects?

- Ans**
- ☐ A. 49%
  - ☐ B. 74%
  - ☐ C. 80%
  - ☒ D. 100%

**Q.93** In the year 2020, the Oriental Bank of Commerce (OBC) and the United Bank of India were merged with which of the following banks?

- Ans**
- ☐ A. Bank of Maharashtra
  - ☐ B. Bank of India
  - ☐ C. State Bank of India
  - ☒ D. Punjab National Bank

**Q.94** Who started the Mahila Seva Mandal to promote women's rights in 1852?

- Ans**
- ☐ A. Ramabai Ranade
  - ☐ B. Annie Besant
  - ☐ C. Sarojini Naidu
  - ☒ D. Savitribai Phule

- Q.95** In macroeconomic analysis, marginal propensity to save (MPS) is \_\_\_\_\_.
- Ans** ☒ A. the change in savings per unit change in income of an individual  
☐ B. the savings per unit of income of an individual  
☐ C. the savings per unit change in the price of a good  
☐ D. the savings per unit of a good
- Q.96** PV Sindhu won a bronze medal in May 2022 in which of the following badminton tournaments?
- Ans** ☐ A. European Badminton Championships 2022  
☒ B. Badminton Asia Championships 2022  
☐ C. Yonex Open 2022  
☐ D. Australian National Badminton Championships 2022
- Q.97** In June 2022, the 4<sup>th</sup> Edition of the Khelo India Youth Games was inaugurated in the state of \_\_\_\_\_.
- Ans** ☐ A. Rajasthan  
☐ B. Gujarat  
☒ C. Haryana  
☐ D. Madhya Pradesh
- Q.98** Taramati peak is located in:
- Ans** ☒ A. Maharashtra  
☐ B. Rajasthan  
☐ C. Madhya Pradesh  
☐ D. Haryana
- Q.99** In which year was Tamil declared a classical language by the Government of India?
- Ans** ☒ A. 2004  
☐ B. 2005  
☐ C. 2010  
☐ D. 2014
- Q.100** Which mineral ore's deposits are formed by the decomposition of a wide variety of rocks rich in aluminium silicates?
- Ans** ☐ A. Alumina  
☒ B. Bauxite  
☐ C. Iron  
☐ D. Manganese



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 29/09/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** What annual equal payment (in ₹) will discharge a debt of ₹28,700 due in 2 years at 5% p.a., interest compounded annually?

- Ans**
- ☒ A. 15,345
  - ☒ B. 15,435
  - ☒ C. 15,543
  - ☒ D. 15,534

**Q.2** 5650 increased by 15% equals how much?

- Ans**
- ☒ A. 6435.00
  - ☒ B. 6795.50
  - ☒ C. 6497.50
  - ☒ D. 6997.25

**Q.3** The average of the first 7 multiples of 3 is:

- Ans**
- ☒ A. 11.3
  - ☒ B. 10.5
  - ☒ C. 12.5
  - ☒ D. 12

**Q.4** Simplify the given expression.

$$2(2x - 3) + 4\left(\frac{x^2}{2} - 3x + 4\right)$$

- Ans**
- ☒ A.  $2x^2 + 8x - 10$
  - ☒ B.  $2x^2 - 8x + 10$
  - ☒ C.  $2x^2 + 8x + 10$
  - ☒ D.  $2x^2 - 8x - 10$

**Q.5** The edges of a cuboid are in the ratio 1 : 2 : 3 and its volume is  $1296 \text{ cm}^3$ . The surface area of the cuboid is:

- Ans**
- ☒ A.  $824 \text{ cm}^2$
  - ☒ B.  $748 \text{ cm}^2$
  - ☒ C.  $684 \text{ cm}^2$
  - ☒ D.  $792 \text{ cm}^2$

**Q.6** The length of a rectangle is 20 cm and its breadth is 8 cm. When the length is increased to 25 cm, what will be the breadth of this rectangle if its area remains the same as before?

- Ans**
- ☒ A. 6.4 cm
  - ☒ B. 6.7 cm
  - ☒ C. 7.2 cm
  - ☒ D. 7.5 cm

**Q.7**  $\frac{5}{12}$  is the same as :

- Ans**
- ☒ A.  $0.\overline{416}$
  - ☒ B.  $0.4\overline{16}$
  - ☒ C.  $0.41\overline{7}$
  - ☒ D.  $0.41\overline{6}$

**Q.8** A rectangular courtyard, 7.35 meters long and 5.25 meters wide, is paved with square tiles of the same size. Find the longest possible length of the tiles used for this purpose.

- Ans**
- ☒ A. 105 centimeters
  - ☒ B. 115 centimeters
  - ☒ C. 120 centimeters
  - ☒ D. 125 centimeters

**Q.9** If a dishonest shop keeper claims to sell rice at cost price but uses a faulty weight and thus gains 14%, then find the weight he actually gives per kilogram of rice for which a customer pays. (Round the answer to the nearest whole number.)

- Ans**
- ☒ A. 857 gm
  - ☒ B. 867 gm
  - ☒ C. 877 gm
  - ☒ D. 887 gm

**Q.10** Which of the options below give the solution to the equation  $\frac{1}{x+3} + \frac{1}{x+5} = \frac{1}{6}$ ?

- Ans**
- ☒ A.  $x = 3 \pm \sqrt{37}$
  - ☒ B.  $x = 2 \pm \sqrt{39}$
  - ☒ C.  $x = 4 \pm \sqrt{37}$
  - ☒ D.  $x = 2 \pm \sqrt{37}$



**Q.11** The value of

$\operatorname{cosec}(47^\circ + \theta) - \sec(43^\circ - \theta) + \tan(61^\circ + \theta) - \cot(29^\circ - \theta) + \sin(45^\circ + \theta) - \cos(45^\circ - \theta)$  is equal to:

**Ans**

☒ A. 1

☒ B. 0

☒ C.  $\frac{1}{\sqrt{2}}$

☒ D.  $\frac{\sqrt{3}}{2}$

**Q.12** If  $4^{3x} - 8^{x+1} + 16 = 0$  is written as a quadratic equation where  $y = 2^{3x}$ , then which of the options below will represent the quadratic equation mentioned above?

**Ans**

☒ A.  $y^2 - 4y + 16 = 0$

☒ B.  $4y^2 - 4y + 16 = 0$

☒ C.  $y^2 - 8y + 16 = 0$

☒ D.  $4y^2 - 8y + 16 = 0$

**Q.13** A table and a swing were sold for ₹9,936 each. The table was sold for a profit of 8% and the swing was sold for a loss of 8%. What is the gain or loss percentage in the whole transaction?

**Ans**

☒ A. 0.64% loss

☒ B. 0.64% profit

☒ C. No profit no loss

☒ D. 2% profit

**Q.14** Two years ago, the ratio of the respective ages of Subash and Pranav was 4 : 5. Three years hence, this ratio will become 5 : 6. The present age of Pranav is:

**Ans**

☒ A. 22 years

☒ B. 25 years

☒ C. 27 years

☒ D. 20 years

**Q.15** A can do a certain piece of work in 8 days, B can do the same work in 18 days and C can do the same work in 12 days. Find the number of days it will take to complete the same work, if they all work together.

**Ans**

☒ A.  $\frac{19}{72}$

☒ B.  $\frac{48}{19}$

☒ C.  $\frac{19}{48}$

☒ D.  $\frac{72}{19}$



Q.16

Evaluate  $\sqrt{21 + \sqrt{19 - \sqrt{6 + 3}}}$ .

Ans

- ☐ A. 3  
☐ B. 4  
☒ C. 5  
☐ D. 7

Q.17

Eduardo, Abraham and Xavier can finish a certain piece of work in 12, 10 and 15 days, respectively. All three of them started the work together. Eduardo left the work after 2 days and Abraham left just three days before the work was completed. Find the total number of days taken for the work to be completed.

Ans

- ☐ A. 8.6  
☒ B. 6.8  
☐ C. 7.8  
☐ D. 8

Q.18

Which of the following options gives the correct empirical relationship between mean, median and mode of a data set?

Ans

- ☐ A. Mean – Mode = 3 (Mean + Median)  
☐ B. Mean + Mode = 3 (Mean – Median)  
☒ C. Mean – Mode = 3 (Mean – Median)  
☐ D. Mean + Mode = 3 (Mean + Median)

Q.19

If  $0.4 : x :: x : 6.4$ , and  $x > 0$ , then find the value of  $x$ .

Ans

- ☒ A. 1.6  
☐ B. 0.5  
☐ C. 16  
☐ D. 4.64

Q.20

If 2 and -3 are the roots of a quadratic equation, then the quadratic equation is:

Ans

- ☐ A.  $x^2 + x + 6 = 0$   
☐ B.  $x^2 - x - 6 = 0$   
☒ C.  $x^2 + x - 6 = 0$   
☐ D.  $x^2 - x + 6 = 0$

Q.21

The difference between two numbers is 18. If the difference between their squares is 360, find the larger number.

Ans

- ☐ A. 18  
☒ B. 19  
☐ C. 15  
☐ D. 16

Q.22

Find the smaller of the two roots of the equation

$$x^2 + 8x + 15 = 0.$$

Ans

- ☒ A.  $x = -5$   
☐ B.  $x = -3$   
☐ C.  $x = 5$   
☐ D.  $x = 3$

**Q.23** The length of each side of a rhombus is 20 cm, and the length of one of its diagonal is 30 cm. Find the length (in cm) of its other diagonal.

- Ans**
- ☒ A.  $\sqrt{175}$
  - ☒ B.  $10\sqrt{7}$
  - ☒ C.  $6\sqrt{7}$
  - ☒ D.  $\sqrt{7}$

**Q.24** In  $\triangle ABC$  and  $\triangle DEF$ , if  $AB = DE$ ,  $AC = EF$  and  $BC = DF$ , then which of the following is true based on SSS theorem?

- Ans**
- ☒ A.  $\triangle ABC \cong \triangle DEF$
  - ☒ B.  $\triangle ABC \cong \triangle EFD$
  - ☒ C.  $\triangle ABC \cong \triangle FDE$
  - ☒ D.  $\triangle ABC \cong \triangle EDF$

**Q.25** Find the HCF of 12, 16 and 24.

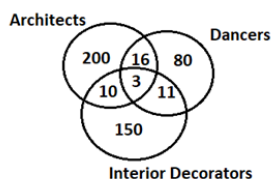
- Ans**
- ☒ A. 4
  - ☒ B. 48
  - ☒ C. 24
  - ☒ D. 16

#### Section : General Intelligence and Reasoning

**Q.26** Priyanka walks 9 m towards the south. She turns left and walks 7 m. Then she turns right and walks 5 m. She again turns right and walks 9 m. In which direction is Priyanka facing now? (All turns are 90 degree turns only)

- Ans**
- ☒ A. South
  - ☒ B. East
  - ☒ C. North
  - ☒ D. West

**Q.27** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



How many such interior decorators are there who are NEITHER architects NOR dancers?

- Ans**
- ☒ A. 174
  - ☒ B. 171
  - ☒ C. 160
  - ☒ D. 150

**Q.28** In a certain code language, 'Peaches were sweet' is written as 'go la ba'. 'Sour grapes and sweet apples' is written as 'bimb ko da go sa'. Which of the following codes represents the word 'Sweet'?

- Ans**
- ☒ A. ba
  - ☒ B. bimb
  - ☒ C. la
  - ☒ D. go

**Q.29** In a group of six people, each has a different height. Reshma is the tallest and Kavita is taller than Surbhi, who is shorter than Lalita. Pallavi is taller than Ganga but shorter than Surbhi. Kavita is taller than Lalita. Who among the following is the shortest?

- Ans**
- ☒ A. Surbhi
  - ☒ B. Ganga
  - ☒ C. Lalita
  - ☒ D. Kavita

**Q.30** Select the option that is related to the third term in the same way as the second term is related to the first term and the sixth term is related to the fifth term.

$$27 : 6 :: 18 : ? :: 36 : 8$$

- Ans**
- ☒ A. 3
  - ☒ B. 5
  - ☒ C. 6
  - ☒ D. 4

**Q.31** Which of the following options is the closest approximate value which will come in place of the question mark (?) in the following equation?

$$625 \times 31 \div 233 - 59 = ?$$

- Ans**
- ☒ A. 24
  - ☒ B. 20
  - ☒ C. 13
  - ☒ D. 33

**Q.32** Amongst six friends A, B, C, D, E and F, each has a different height. C is taller than only two other friends. E is shorter than only one friend. B is shorter than C but taller than A. D is shorter than F. Who is the shortest among all the friends?

- Ans**
- ☒ A. C
  - ☒ B. B
  - ☒ C. A
  - ☒ D. D

**Q.33** Which two numbers should be interchanged to make the given equation correct?

$$25 \times 9 - 74 + 459 \div 3 = 52$$

- Ans**
- ☒ A. 25 and 3
  - ☒ B. 9 and 3
  - ☒ C. 25 and 74
  - ☒ D. 74 and 3

- Q.34** Three statements are given followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

All clouds are waters.

Some waters are juices.

All juices are sugars.

**Conclusions:**

I. Some clouds are sugars.

II. Some waters are sugars.

III. Some waters are clouds.

- Ans**
- ☒ A. Only conclusions I and II follow
  - ☒ B. Only conclusions I and III follow
  - ☒ C. Only conclusions II and III follow
  - ☒ D. Only conclusion III follows

- Q.35** If each of the letters in the word FATIGUE is arranged in alphabetical order, then after rearrangement how many letters will be there in the English alphabetical series between the letter that is fourth from the left and the one that is second from the right?

- Ans**
- ☒ A. Nine
  - ☒ B. Eleven
  - ☒ C. Ten
  - ☒ D. Twelve

- Q.36** A certain number of people are sitting in a row, facing north. M sits third to the right of A. M is second to the left of P. Only one person sits between P and S. Q sits to the immediate right of S, and no other person is sitting in the row. What is the total number of people seated in the row?

- Ans**
- ☒ A. 8
  - ☒ B. 9
  - ☒ C. 10
  - ☒ D. 7

- Q.37** A, B, C, D, E and F live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it is numbered 2 and so on till the topmost floor is numbered 6. B lives immediately below A and immediately above C. Only one person lives above E. Neither B nor C lives on the lowermost floor. A does not live on the topmost floor. Only two people live between A and D. Who lives immediately below C?

- Ans**
- ☒ A. D
  - ☒ B. A
  - ☒ C. E
  - ☒ D. F

- Q.38** Select the set in which the numbers are related in the same way as are the numbers of the following sets. (NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding / subtracting / multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

(6, 17, 40)  
(13, 9, 31)

- Ans**
- ☒ A. (31, 16, 45)
  - ☒ B. (27, 14, 49)
  - ☒ C. (21, 15, 51)
  - ☒ D. (6, 13, 25)

**Q.39** Veer starts from Point A and drives 7 km towards the north. He then takes a right turn, drives 8 km, turns right and drives 19 km. He then takes a right turn and drives 3 km, takes a right turn and drives 12 km and stops at Point B. How far and towards which direction should he drive in order to reach Point A from Point B? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 9 km towards the south
  - ☒ B. 5 km towards the west
  - ☒ C. 6 km towards the east
  - ☒ D. 8 km towards the south

**Q.40** Eight persons are sitting around a circular table facing the centre. Z is an immediate neighbour of both U and V. Z is second to the left of X. S is an immediate neighbour of both U and T. U sits third to the left of X. W is an immediate neighbour of T. Y sits second to the right of V. Who sits third to the left of T?

- Ans**
- ☒ A. W
  - ☒ B. X
  - ☒ C. Y
  - ☒ D. Z

**Q.41** Which of the following numbers will replace the question mark (?) in the given series?

3    3.5    4.5    6    8    ?

- Ans**
- ☒ A. 10.5
  - ☒ B. 11
  - ☒ C. 9.5
  - ☒ D. 12.5

**Q.42** Which of the following terms will replace the question mark (?) in the given series to make it logically complete?

OWJ 4, MUH 9, KSF 14, IQD 19, ?

- Ans**
- ☒ A. GLC 23
  - ☒ B. KLB 25
  - ☒ C. JOB 22
  - ☒ D. GOB 24

**Q.43** Six presidents with the initials O, P, S, B, N and K are sitting around a circular table, facing the centre and at equal distance from each other, not necessarily in the same order.

P sits exactly between B and S. N sits exactly between K and O. B sits at the immediate right of K. O sits at the immediate right of S. Who sits second to the left of O?

- Ans**
- ☒ A. S
  - ☒ B. P
  - ☒ C. N
  - ☒ D. K

**Q.44** Study the given table and answer the question that follows.

The table represents the number of Rajasthani, Chinese and Gujarati dishes sold by three different restaurants (N, O and P) in one day.

| Dishes     | Restaurant |     |     |
|------------|------------|-----|-----|
|            | N          | O   | P   |
| Rajasthani | 410        | 560 | 710 |
| Chinese    | 330        | 410 | 370 |
| Gujarati   | 190        | 250 | 450 |

What is the ratio of the total number of dishes sold by 'O' to the total number of dishes sold by 'P'?

**Ans** ✓ A. 122 : 153

✗ B. 153 : 122

✗ C. 182 : 171

✗ D. 171 : 182

**Q.45** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

LGE : QLJ  
KRB : PWG

**Ans** ✗ A. PUN : KFD

✗ B. SQG : HJT

✗ C. WSN : RNJ

✓ D. CTJ : HYO

**Q.46** A certain number of people are sitting in a straight line facing north. Only one person is sitting between C and R. Only one person is sitting to the left of C. Only two people are sitting to the right of F. R is sitting to the immediate left of F. How many people are sitting in the row?

**Ans** ✗ A. 6

✗ B. 8

✗ C. 5

✓ D. 7

**Q.47** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

Some teeth are brushes.

All brushes are pastes.

Some pastes are gels.

Conclusions:

(I) Some brushes are gels.

(II) Some teeth are pastes.

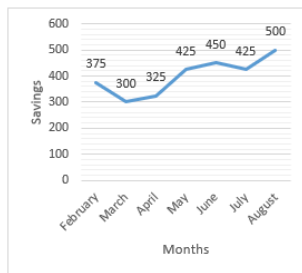
**Ans** ✗ A. Only conclusion (I) follows.

✓ B. Only conclusion (II) follows.

✗ C. Both conclusion (I) and conclusion (II) follow.

✗ D. Both conclusion (I) and conclusion (II) do not follow.

**Q.48** The following graph shows the savings of Arvind over the months. Study the graph and answer the question.



What is the average savings of Arvind for all the given months?

- Ans**
- ☒ A. 380
  - ☒ B. 400
  - ☐ C. 250
  - ☐ D. 395

**Q.49** Which of the following numbers will replace the question mark (?) in the given series?

200 119 70 45 36 ?

- Ans**
- ☒ A. 35
  - ☐ B. 34
  - ☐ C. 36
  - ☐ D. 37

**Q.50** If the numbers given below are arranged in descending order, then what is the sum of the number which is second from the right and the number which is fifth from the left?

Left 106, 91, 131, 95, 144, 123, 88, 93, 127, 73 Right

- Ans**
- ☒ A. 194
  - ☐ B. 216
  - ☐ C. 198
  - ☐ D. 226

**Q.51** How many such pairs of letters are there in the word 'RIPOSTE' (in both forward and backward directions) which have as many letters between them in the word as there are in the English alphabetical order?

- Ans**
- ☐ A. One
  - ☐ B. Two
  - ☐ C. Three
  - ☒ D. More than three

**Q.52** If the first and second, third and fourth, fifth and sixth and so on, letters of the word 'FORMULIZED' are interchanged, then the ninth letter from the left will be:

- Ans**
- ☐ A. Z
  - ☒ B. D
  - ☐ C. I
  - ☐ D. U

**Q.53** In a certain code language, 'SLEEK' is written as 'QICBI' and 'FROGS' is written as 'DOMDQ'. How will 'HOPES' be written in that language?

- Ans**
- ☐ A. FNLCQ
  - ☐ B. ELMBP
  - ☐ C. ELKBN
  - ☒ D. FLNBQ

**Q.54** Consider the given statement and decide which of the given assumptions is/are implicit in the statement.

Statement:

Eating foods which have been heated in plastic containers causes cancer, therefore it should be avoided.

Assumptions:

(I) Only storing food in plastic containers is not harmful for health.

(II) Non-plastic containers which can be used to heat food are available.

- Ans**
- ☒ A. Only assumption I is implicit.
  - ☒ B. Only assumption II is implicit.
  - ☒ C. Neither assumption I nor II is implicit.
  - ☒ D. Both assumptions I and II are implicit.

**Q.55** If tomorrow is Sunday, which day of the week will it be after 121 days from today?

- Ans**
- ☒ A. Monday
  - ☒ B. Tuesday
  - ☒ C. Wednesday
  - ☒ D. Sunday

Section : General Science

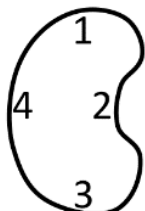
**Q.56** The general formula of alkene is:

- Ans**
- ☒ A.  $C_nH_{2n}$
  - ☒ B.  $C_nH_{2n-2}$
  - ☒ C.  $C_nH_{2n+2}$
  - ☒ D.  $C_nH_n$

**Q.57** \_\_\_\_\_ protects circuits and appliances by stopping the flow of excessively high electric current.

- Ans**
- ☒ A. Electric heater
  - ☒ B. Bulb
  - ☒ C. Fuse
  - ☒ D. Electric metre

**Q.58** The following figure shows the right human kidney. At which point does the ureter exit the kidney?



- Ans**
- ☒ A. Point 1
  - ☒ B. Point 2
  - ☒ C. Point 3
  - ☒ D. Point 4



**Q.60** Which of the following helps in temperature regulation in plants?

- Ans**
- ☐ A. Photosynthesis
  - ☐ B. Absorption
  - ☒ C. Transpiration
  - ☐ D. Root pressure

**Q.61** One reason why Mendel was successful in discovering the laws governing inheritance of traits was \_\_\_\_\_.

- Ans**
- ☐ A. he used plants instead of animals
  - ☒ B. he kept numerical count of the progeny
  - ☐ C. he was trained in scientific methods
  - ☐ D. he used his knowledge of evolutionary processes

**Q.62** A doublet is a combination of two lenses. One such doublet is made with a convex lens of focal length of 20 cm and a concave lens of focal length of 50 cm. The effective focal length and power of this doublet is \_\_\_\_\_ and \_\_\_\_\_, respectively.

- Ans**
- ☒ A. 33.3 cm, 3D
  - ☐ B. 20 cm, 5D
  - ☐ C. 50 cm, 2D
  - ☐ D. 14.28 cm, 7D

**Q.63** Which of the following statements is/are true regarding the centre of curvature of a spherical mirror?

- (S - I) Rays of light passing in any direction through the centre of curvature are normal to the mirror,  
(S - II) A ray of light passing through the centre of curvature, and the principal focus is also normal to the mirror.  
(S - III) The angle of incidence of the ray of light passing through the centre of curvature on to the mirror is 90°.

- Ans**
- ☒ A. (S - I) only
  - ☐ B. (S - I) and (S - II) only
  - ☐ C. (S - I) and (S - III) only
  - ☐ D. (S - I), (S - II) and (S - III)

**Q.64** In an electric motor, the direction of currents flowing through the arms of the coil will be \_\_\_\_\_ to each other due to Fleming's left hand rule.

- Ans**
- ☐ A. parallel
  - ☐ B. Perpendicular
  - ☒ C. Opposite
  - ☐ D. in the same direction

**Q.65** What is the best diet for a pregnant woman?

- Ans**
- ☒ A. A special diet prescribed by a dietician
  - ☐ B. A diet rich in proteins and vitamins
  - ☐ C. Adding iron supplements to a high calorie diet
  - ☐ D. Diet rich in Ghee

**Q.66** When an object is placed at a distance of 60 cm from a concave lens of focal length 30 cm then the magnification of the image is:

- Ans**
- ☐ A. +1.33
  - ☐ B. -0.33
  - ☐ C. -1.33
  - ☒ D. +0.33

**Q.67** Tawa dam was built in:

- Ans**
- ☐ A. 1960s
  - ☒ B. 1970s
  - ☐ C. 1980s
  - ☐ D. 1990s

**Q.68** Which of the following statements is true about combination reaction?

- Ans**
- ☒ A. A single product is formed from two or more reactants.
  - ☐ B. Only two elements react to give the products.
  - ☐ C. Only two products are formed.
  - ☐ D. A single reactant changes to a single product.

**Q.69** Select the correct homologous series of alkane.

- Ans**
- ☐ A.  $\text{CH}_4$ ,  $\text{C}_2\text{H}_4$ ,  $\text{C}_3\text{H}_8$ ,  $\text{C}_4\text{H}_{10}$
  - ☒ B.  $\text{CH}_4$ ,  $\text{C}_2\text{H}_6$ ,  $\text{C}_3\text{H}_8$ ,  $\text{C}_4\text{H}_{10}$
  - ☐ C.  $\text{CH}_4$ ,  $\text{C}_2\text{H}_4$ ,  $\text{C}_3\text{H}_4$ ,  $\text{C}_4\text{H}_{10}$
  - ☐ D.  $\text{CH}_4$ ,  $\text{C}_3\text{H}_8$ ,  $\text{C}_2\text{H}_6$ ,  $\text{C}_4\text{H}_{10}$

**Q.70** When a thin beam of white light is passed through a prism then:

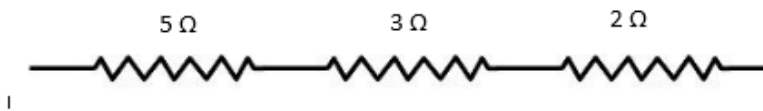
- Ans**
- ☐ A. light will converge
  - ☐ B. light will reflect
  - ☒ C. light will disperse
  - ☐ D. light will twinkle

**Q.71** Elements were classified on the basis of their \_\_\_\_\_

- Ans**
- ☐ A. different physical but same chemical properties
  - ☐ B. different physical as well different chemical properties
  - ☐ C. state of matter
  - ☐ D. different valency

**Note:** For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

Q.72 The resistance of the given circuit in ohm is:



- Ans
- ☐ A. 5
  - ☐ B. 3
  - ☐ C. 2
  - ☒ D. 10

Q.73 Which of the following ionic compounds has the highest boiling point?

- Ans
- ☒ A.  $\text{CaCl}_2$
  - ☐ B.  $\text{NaCl}$
  - ☐ C.  $\text{MgCl}_2$
  - ☐ D.  $\text{LiCl}$

Q.74 Consider a circuit in which three resistors of  $10\ \Omega$ ,  $20\ \Omega$  and  $30\ \Omega$  are connected in parallel to each other to a cell of 220 V. The effective resistance and the current in the  $20\ \Omega$  resistor are \_\_\_\_\_ and \_\_\_\_\_, respectively.

- Ans
- ☐ A.  $\frac{60}{11}\ \Omega$ , 22 A
  - ☒ B.  $\frac{60}{11}\ \Omega$ , 11 A
  - ☐ C.  $\frac{30}{11}\ \Omega$ , 22 A
  - ☐ D.  $\frac{30}{11}\ \Omega$ , 11 A

Q.75 Which statement regarding HIV is FALSE?

- Ans
- ☐ A. HIV can be transmitted through sexual intercourse with an infected partner.
  - ☒ B. HIV attacks your immune system by entering your red blood cells.
  - ☐ C. HIV stops your immune system from being able to protect your body.
  - ☐ D. Once HIV has weakened your immune system, germs can take over your body, and you become sick.

Q.76 Which of the following outcomes is NOT caused due to the burning of fossil fuels?

- Ans
- ☐ A. Formation of oxides of nitrogen and sulphur
  - ☐ B. Acid rain
  - ☒ C. Decrease in ozone levels in the upper layers of the atmosphere
  - ☐ D. Smog formation

Q.77 Which of the following mild non-corrosive basic salts is prepared by the reaction of aqueous sodium chloride solution with ammonia and carbon dioxide?

- Ans
- ☒ A. Baking soda
  - ☐ B. Baking powder
  - ☐ C. Bleaching powder
  - ☐ D. Washing soda

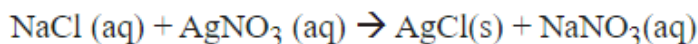
**Q.78** The frequency of AC supply for house-hold purpose is \_\_\_\_\_.

- Ans**
- ✓ A. 50 Hz
  - ✗ B. 100 Hz
  - ✗ C. 150 Hz
  - ✗ D. 200 Hz

**Q.79** If element 'X' belongs to group 17 and period 4 in the periodic table, then how many shells will be completely filled?

- Ans**
- ✗ A. 1
  - ✗ B. 2
  - ✓ C. 3
  - ✗ D. 4

**Q.80** Identify the following type of reaction.



- Ans**
- ✗ A. Combination reaction
  - ✗ B. Combustion reaction
  - ✓ C. Double displacement reaction
  - ✗ D. Decomposition reaction

Section : General Awareness and Current Affairs

**Q.81** Constant returns to scale (CRS) is a property of production function that holds when \_\_\_\_\_.

- Ans**
- ✗ A. a proportional increase in all inputs results in an increase in output by more than the proportion
  - ✓ B. a proportional increase in all inputs results in an increase in output by the same proportion
  - ✗ C. a proportional increase in all inputs results in an increase in output by less than the proportion
  - ✗ D. a proportional increase in all inputs may results in an increase in output by less than or more than the proportion

**Q.82** As per provisions given in Article 76 of the Indian Constitution, the President shall appoint a person as Attorney-General for India who is qualified to be \_\_\_\_\_.

- Ans**
- ✓ A. appointed as Judge of the Supreme Court
  - ✗ B. appointed as Judge of any High Court
  - ✗ C. appointed as Minister in the Union Cabinet
  - ✗ D. appointed as Minister in any State Cabinet

**Q.83** In which year was the SHG-Bank Linkage Programme (SHG-BLP) launched for the first time in India to improve the microfinance sector?

- Ans**
- ✗ A. 1985-86
  - ✓ B. 1992-93
  - ✗ C. 1996-97
  - ✗ D. 2001-02

**Q.84** A participative model with four interconnected tracks has been envisioned to formulate the STIP (Science, Technology and Innovation Policy) 2020. Identify the option that contains the four interconnected tracks mentioned in STIP 2020.

- A) Extended public and expert consultation
- B) Thematic group consultation
- C) Ministries and State consultation
- D) Apex level multi stakeholder consultation
- E) School student consultation

**Ans** ☒ A. A, B, D and E  
☒ B. A, B, C and E  
☒ C. A, B, C, and D  
☒ D. B, C, D and E

**Q.85** In which of the following states was the Santosh Trophy 2021-22 held in the month of April-May 2022?

**Ans** ☒ A. Andhra Pradesh  
☒ B. Goa  
☒ C. Kerala  
☒ D. Tamil Nadu

**Q.86** Under Article 243 Q of the Constitution of India, Municipalities are categorised in how many categories?

**Ans** ☒ A. Three  
☒ B. Four  
☒ C. Five  
☒ D. Six

**Q.87** Where is the Maulana Azad National Urdu University located?

**Ans** ☒ A. Hyderabad  
☒ B. Aligarh  
☒ C. Patna  
☒ D. Bhopal

**Q.88** Which Indian badminton player won the Women's Singles Title at the Singapore Open in 2022?

**Ans** ☒ A. Saina Nehwal  
☒ B. Ashwini Ponappa  
☒ C. PV Sindhu  
☒ D. PC Thulasi

**Q.89** Which of the following peaks of the Himalayas is located in India?

**Ans** ☒ A. Annapurna  
☒ B. Kamet  
☒ C. Dhaulagiri  
☒ D. Makalu

**Q.90** Which type of forest is a major source of shrubs, scrubs and resources such as silver fir, junipers, pines and birches to nomadic tribes, like the Gujjars and the Bakarwals?

- Ans**
- ✓ **A. Montane forests**
  - ✗ **B. Tropical evergreen forests**
  - ✗ **C. Tropical deciduous forests**
  - ✗ **D. Mangrove forests**

**Q.91** When was the Asiatic Society formed by Sir William Jones at Calcutta?

- Ans**
- ✗ **A. 1780**
  - ✗ **B. 1782**
  - ✓ **C. 1784**
  - ✗ **D. 1788**

**Q.92** Who was the Prime Minister of India when the Third Five-Year Plan was made?

- Ans**
- ✓ **A. Jawaharlal Nehru**
  - ✗ **B. Indira Gandhi**
  - ✗ **C. Morarji Desai**
  - ✗ **D. Rajiv Gandhi**

**Q.93** The approximate total length of the coastline of the mainland of India, Lakshadweep Islands and Andaman & Nicobar Islands is:

- Ans**
- ✓ **A. 7516.6 km**
  - ✗ **B. 8516.6 km**
  - ✗ **C. 9516.6 km**
  - ✗ **D. 10516.6 km**

**Q.94** In the 2022-2023 budget, the Government of Rajasthan announced that it would provide free electricity of up to 50 units for domestic users consuming upto \_\_\_\_\_ units per month.

- Ans**
- ✗ **A. 200**
  - ✓ **B. 100**
  - ✗ **C. 150**
  - ✗ **D. 250**

**Q.96** In 2014, the Government of India extended the validity of industrial licenses to as much as \_\_\_\_\_ years from three to encourage domestic manufacturing.

- Ans**
- ✓ **A. seven**
  - ✗ **B. eight**
  - ✗ **C. nine**
  - ✗ **D. ten**

**Q.97** ABHA (Ayushman Bharat Health Account) number is a/an \_\_\_\_\_ number that will uniquely identify a person as a participant in India's digital healthcare ecosystem.

- Ans**
- ✗ **A. 16-digit**
  - ✓ **B. 14-digit**
  - ✗ **C. 10-digit**
  - ✗ **D. 8-digit**

**Q.98**

Which organization/institute received the Subhas Chandra Bose Aapda Prabandhan Puraskar for year 2022?

**Ans**

- ☐ A. Indian Institute of Science Bengaluru
- ☐ B. Indian Institute of Technology Delhi
- ☒ C. Gujarat Institute of Disaster Management
- ☐ D. Indian Institute of Technology Gandhinagar

**Q.99** The Purandaradasa Aradhana is principally a \_\_\_\_\_ Festival.

**Ans**

- ☐ A. Dance
- ☐ B. Theater
- ☐ C. Martial Art
- ☒ D. Classical Music

**Q.100** The Fundamental Duties in the Constitution of India are given in which part of the Constitution?

**Ans**

- ☐ A. Part IV
- ☒ B. Part IVA
- ☐ C. Part V
- ☐ D. Part VA





# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 29/09/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

Q.1 Find the arithmetic mean of the following data.

|     |   |    |    |    |    |    |
|-----|---|----|----|----|----|----|
| $x$ | 6 | 10 | 18 | 24 | 30 | 36 |
| $f$ | 4 | 3  | 4  | 2  | 1  | 1  |

Ans ☒ A. 12

☒ B. 13

☒ C. 16

☒ D. 17

Q.2 If  $a = 28 - 5\sqrt{12}$  and  $b = 2 + \sqrt{3}$ , find the value of  $(a\sqrt{3} + b)$ .

Ans ☒ A.  $-28 + 29\sqrt{3}$

☒ B.  $31 - 8\sqrt{3}$

☒ C.  $32 + 27\sqrt{3}$

☒ D.  $-30 + 30\sqrt{3}$

Q.3 If pipe A can fill a cistern in X hours, pipe B can fill the same cistern in Y hours, and pipe C can empty the full cistern in Z hours, then find the time taken to completely fill the cistern, if Pipes A, B and C are opened together.

Ans ☒ A.  $\frac{XYZ}{YZ + XZ - XY}$

☒ B.  $\frac{XYZ}{YZ - XZ - XY}$

☒ C.  $\frac{XYZ}{YZ + XZ + XY}$

☒ D.  $\frac{XYZ}{YZ - XZ + XY}$



Q.4 Find the LCM of 20, 120 and 60.

- Ans
- ☐ A. 60
  - ☐ B. 80
  - ☐ C. 100
  - ☒ D. 120

Q.5 What is the compound interest, rounded to nearest rupee, on ₹82,000 for 3 years at 6% per annum compounded annually?

- Ans
- ☐ A. ₹14,674
  - ☐ B. ₹15,366
  - ☒ C. ₹15,663
  - ☐ D. ₹15,000

Q.6 If  $p$  and  $q$  are co-primes, then  $p^7$  and  $q^9$  are:

- Ans
- ☐ A. co-primes, but not composite numbers
  - ☐ B. primes
  - ☐ C. composite numbers, but not co-primes
  - ☒ D. co-primes, and composite numbers

Q.7 The nature of the roots of the quadratic equation  $x^2 + 4x + 8 = 0$  is:

- Ans
- ☒ A. not real roots
  - ☐ B. real, irrational, unequal roots
  - ☐ C. real, rational, unequal roots
  - ☐ D. real, rational, equal roots

Q.8 If  $x \neq y$ , and  $x^2y - xy^2 : yz(x - y) :: xa^2 - xb^2 : w$ , then which of the options below gives an expression equivalent to  $w$ ?

- Ans
- ☐ A.  $za^2 + zb^2$
  - ☐ B.  $yza^2 - yzb^2$
  - ☒ C.  $za^2 - zb^2$
  - ☐ D.  $a^2 - b^2$

Q.9 If the volume of a sphere is  $4851 \text{ cm}^3$ , then find the radius of the sphere. [Use  $\pi = \frac{22}{7}$ ]

- Ans
- ☒ A. 10.5 cm
  - ☐ B. 11.5 cm
  - ☐ C. 12.5 cm
  - ☐ D. 13.5 cm

Q.10 Simplify the given expression.

$$3x(x - 9) - 9x^2 + 2x + 24 - x^3$$

Ans ☒ A.  $24 - 25x - 6x^2 - x^3$

☒ B.  $24 - 25x - 6x^2 + x^3$

☒ C.  $24 - 25x + 6x^2 - x^3$

☒ D.  $24 + 25x - 6x^2 - x^3$

Q.11 Identify the quadratic equation one of whose roots is  $4 + \sqrt{3}$ .

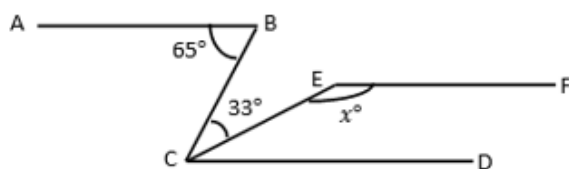
Ans ☒ A.  $x^2 + 8x + 13 = 0$

☒ B.  $x^2 - 8x + 13 = 0$

☒ C.  $x^2 - 8x + 11 = 0$

☒ D.  $x^2 + 8x + 11 = 0$

Q.12 In the given figure,  $AB \parallel CD \parallel EF$ . The value of  $x^\circ$  is:



Ans ☒ A.  $147^\circ$

☒ B.  $148^\circ$

☒ C.  $115^\circ$

☒ D.  $126^\circ$

Q.13 Simplify  $\left(\frac{16a^{\frac{4}{3}}b^{\frac{-5}{6}}}{a^{\frac{-2}{3}}b^{\frac{1}{6}}}\right)^{\frac{1}{2}}$ .

Ans ☒ A.  $\frac{1}{(ab)^{\frac{1}{2}}}$

☒ B.  $\frac{a}{b^{\frac{1}{2}}}$

☒ C.  $\frac{4a}{b^2}$

☒ D.  $\frac{4a}{b^2}$

Q.14 The marks of a student increased from 10 to 12. Find the percentage increase in the marks.

Ans ☒ A. 12%

☒ B. 20%

☒ C. 2%

☒ D. 17%

**Q.15** Deeksha travels in her car from City A to City B at a speed of 120 km/h, and while coming back by the same route from City B to City A, she travels at a speed of 130 km/h. Find Deeksha's average speed during the whole journey

- Ans**
- ☒ A. 123.9 km/h
  - ☒ B. 122.8 km/h
  - ☒ C. 125.0 km/h
  - ☒ D. 124.8 km/h

**Q.16** If the base area of a right circular cylinder is  $346.50 \text{ cm}^2$  and its height is 21 cm, then find its total surface area.

[Use  $\pi = \frac{22}{7}$ ]

- Ans**
- ☒ A.  $2079 \text{ cm}^2$
  - ☒ B.  $2145 \text{ cm}^2$
  - ☒ C.  $2231 \text{ cm}^2$
  - ☒ D.  $2352 \text{ cm}^2$

**Q.17** If  $3 \sin^2 \theta + 7 \cos^2 \theta = 6$  and  $0 < \theta \leq 90^\circ$ , then the value of  $\theta$  is:

- Ans**
- ☒ A.  $90^\circ$
  - ☒ B.  $60^\circ$
  - ☒ C.  $45^\circ$
  - ☒ D.  $30^\circ$

**Q.18** If  $\sqrt{y} + \sqrt{121} = 0.03$ , then find the value of  $y$ , giving your answer correct to 3 decimal places.

- Ans**
- ☒ A. 0.109
  - ☒ B. 0.176
  - ☒ C. 1.760
  - ☒ D. 1.640

**Q.19** If  $a\%$  is the first discount and  $b\%$  is the second discount on the marked price of an article, then an equivalent single discount percentage is given by:

- Ans**
- ☒ A.  $a + b + \frac{ab}{100}$
  - ☒ B.  $a + b - \frac{ab}{100}$
  - ☒ C.  $a + b - \frac{a + b}{100}$
  - ☒ D.  $a + b - \frac{a - b}{100}$

**Q.20** Straight line FB is parallel to straight line GD. A is a point on straight line FB and C is a point on straight line GD. E is a point between FB and GD such that  $\angle BAE = 118^\circ$  and  $\angle DCE = 112^\circ$ . What is the measure of  $\frac{1}{2} \angle AEC$ ?

- Ans**
- ☒ A.  $62^\circ$
  - ☒ B.  $65^\circ$
  - ☒ C.  $72^\circ$
  - ☒ D.  $75^\circ$

**Q.21** A number is split into two parts such that one part is 14 more than the other, and the ratio of the two parts is 7 : 5. Find the number.

- Ans**
- ✓ A. 84
  - ✗ B. 35
  - ✗ C. 49
  - ✗ D. 54

**Q.22** Prakash and Vinesh can complete a certain piece of work in 12 and 14 days, respectively. They started to work together, and after 3 days, Vinesh left. In how many days will Prakash complete the remaining work?

- Ans**
- ✗ A.  $\frac{44}{7}$
  - ✗ B.  $\frac{43}{8}$
  - ✓ C.  $\frac{45}{7}$
  - ✗ D. 44

**Q.23** If  $21.134 \times 10^x = 0.0021134$ , then find the value of  $x$ .

- Ans**
- ✓ A. -4
  - ✗ B. -3
  - ✗ C. -2
  - ✗ D. 0

**Q.24** The ages of two persons differ by 14 years. If 4 years ago, the elder one was three times as old as the younger one, then the present age of younger one is:

- Ans**
- ✗ A. 10 years
  - ✓ B. 11 years
  - ✗ C. 12 years
  - ✗ D. 13 years

**Q.25** The marked price of a car is ₹5,00,000. Under a scheme successive discount of 10% and 8% are offered on it. Find the total discount offered while selling the car under the given scheme.

- Ans**
- ✗ A. ₹76,000
  - ✗ B. ₹90,000
  - ✗ C. ₹82,000
  - ✓ D. ₹86,000

#### Section : General Intelligence and Reasoning

**Q.26** Eight friends are sitting around a square table facing the centre. Four of them are sitting at the corners and remaining four are sitting at the exact middle of the four sides. Only Charu is sitting between Karan and Hitesh. Jay is sitting fourth to the left of Laxshita. Alok is sitting second to the left of Laxshita. Siya is sitting to the immediate right of Jay. Karan is sitting fourth to the left of Siya. Rashmi is sitting fourth to the right of Hitesh. Who is sitting to the immediate right of Alok?

- Ans**
- ✗ A. Siya
  - ✗ B. Jay
  - ✗ C. Hitesh
  - ✓ D. Rashmi

**Q.27** Which of the following options is the closest approximate value which will come in place of the question mark (?) in the following equation?

$$2.59 \times 1.3 - 4 + 3 = ?$$

- Ans**
- ✓ A. 2
  - ✗ B. 4
  - ✗ C. 1
  - ✗ D. 0

**Q.28** In a certain code language, 'QUILT' is written as 'RXJOU' and 'BLEAK' is written as 'COFDL'. How will 'CHAIR' be written in that language?

- Ans**
- ✗ A. DJCLT
  - ✗ B. DJBKT
  - ✗ C. DBLKS
  - ✓ D. DKBLS

**Q.29** Select the option that is related to the third term in the same way as the second term is related to the first term and the sixth term is related to the fifth term.

$$7 : 52 :: 11 : ? :: 9 : 84$$

- Ans**
- ✓ A. 124
  - ✗ B. 119
  - ✗ C. 152
  - ✗ D. 132

**Q.30** Select the set in which the numbers are related in the same way as are the numbers of the given sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

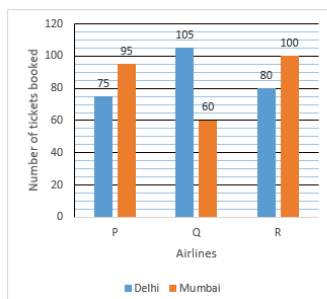
(1, 3, 4)

(8, 24, 18)

- Ans**
- ✗ A. (8, 13, 10)
  - ✗ B. (19, 25, 12)
  - ✓ C. (10, 23, 15)
  - ✗ D. (8, 14, 10)

**Q.31** Study the given bar-graph and answer the question that follows.

The bar-graph depicts the number of tickets booked for Delhi and Mumbai by Airlines P, Q and R.



The total number of tickets booked for Mumbai by Airlines Q and R was what per cent more than the number of tickets booked for Delhi by Airline R?

- Ans**
- ✗ A. 50%
  - ✗ B. 200%
  - ✓ C. 100%
  - ✗ D. 150%

**Q.32** The given statements are followed by three conclusions. Find out which conclusion is true based on the given statements.

**Statements:**

$$L > M = N \geq O, P \geq Q \leq R = O$$

**Conclusions:**

I.  $N \geq O$

II.  $L > R$

III.  $M \geq Q$

- Ans**
- ☒ A. Only conclusion I is true
  - ☒ B. Only conclusion II is true
  - ☒ C. Only conclusion III is true
  - ☒ D. All conclusions I, II and III are true

**Q.33** Each vowel in the word HOCKEY is changed to the letter following it in the English alphabetical order and each consonant is changed to the letter preceding it in the English alphabetical order. If each letter thus formed is arranged in alphabetical order, which letter will be fourth from the right?

- Ans**
- ☒ A. J
  - ☒ B. G
  - ☒ C. P
  - ☒ D. F

**Q.34** A certain number of people are sitting in a row, facing north. Only three people sit between F and C. D sits second to the right of C. A sits third to the left of F. Only one person sits between D and B. If no other person is sitting in the row, what is the total number of persons seated?

- Ans**
- ☒ A. 11
  - ☒ B. 14
  - ☒ C. 10
  - ☒ D. 12

**Q.35** If 1 is added to each digit of the number 870548362, what will be the sum of the fourth, fifth and sixth digit when counted from left?

- Ans**
- ☒ A. 17
  - ☒ B. 24
  - ☒ C. 16
  - ☒ D. 20

**Q.36** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

**Statements:**

All plums are guavas.

Some plums are mangoes.

No plum is a kiwi.

**Conclusions:**

- I. Some guavas are kiwis.
- II. Some mangoes are kiwis.

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Neither conclusion I nor II follows
  - ☒ D. Both conclusions I and II follow

**Q.37** Which two signs should be interchanged to make the following equation correct?

$$[(15 + 3) - (4 \times 2)] \div (4 - 6) \times 5 = 10$$

- Ans**
- ☒ A.  $\times$  and  $+$
  - ☒ B.  $+$  and  $-$
  - ☒ C.  $\times$  and  $\div$
  - ☒ D.  $+$  and  $\div$

**Q.38** Kiran starts from Point A and drives 4 km towards the east. He then takes a right turn, drives 9 km, turns left and drives 5 km. He then takes a left turn and drives 17 km, takes a left turn and drives 14 km. He then turns left, drives 8 km and stops at Point B. How far and towards which direction should he drive in order to reach Point A from Point B? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 9 km towards the south
  - ☒ B. 12 km towards the west
  - ☒ C. 6 km towards the east
  - ☒ D. 5 km towards the east

**Q.39** Refer to the following letter series and answer the question.

(Left) B E S U Y N O A P S B G S A X T G (Right)

How many letters are there in the English alphabetical series between the letter which is sixth from the left end and the letter which is fifth from the right end of the given series?

- Ans**
- ☒ A. 3
  - ☒ B. 4
  - ☒ C. 5
  - ☒ D. 6

**Q.40** Bansi starts from Point A and drives 18 km towards the west. He then takes a left turn, drives 8 km, turns right and drives 3 km. He then takes a right turn and drives 4 km, takes a right turn and drives 21 km and stops at Point B. How far and towards which direction should he drive in order to reach Point A from Point B? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 4 km towards the north
  - ☒ B. 4 km towards the south
  - ☒ C. 6 km towards the east
  - ☒ D. 8 km towards the south

**Q.41** A, B, C, D, E, F and G are seven students standing in a row facing North. D stands at the exact centre of the row. A stands second from the right end of the row. B stands second to the left of D. G stands exactly between D and A. F stands third from the left end of the row. C is the immediate neighbour of B. Who stands fifth from the left end of the row?

- Ans**
- ☒ A. E
  - ☒ B. F
  - ☒ C. A
  - ☒ D. G

**Q.42** In this question, the statement is followed by four conclusions. Find out which conclusion is NOT true based on the given statement.

Statement :  $I > Q > P \geq S = U < M \leq Z$

- Ans**
- ☒ A.  $Q > S$
  - ☒ B.  $Z > U$
  - ☒ C.  $I < P$
  - ☒ D.  $P \geq U$

**Q.43** In a certain code language, 'ASIDE' is written as 'CVMIK' and 'ARRAY' is written as 'CUVFE'. How will 'BOUND' be written in that language?

- Ans**
- ☒ A. DRYJS
  - ☒ B. DRSJY
  - ☒ C. DRJSY
  - ☒ D. DRYSJ

**Q.44** Which of the following numbers will replace the question mark (?) in the given series?

1.1   ?   3.3   4.4   5.5

- Ans**
- ☒ A. 2
  - ☒ B. 1.1
  - ☒ C. 3.3
  - ☒ D. 2.2

**Q.45** Six workers with the initials C, E, G, J, L and M are sitting around a circular table, facing the centre and at equal distance from each other, not necessarily in the same order. J sits at the immediate right of E. E sits second to the left of M. L sits at the left of E. G sits second to the left of L. C sits at the immediate left of L. M sits at the immediate left of G. Who sits second to the left of E?

- Ans**
- ☒ A. G
  - ☒ B. J
  - ☒ C. M
  - ☒ D. C

**Q.46** Which of the following is NOT a leap year?

- Ans**
- ☒ A. 2800
  - ☒ B. 2200
  - ☒ C. 6800
  - ☒ D. 3600

**Q.47** A certain number of people are sitting in a row, facing north. Only four people are sitting to the left of C. Only three people are sitting to the right of B. A is sitting fourth to the left of B. A is sitting fourth to the right of E. C is sitting third to the left of E. If no other person is sitting in the row, what is the total number of persons seated?

- Ans**
- ☒ A. 24
  - ☒ B. 19
  - ☒ C. 21
  - ☒ D. 23

**Q.48** In this question, a statement is followed by two conclusions numbered I and II. You have to assume everything in the statement to be true and decide which of them logically follows beyond a reasonable doubt from the information given in the statement.

Statement –

Price of onions has increased by 60 percent due to shortage of onions in the market.

Conclusion –

- I. Government can consider importing onions to bring down prices.
- II. People must stop eating onions and switch to potatoes instead.

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Neither conclusion I nor II follows
  - ☒ D. Both conclusions I and II follow

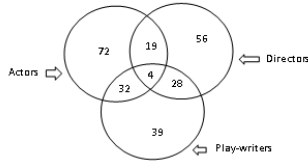


**Q.49** Select the option that represents the letters that, when placed from left to right in the same sequence in the blanks below, will complete the letter series.

ZA\_\_XC\_\_CD\_AYBX\_ABC\_Z\_YB\_CA\_\_D

- Ans**
- ☒ A. YBACBCDAXAC
  - ☒ B. YBAAZBDAYBC
  - ☒ C. YBABZCDAXBC
  - ☒ D. YBDBACDBXBC

**Q.50** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.

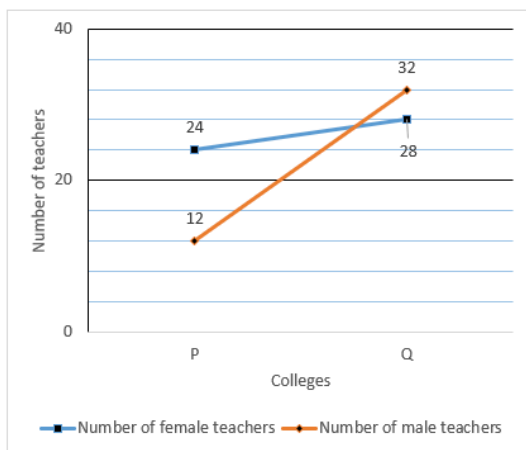


How many such actors are there who are also directors but NOT play-writers?

- Ans**
- ☒ A. 19
  - ☒ B. 4
  - ☒ C. 32
  - ☒ D. 23

**Q.51** Study the given line graph and answer the following question.

The given line graph depicts the number of teachers (male and female) in two colleges P and Q.



The number of female teachers in college P is what percentage of male teachers in college Q?

- Ans**
- ☒ A. 75%
  - ☒ B. 80%
  - ☒ C. 85%
  - ☒ D. 90%

**Q.52** The position of how many letters will remain unchanged if each of the letters in the word BRACKET is arranged in alphabetical order?

- Ans**
- ☒ A. Two
  - ☒ B. Zero
  - ☒ C. One
  - ☒ D. Three

**Q.53** XS 18 is related to SN 22 in a certain way. In the same way, KN 28 is related to FI 32. To which of the following is PH 44 related following the same logic?

- Ans**
- ☐ A. KC 47
  - ☒ B. KC 48
  - ☐ C. CK 48
  - ☐ D. CK 74

**Q.54** Three statements are followed by three conclusions numbered I, II and III. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts. Decide which of the given conclusions logically follow(s) from the given statements.

**Statements:**

All apples are papayas  
Some papayas are berries  
Some berries are cherries

**Conclusions:**

(I) Some berries are papayas  
(II) All papayas are apples  
(III) Some cherries are berries

- Ans**
- ☐ A. Only conclusion I follows
  - ☐ B. Only conclusion II follows
  - ☒ C. Both conclusions I and III follow
  - ☐ D. None of the conclusions follow

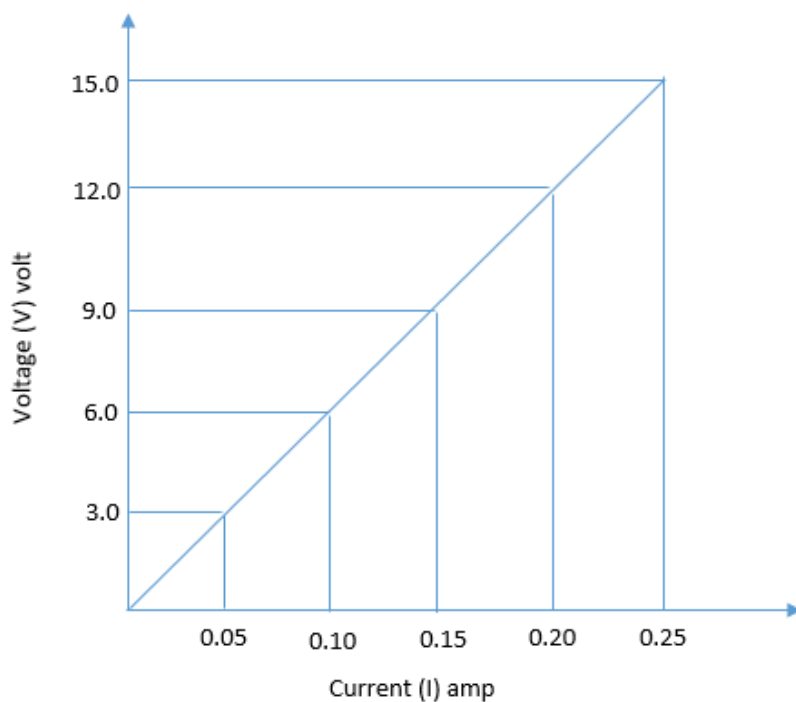
**Q.55** Which of the following numbers will replace the question mark (?) in the given series?

5, 24, 61, 122, 213, ?

- Ans**
- ☐ A. 320
  - ☐ B. 334
  - ☒ C. 340
  - ☐ D. 350

Section : **General Science**

Q.56 Find the resistance of the conductor using the given graph.



- Ans ☒ A. 60 ohm  
☒ B. 0.016 ohm  
☒ C. 0.24 ohm  
☒ D. 600 ohm

Q.57 After 2 to 3 days of whitewashing of walls with a solution of slaked lime, which of the following compounds is produced that gives a shiny finish to the walls?

- Ans ☒ A. Calcium carbonate  
☒ B. Calcium hydroxide  
☒ C. Calcium bicarbonate  
☒ D. Calcium dioxide

Q.58 What is the chemical behaviour of washing soda?

- Ans ☒ A. It is neutral in nature.  
☒ B. It is basic in nature.  
☒ C. It is acidic in nature.  
☒ D. It is amphoteric in nature.

Q.59 What is the relation between  $m$ ,  $v$ , and  $u$  for a spherical mirror?

- Ans ☒ A.  $m = v \times u$   
☒ B.  $m = \frac{v}{u}$   
☒ C.  $m = -v \times u$   
☒ D.  $m = \frac{-v}{u}$

**Q.60** The correct relation between the focal length of a lens and its power is:

**Ans** ☒ A.  $P = f$

☒ B.  $P \propto f$

☒ C.  $P = \frac{1}{f}$

☒ D.  $P = -1/f$

**Q.61** The formula for Joule's heating effect is represented as \_\_\_\_\_. (In the options, H denotes the heat produced, I is the current flowing through the conductor, R is the resistance and t is the time period.)

**Ans** ☒ A.  $H = VI t$

☒ B.  $H = IR t$

☒ C.  $H = QI t$

☒ D.  $H = VIR$

**Q.62** According to Newlands law of octaves, which of the following elements have same properties?

**Ans** ☒ A. Na and Cl

☒ B. Be and Mg

☒ C. B and Si

☒ D. K and Co

**Q.63** Which of the following method(s) can be used to change the direction of force on a current carrying conductor?

(i) Changing the magnitude of current

(ii) Changing the strength of magnetic field

(iii) Changing the direction of current

**Ans** ☒ A. Only (i)

☒ B. Only (iii)

☒ C. Both (i) and (iii)

☒ D. Both (ii) and (iii)

**Q.64** A heating device of power 1100 W is designed to operate at 220 V line voltage. If on a particular day the line voltage drops to 110 V, then the current through it and its output power will be \_\_\_\_ and \_\_\_\_.

**Ans** ☒ A. 5 A, 550 W

☒ B. 10 A, 550 W

☒ C. 2.5 A, 275 W

☒ D. 10 A, 275 W

**Q.65** Why do plants lack a defined excretory system like kidneys in mammals?

**Ans** ☒ A. They excrete through their vegetative parts

☒ B. Because plants do not produce waste materials

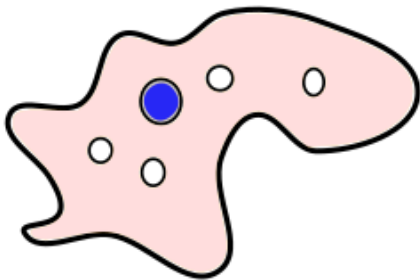
☒ C. Because plants produce only gaseous wastes which diffuse out

☒ D. Because plants lack a circulatory system

Q.66 What does a self-sustaining ecosystem mean?

- Ans
- ☐ A. It is not dependent on radiant energy for its maintenance.
  - ☐ B. No organisms are added or removed from the biotic component.
  - ☐ C. The organisms are well adapted to the local biotic components.
  - ☒ D. The organic matter remains almost constant generation over generation.

Q.67 How does the following organism get rid of its nitrogenous wastes?



- Ans
- ☐ A. By secretion
  - ☒ B. By simple diffusion
  - ☐ C. Through excretory vacuoles
  - ☐ D. By depositing crystals in vacuoles

Q.68 Which of the following statements is INCORRECT Mendel's pea plant experiments?

- Ans
- ☐ A. Mendel used a number of contrasting visible characters of garden peas – round/wrinkled seeds, tall/short plants.
  - ☐ B. He took a tall plant and a short plant, produced progeny by crossing them and in the resulting F<sub>1</sub> progeny, all plants were tall.
  - ☒ C. In the second-generation, or F<sub>2</sub> generation which are the progeny of the F<sub>1</sub> tall plants, all the plants are tall.
  - ☐ D. Appearance of both the tallness and shortness traits in F<sub>2</sub> progeny indicated that both the traits were inherited in the F<sub>1</sub> plants.

Q.69 Which of the following belongs to homologous series of alkenes?

- Ans
- ☐ A. C<sub>3</sub>H<sub>8</sub>
  - ☒ B. C<sub>3</sub>H<sub>6</sub>
  - ☐ C. C<sub>3</sub>H<sub>4</sub>
  - ☐ D. C<sub>5</sub>H<sub>12</sub>

Q.70 The force acting on a current carrying conductor placed in a magnetic field is \_\_\_\_\_.

- Ans
- ☒ A. perpendicular to the direction of current and magnetic field
  - ☐ B. parallel to the direction of current and magnetic field
  - ☐ C. parallel to the direction of current and perpendicular to the direction of magnetic field
  - ☐ D. parallel to the direction of magnetic field and perpendicular to the direction of current

- Q.71** Which of the following statements regarding reproduction in flowering plants is FALSE?
- Ans** ☒ A. Reproduction may occur through seeds.  
☒ B. Reproduction may occur from fragments of stems.  
☒ C. Reproduction may occur through spores.  
☒ D. Reproduction may occur from tissues separated from the plant and grown on an artificial medium.
- Q.72** Which of the following sites is NOT suitable for building a water-harvesting pit?
- Ans** ☒ A. In the yard of a large housing complex  
☒ B. In the corner of a small one-storey house  
☒ C. Near a large open landfill site  
☒ D. Near a large and busy international airport
- Q.73** Which of the following elements shows maximum metallic character?
- Ans** ☒ A. Ga  
☒ B. As  
☒ C. Sc  
☒ D. Be
- Q.74** A ray of light in air is incident at an angle of  $60^\circ$  on the surface separating air from a medium of refractive index  $\sqrt{3/2}$ . The ray is refracted in the medium at an angle of \_\_\_\_.
- Ans** ☒ A.  $15^\circ$   
☒ B.  $30^\circ$   
☒ C.  $45^\circ$   
☒ D.  $60^\circ$
- Q.75** Double displacement reaction occurs between:
- Ans** ☒ A. ionic compounds  
☒ B. covalent compounds  
☒ C. both ionic and covalent compounds  
☒ D. neither ionic nor covalent compounds
- Q.76** Which of the following compounds is formed when baking soda is heated?
- Ans** ☒ A. Sodium oxide  
☒ B. Calcium oxide  
☒ C. Sodium carbonate  
☒ D. Sodium hydroxide
- Q.77** Which of the following compounds has 7 covalent bonds?
- Ans** ☒ A. Propane  
☒ B. Ethane  
☒ C. Butane  
☒ D. Methane

**Q.78** What is the rumen?

- Ans**
- ☒ A. A sac-like structure of the oesophagus
  - ☒ B. A chamber of the stomach to store food
  - ☒ C. The region of the gut where cud is formed
  - ☒ D. The first part of the duodenum of a cow

**Q.79** Which of the following converts acidic food into alkaline in the alimentary canal?

- Ans**
- ☒ A. Intestinal juice
  - ☒ B. Bile juice
  - ☒ C. Gastric juice
  - ☒ D. Pancreatic juice

**Q.80** In the following table, mirror, its application and the justification for the application are given. Identify the rows in which the information is completely correct, with regard to given spherical mirrors in column 2.

|   | Mirror  | Application      | Justification                                                 |
|---|---------|------------------|---------------------------------------------------------------|
| 1 | Concave | Dentist Mirror   | Virtual, Erect and Magnified Image                            |
| 2 | Convex  | Street Lights    | Diverges the light rays hence wider field of view is possible |
| 3 | Concave | Solar Furnace    | Converges light rays from a distant source like sun           |
| 4 | Convex  | Rearview Mirrors | Virtual erect and enlarged images are formed                  |

- Ans**
- ☒ A. Only 1
  - ☒ B. Only 1 and 2
  - ☒ C. Only 1, 2 and 3
  - ☒ D. 1, 2, 3 and 4

#### Section : General Awareness and Current Affairs

**Q.81** India's golden boy Neeraj Chopra secured a historic silver medal in the men's Javelin final event at the World Athletics Championships 2022 held at \_\_\_\_\_.

- Ans**
- ☒ A. United States of America
  - ☒ B. United Kingdom
  - ☒ C. Denmark
  - ☒ D. Finland

**Q.82** According to the Hindu Calendar, Buddha Purnima falls on the full moon day of \_\_\_\_\_.

- Ans**
- ☒ A. Chaitra
  - ☒ B. Ashadha
  - ☒ C. Vaishakha
  - ☒ D. Magha



**Q.83** Which of the following options explains the objectives of the National Informatics Centre (NIC)?

- A) Technology partner of the government
- B) Develops e-Content and learning materials for school education
- C) Explores and advises on the use of emerging technologies
- D) Provides data networks packages to the government and private institutes

**Ans** ☒ A. A and D  
☒ B. B and C  
☒ C. A and C  
☒ D. C and D

**Q.84** The second 'Muslim Women Rights Day' was observed across India on \_\_\_\_\_ to commemorate the enactment of the law against Triple Talaq.

**Ans** ☒ A. 1 June 2021  
☒ B. 1 July 2021  
☒ C. 1 August 2021  
☒ D. 1 September 2021

**Q.85** In which of the following years was the Delhi Land Reforms Act enacted?

**Ans** ☒ A. 1954  
☒ B. 1951  
☒ C. 1956  
☒ D. 1953

**Q.86** Sarhul is the main festival of the tribal population of which of the following states?

**Ans** ☒ A. Jharkhand  
☒ B. Nagaland  
☒ C. Meghalaya  
☒ D. Assam

**Q.87** \_\_\_\_\_ is defined as the output per unit of variable input.

**Ans** ☒ A. Minimum product  
☒ B. Marginal product  
☒ C. Total product  
☒ D. Average product

**Q.88** In the year 2022, tech giant Microsoft has announced to set up its fourth data centre in which of the following cities of India?

**Ans** ☒ A. Hyderabad  
☒ B. Bengaluru  
☒ C. Mumbai  
☒ D. Delhi



**Q.89** As of April 2022, what is the maximum strength of Rajya Sabha?

- Ans**
- ☐ A. 325
  - ☐ B. 300
  - ☐ C. 275
  - ☒ D. 250

**Q.90** As on August 2022, under the Pradhan Mantri Jeevan Jyoti Bima Yojana(PMJJB),the life cover of Rs. \_\_\_\_\_ lakhs shall be for the one year period stretching from 1st June to 31st May and will be renewable.

- Ans**
- ☐ A. 1
  - ☐ B. 1.5
  - ☒ C. 2
  - ☐ D. 2.5

**Q.91** According to the Constitution of India, the 'Protection of life and personal liberty' is a part of which Fundamental Right from the following?

- Ans**
- ☐ A. Right to Equality
  - ☐ B. Right to Constitutional Remedies
  - ☒ C. Right to Freedom
  - ☐ D. Right against Exploitation

**Q.92** Which of the following factors does NOT determine the climate of India?

- Ans**
- ☐ A. Latitude
  - ☐ B. Distribution of land and water
  - ☐ C. Altitude
  - ☒ D. Surface area of the country

**Q.93** Which of the following Acts empowered the British East India Company to retain the territories and the revenues in India in trust for the crown not for any specified period?

- Ans**
- ☐ A. The Regulating Act, 1773
  - ☐ B. The Indian Council Act, 1909
  - ☒ C. The Charter Act, 1853
  - ☐ D. The Government of India Act, 1935

**Q.94** As on April 2022, under the RBI guidelines, the financial assets of Non Banking Financial Companies (NBFCs) should be more than \_\_\_\_\_ of the total assets (netted off by intangible assets).

- Ans**
- ☒ A. 50%
  - ☐ B. 60%
  - ☐ C. 70%
  - ☐ D. 80%

**Q.95** Which of the following languages does NOT enjoy classical status in India?

- Ans**
- ☒ A. Maithili
  - ☐ B. Telugu
  - ☐ C. Malayalam
  - ☐ D. Kannada

**Q.96** In which year was the Mahatma Gandhi National Rural Employment Guarantee Act passed by the Government of India?

- Ans**
- ☐ A. 2007
  - ☒ B. 2005
  - ☐ C. 2003
  - ☐ D. 2000

**Q.97** Which place receives the highest rainfall in the world?

- Ans**
- ☒ A. Mawsynram
  - ☐ B. Tura Peak
  - ☐ C. Dhupgarh
  - ☐ D. Kangto

**Q.98** Who can direct to transfer any civil or criminal case from one State High Court to another State High Court or from a Court subordinate to another State High Court in India?

- Ans**
- ☒ A. Supreme Court
  - ☐ B. Chief justice of High Court
  - ☐ C. Law commission of India
  - ☐ D. Governor of state

**Q.99** Which of the following players won a gold at the IBA Women's World Boxing Championship 2022?

- Ans**
- ☒ A. Nikhat Zareen
  - ☐ B. Sarita Devi
  - ☐ C. Mary Kom
  - ☐ D. Lekha KC

**Q.100** Which of the following statements is INCORRECT about soil formation?

- Ans**
- ☐ A. Parent rock determines colour.
  - ☐ B. Temperature and rainfall influence rate of weathering.
  - ☒ C. Altitude and slope determine the rate of humus formation.
  - ☐ D. Time determines thickness of soil profile.



रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS  
सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 29/09/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

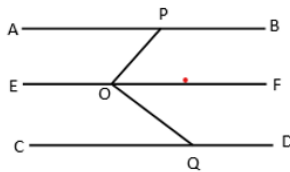
**Q.1** Find the HCF of 0.24 and 0.36.

- Ans
- ☒ A. 0.72
  - ☒ B. 0.12
  - ☒ C. 0.52
  - ☒ D. 0.32

**Q.2** If  $x = 5$ , then find the value of  $16 \times x \sqrt{x^3 - x^2}$ .

- Ans
- ☒ A. 600
  - ☒ B. 700
  - ☒ C. 800
  - ☒ D. 900

**Q.3** In the given figure,  $AB \parallel CD \parallel EF$ ,  $\angle APO = 35^\circ$  and  $\angle CQO = 43^\circ$ . The value of  $\angle EOP + \angle EOQ$  is:



- Ans
- ☒ A.  $276^\circ$
  - ☒ B.  $282^\circ$
  - ☒ C.  $264^\circ$
  - ☒ D.  $290^\circ$

**Q.4** The HCF of fractions is calculated as  $\frac{\text{HCF of the numerators}}{\text{LCM of the denominators}}$ . Find the HCF of  $\frac{2}{3}$ ,  $\frac{4}{5}$  and  $\frac{3}{2}$ .

**Ans**

- ☒ A.  $\frac{5}{30}$   
☒ B.  $\frac{3}{50}$   
☒ C.  $\frac{1}{40}$   
☒ D.  $\frac{1}{30}$

**Q.5** A shopkeeper sells a pair of shoes at a discount of 34% and still makes a profit of 10%. If the cost price of the pair of shoes is ₹480, find its marked price.

**Ans**

- ☒ A. ₹800  
☒ B. ₹700  
☒ C. ₹850  
☒ D. ₹820

**Q.6** If  $x = \sqrt{13 + 2\sqrt{40}}$  and  $y = \sqrt{13 - 2\sqrt{40}}$ , then what is the value of  $(x - y)$ ?

**Ans**

- ☒ A.  $4\sqrt{5}$   
☒ B.  $3\sqrt{2}$   
☒ C.  $2\sqrt{5}$   
☒ D.  $6\sqrt{2}$

**Q.7** A seller makes a profit of 20%. If he uses 10% lesser weight than the actual weight while selling goods, what is his actual profit percent?

**Ans**

- ☒ A. 33.3%  
☒ B. 15%  
☒ C. 36.6%  
☒ D. 30%

**Q.8** Find the simple interest on ₹9,600 at 7.2% per annum for 5 years.

**Ans**

- ☒ A. ₹2,416  
☒ B. ₹3,456  
☒ C. ₹4,356  
☒ D. ₹3,546

**Q.9** The income of Hari is ₹42,000 per month. He spends 15% on rent, 8% on food, 45% on other things, and saves the remaining amount. What is the amount he saves per month?

**Ans**

- ☒ A. ₹14,400  
☒ B. ₹13,440  
☒ C. ₹25,440  
☒ D. ₹28,560

**Q.10** 16 years ago, the age of the father was 4 times the age of his son. Now the father is twice as old as his son. What is the difference between the present ages of the father and his son?

- Ans**
- ✓ A. 24 years
  - ✗ B. 28 years
  - ✗ C. 12 years
  - ✗ D. 16 years

**Q.11** In a movie theatre, the price of the ticket per kid is \$2 while per adult it is \$5. On a particular day, 2000 people bought tickets and an amount of \$5,050 was collected. Find the number of \$2 tickets sold on that day.

- Ans**
- ✓ A. 1650
  - ✗ B. 350
  - ✗ C. 1560
  - ✗ D. 1570

**Q.12** Hema can do a certain piece of work in 21 days. Hema and Raji can together do the same work in 18 days, and Hema, Raji and Smitha can do the same work together in 14 days. In how many days can Hema and Smitha do the same work, working together?

- Ans**
- ✗ A. 63
  - ✓ B.  $\frac{63}{4}$
  - ✗ C.  $\frac{63}{5}$
  - ✗ D.  $\frac{36}{5}$

**Q.13** Vishnu purchased 8000 products for ₹1.2 each, another 3000 products for ₹1.5 each and another 5000 products for ₹ 1.4 each. Find the average cost per product. (Round the answer to two decimal places.)

- Ans**
- ✗ A. ₹1.41
  - ✗ B. ₹1.27
  - ✗ C. ₹1.39
  - ✓ D. ₹1.32

**Q.14** If  $2xy^2 : 2x^2y :: 2x^2y : z$ , which of the options below gives an expression equivalent to  $z$  ?

- Ans**
- ✗ A.  $4xy$
  - ✗ B.  $4x^2y^2$
  - ✗ C.  $2x^2$
  - ✓ D.  $2x^3$

**Q.15** A cuboidal hall is 15 m long and 10 m broad. If the sum of the areas of the floor and the ceiling is equal to the sum of the areas of the four walls, then the volume of the hall is:

- Ans**
- ✓ A.  $900 \text{ m}^3$
  - ✗ B.  $840 \text{ m}^3$
  - ✗ C.  $790 \text{ m}^3$
  - ✗ D.  $930 \text{ m}^3$

**Q.16** Each interior angle of a regular polygon of  $n$  sides is  $144^\circ$ . The number of sides ( $n$ ) of the polygon is:

**Ans**

☒ A. 8

☒ B. 9

☒ C. 10

☒ D. 12

**Q.17** Pipes A and B can fill an empty cistern in 16 minutes and 32 minutes, respectively. Both Pipe A and Pipe B are opened together. After how much time should Pipe A be turned off so that the empty cistern is completely filled in a total of 16 minutes?

**Ans**

☒ A. 9 min

☒ B. 7 min

☒ C. 8 min

☒ D. 6 min

**Q.18** Using  $\pi = \frac{22}{7}$ , find the circumference of a circle whose diameter is 38.5 cm.

**Ans**

☒ A. 121 cm

☒ B. 154 cm

☒ C. 165 cm

☒ D. 170 cm

**Q.19** If  $3 + 2\sqrt{2}$  and  $3 - 2\sqrt{2}$  are the roots of a quadratic equation, then the quadratic equation is:

**Ans**

☒ A.  $x^2 - 6x - 1 = 0$

☒ B.  $x^2 + 6x + 1 = 0$

☒ C.  $x^2 - 6x + 1 = 0$

☒ D.  $x^2 + 6x - 1 = 0$

**Q.20** The average of 7 numbers was given as 53. Later it was found that one number was misread as 16 instead of 58. What is the correct average of the given 7 numbers?

**Ans**

☒ A. 59

☒ B. 55

☒ C. 56

☒ D. 52

**Q.21** The cost of two chairs and three tables is ₹1,650. If the cost of a chair is ₹150 less than that of a table, then find the cost of a table.

**Ans**

☒ A. ₹400

☒ B. ₹290

☒ C. ₹390

☒ D. ₹380

**Q.22** What is the difference between the biggest and the smallest fractions among  $\frac{1}{2}$ ,  $\frac{3}{4}$ ,  $\frac{4}{5}$  and  $\frac{5}{6}$ ?

**Ans**

☒ A.  $\frac{1}{3}$

☒ B.  $\frac{1}{6}$

☒ C.  $\frac{1}{9}$

☒ D.  $\frac{1}{12}$

**Q.23** Simplify the given expression.

$$3x(x - 3) + 2(3x^2 - 4)$$

- Ans**
- ☒ A.  $9x^2 + 9x - 8$
  - ☒ B.  $9x^2 - 9x + 8$
  - ☒ C.  $9x^2 - 9x - 8$
  - ☒ D.  $9x^2 + 9x + 8$

**Q.24** If  $\theta$  is an acute angle, and  $\cos \theta = \frac{12}{13}$ , then the value of  $\frac{13 \sin \theta + 12 \sec \theta}{12 \tan \theta + 5 \operatorname{cosec} \theta}$  is:

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C.  $\frac{1}{2}$
  - ☒ D.  $\frac{3}{2}$

**Q.25** If one root of the equation  $(k + 1)x^2 - 13kx + 7 - 2k = 0$  is the reciprocal of the other, then the value of  $k$  is:

- Ans**
- ☒ A. 4
  - ☒ B. 2
  - ☒ C. -2
  - ☒ D. -4

#### Section : General Intelligence and Reasoning

**Q.26** Select the option that is related to the third term in the same way as the second term is related to the first term and the sixth term is related to the fifth term.

$$24 : 144 :: 16 : ? :: 8 : 48$$

- Ans**
- ☒ A. 93
  - ☒ B. 95
  - ☒ C. 96
  - ☒ D. 94

**Q.27** Laxmi walks 12 m towards the east. She turns left and walks 5 m. She again turns left to walk 12 m. Finally, she turns left and walks 5 m. In which direction is she facing by the end of her walk? (All turns are 90 degree turns only)

- Ans**
- ☒ A. East
  - ☒ B. West
  - ☒ C. North
  - ☒ D. South

**Q.28** Five girls, M, N, O, P, and Q are sitting around a circular table facing the centre. P is an immediate neighbour of M and N. Q is second to the left of P. N and Q are the immediate neighbours of O. Who is sitting third to the right of Q?

- Ans**
- ☒ A. N
  - ☒ B. M
  - ☒ C. O
  - ☒ D. P

**Q.29** What will come in the place of '?' in the following equation, if '+' and '-' are interchanged and also '×' and '÷' are interchanged?

$$55 + 34 \times 17 \div 7 - 51 = ?$$

- Ans**
- ☒ A. 85
  - ☒ B. 90
  - ☒ C. 91
  - ☒ D. 92

**Q.30** Seven people (L, M, N, O, P, Q, and R) are sitting in a straight row, facing north. L sits third to the left of Q. Only two people sit to the left of L. M sits second to the left of Q. P is an immediate neighbour of O and L. Only two people sit between P and N. Who sits at the extreme right end of the row?

- Ans**
- ☒ A. R
  - ☒ B. Q
  - ☒ C. N
  - ☒ D. M

**Q.31** How many 5s are there in the following sequence which is immediately followed by 7 and immediately preceded by 8?

8 5 7 4 3 2 7 5 6 9 8 5 7 8 5 7 4 5 7 6 8 6 9 8 5 7 9 3

- Ans**
- ☒ A. Three
  - ☒ B. Four
  - ☒ C. Five
  - ☒ D. Two

**Q.32** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

Some balloons are flowers.

All flowers are colours.

All colours are rainbows.

Conclusions:

(I) All flowers are rainbows.

(II) Some balloons are colours.

- Ans**
- ☒ A. Only conclusion (I) follows.
  - ☒ B. Only conclusion (II) follows.
  - ☒ C. Both conclusion (I) and conclusion (II) follow.
  - ☒ D. Both conclusion (I) and conclusion (II) do not follow.

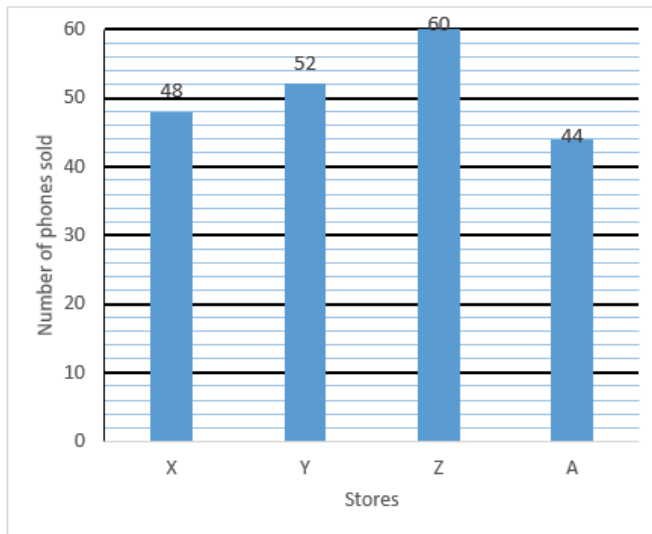
**Q.33** A certain number of people are sitting in a row, facing north. Only three people sit between P and Q. N sits second to the left of P. L sits to the immediate left of N. M sits second to the left of L. M is not an immediate neighbour of Q. If no other person is sitting in the row, what is the total number of persons seated?

- Ans**
- ☒ A. 8
  - ☒ B. 11
  - ☒ C. 9
  - ☒ D. 10



**Q.34** Study the given bar graph and answer the following question.

The given bar graph depicts the number of phones sold by stores X, Y, Z and A.



What is the total number of phones sold by the given four stores?

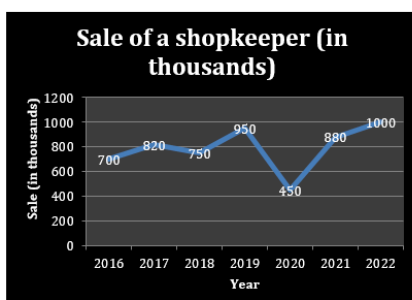
- Ans**
- ☒ A. 206
  - ☒ B. 204
  - ☒ C. 208
  - ☒ D. 210

**Q.35** If '+' means '-', '-' means '×', '×' means '+', '+' means '+', what will come in place of the question mark (?) in the following equation?

$$15 - 2 \div 90 \times 9 + 10 = ?$$

- Ans**
- ☒ A. 29
  - ☒ B. 30
  - ☒ C. 28
  - ☒ D. 32

**Q.36** The given line graph shows the sale of a shopkeeper (in thousands) from the year 2016 to 2022. Study the graph and answer the question that follows.



The sale in 2020 is what percentage of sale in 2021?

- Ans**
- ☒ A. 61.73%
  - ☒ B. 73.08%
  - ☒ C. 51.13%
  - ☒ D. 59.31%

**Q.37** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. EXAMPLE: 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(17, 4913, 3)

(9, 6561, 4)

**Ans** ☒ A. (16, 1536, 2)

☒ B. (8, 512, 6)

☒ C. (7, 49, 2)

☒ D. (2, 64, 4)

**Q.38** One evening, Rohan walked 1 kilometre on a straight road, then turned left and walked 2 kilometres. Then he took a right turn and walked 1 kilometre again. At that time, he was facing the west direction. In which direction did he start to walk initially? (All turns are 90 degree turns only)

**Ans** ☒ A. North

☒ B. South

☒ C. East

☒ D. West

**Q.39** In a certain code language, 'QUART' is written as 'RSBPU' and 'LEMON' is written as 'MCNMO'. How will 'JUMPY' be written in that language?

**Ans** ☒ A. KWNZRZ

☒ B. KSNNZ

☒ C. KSMNZ

☒ D. KTNMZ

**Q.40** Select the correct conclusion that can be drawn from the given statements.

**Statements:**

1.  $X > Z = C \geq K$

2.  $E \geq G \leq H = K$

**Ans** ☒ A.  $C \geq E$

☒ B.  $X > H$

☒ C.  $Z \geq E$

☒ D.  $C < E$

**Q.41** A certain number of people are sitting in a row, facing north. Z sits second to the right of T. S sits second to the right of V. R sits to the immediate left of T. Only three people sit between K and R. S sits third to the left of K. If no other person is sitting in the row, what is the total number of people seated?

**Ans** ☒ A. 11

☒ B. 12

☒ C. 13

☒ D. 14

- Q.42** In this question, a group of letters is coded using numbers/symbols as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Letters         | T | P | J | Q | S | U | E | R | H | A |
|-----------------|---|---|---|---|---|---|---|---|---|---|
| Numbers/Symbols | - | 6 | 8 | % | 7 | @ | 3 | 9 | # | 1 |

Conditions:

- (i) If there is more than 1 vowel in the word, all the vowels will be coded as 4.  
(ii) If a word has consonants at both ends, both the consonants present at both ends will be coded as 2.

What will be the correct code for EARTH?

- Ans** ☒ A. 349-#  
☒ B. 419-#  
☒ C. 449-#  
☒ D. 319-#

- Q.43** Refer to the following letter, symbol series and answer the question.

(Left) E + Z = D \* P B U V @ L & F S O G Q % & M E ? A (Right)

Which of the following is the tenth letter/symbol to the left of the thirteenth letter/symbol from the left end of the given series?

- Ans** ☒ A. +  
☒ B. =  
☒ C. Z  
☒ D. D

- Q.44** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

CRH : APF  
TON : RML

- Ans** ☒ A. EKN : YUF  
☒ B. UIR : NSH  
☒ C. QLF : MBV  
☒ D. IWZ : GUX

- Q.45** Three statements are given followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

**Statements:**

All valleys are mountains.  
Some mountains are hills.  
Some hills are plateaus.

**Conclusions:**

I. Some plateaus are mountains.  
II. Some valleys are plateaus.  
III. Some mountains are valleys.

- Ans** ☒ A. Only conclusions I and II follow  
☒ B. Only conclusions I and III follow  
☒ C. Only conclusions II and III follow  
☒ D. Only conclusion III follows

**Q.46** Which of the following numbers will replace the question mark (?) in the given number series?

99, 92, 83, 76, 67, ?

- Ans**
- ☒ A. 58
  - ☒ B. 62
  - ☒ C. 60
  - ☒ D. 54

**Q.47** If '+' means '÷', '÷' means '+', '-' means '×', '×' means '-', what will come in place of the question mark (?) in the following equation?

$$2 - (684 \div 228 \times 19) \times 21 \div 4 = ?$$

- Ans**
- ☒ A. 60
  - ☒ B. 62
  - ☒ C. 65
  - ☒ D. 68

**Q.48** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

**Statements:**

Some balloons are flowers.

All flowers are colours.

All colours are rainbows.

**Conclusions:**

I. All flowers are rainbows.

II. Some balloons are colours.

- Ans**
- ☒ A. Only conclusion (I) follows.
  - ☒ B. Only conclusion (II) follows.
  - ☒ C. Both conclusion (I) and conclusion (II) follow.
  - ☒ D. Both conclusion (I) and conclusion (II) do not follow.

**Q.49** Each vowel in the word **COMPLAINED** is changed to the letter following it in the English alphabetical order and each consonant is changed to the letter preceding it in the English alphabetical order. Which of the following letters will appear twice in the group of letters thus formed?

- Ans**
- ☒ A. P
  - ☒ B. B
  - ☒ C. K
  - ☒ D. C

**Q.50** This question is based on the seven, three-digit numbers given below.

365, 125, 486, 548, 654, 552, 354

If 3 is added to first digit of every number, in how many numbers will the first digit be exactly divisible by the second digit?

(Example- 697 – First digit = 6, second digit = 9 and third digit = 7)

- Ans**
- ☒ A. Four
  - ☒ B. Three
  - ☒ C. Two
  - ☒ D. One

**Q.51** In this question, the statement is followed by four conclusions. Find out which conclusion is NOT true based on the given statement.

Statement :  $J > S \geq C > Q \geq T = A < N$

- Ans**
- ✓ A.  $S \geq T$
  - ✗ B.  $C < J$
  - ✗ C.  $N > T$
  - ✗ D.  $C > A$

**Q.52** Select the number that will replace the question mark (?) in the given series.

1      11    20    28    ?

- Ans**
- ✗ A. 37
  - ✗ B. 36
  - ✓ C. 35
  - ✗ D. 34

**Q.53** A statement is given followed by two conclusions numbered I and II. You have to assume everything in the statement to be true and decide which of the conclusions logically follow(s) beyond a reasonable doubt from the information given in the statement.

Statement:

The findings according to a recent study on marine life stated that plastic and other non-biodegradable waste material disposed in water bodies is one of the leading causes of harm to sea creatures.

Conclusions:

- I. Non-biodegradable materials should not be disposed of in water bodies.
- II. More research is being conducted on marine life to better understand sea creatures.

- Ans**
- ✓ A. Only conclusion I follows
  - ✗ B. Only conclusion II follows
  - ✗ C. Neither conclusion I nor II follows
  - ✗ D. Both conclusions I and II follow

**Q.54** Which of the following letter-clusters will replace the question mark (?) in the given series to make it logically complete?

AZP 13, DXR 17, GVT 21, JTV 25, ?

- Ans**
- ✗ A. MSY 29
  - ✗ B. MRY 29
  - ✗ C. MSX 29
  - ✓ D. MRX 29

**Q.55** In a row of people standing facing north, Vikram stands 11<sup>th</sup> from the left end of the row. His friend Aditya stands 3<sup>rd</sup> from the right end. There are 14 people standing between Vikram and Aditya. How many people are standing in that row?

- Ans**
- ✗ A. 30
  - ✓ B. 28
  - ✗ C. 25
  - ✗ D. 32

Section : General Science

**Q.56** For a concave mirror, the position of the image for an object placed at infinity is \_\_\_\_\_.

- Ans**
- ☒ A. pole
  - ☒ B. focus
  - ☒ C. centre of curvature
  - ☒ D. Between focus and centre of curvature

**Q.57** In each of the triads, how many elements were identified by Doberenier?

- Ans**
- ☒ A. 3
  - ☒ B. 6
  - ☒ C. 9
  - ☒ D. 2

**Q.58** The field produced by  $n$  turns of a coil is \_\_\_\_\_ times that of a single turn.

- Ans**
- ☒ A.  $n$
  - ☒ B.  $n^2$
  - ☒ C.  $1/n$
  - ☒ D.  $1/n^2$

**Q.59** The unit of resistance is \_\_\_\_\_.

- Ans**
- ☒ A. Coulomb
  - ☒ B. Ohm
  - ☒ C. Volt
  - ☒ D. Ampere

**Q.60** A coin of diameter 4 cm is placed at a distance of 45 cm in front of a convex lens of focal length 30 cm. Then the diameter of the image of the coin will be:

- Ans**
- ☒ A. 6 cm
  - ☒ B. 8 cm
  - ☒ C. 10 cm
  - ☒ D. 12 cm

**Q.61** Which of the following is NOT a crystalline allotrope of carbon?

- Ans**
- ☒ A. Graphite
  - ☒ B. Diamond
  - ☒ C. Fullerene
  - ☒ D. Coke

**Q.62** In which of the following animals does blood go through the heart twice during each cycle?

- Ans**
- ☒ A. Mammals, birds and reptiles
  - ☒ B. Mammals, birds and fishes
  - ☒ C. Mammals, fishes and reptiles
  - ☒ D. Fishes, birds and reptiles

**Q.63** Which of the following sexually transmitted diseases affects our immune system?

- Ans**
- ☐ A. Gonorrhoea
  - ☐ B. Warts
  - ☐ C. Syphilis
  - ☒ D. HIV-AIDS

**Q.64** Which of the following statements is/are INCORRECT?

- A) Oxides of metals are basic and that of non-metals are acidic in nature.
- B) Oxides of metals are acidic and that of non-metals are basic in nature.
- C) Non-metals are electronegative in nature while metals are electropositive in nature.

- Ans**
- ☐ A. Only A
  - ☐ B. Both A and B
  - ☒ C. Only B
  - ☐ D. Both A and C

**Q.65** Rays of which of the following colours show the highest deviation by a prism?

- Ans**
- ☐ A. Red
  - ☐ B. Green
  - ☐ C. Yellow
  - ☒ D. Violet

**Q.66** A 12V car head light lamp draws a current of 3A for 15 minutes. The energy transferred during this time by the car battery is

- Ans**
- ☐ A. 0.008 kWh
  - ☒ B. 0.009 kWh
  - ☐ C. 0.54 kWh
  - ☐ D. 5.4 kWh

**Q.67** If a parallel beam of light is not parallel to the principal axis of a concave mirror, then such rays will converge at the \_\_\_\_\_.

- Ans**
- ☒ A. principal focal plane
  - ☐ B. centre of curvature
  - ☐ C. pole
  - ☐ D. infinity

**Q.68** The uterine wall in females prepares itself to receive the developing fertilised egg. In case there is no fertilisation, the thickened lining of the uterine wall breaks down and goes out of the body along with blood. This is called:

- Ans**
- ☒ A. menstruation
  - ☐ B. menopause
  - ☐ C. secondary sexual characters
  - ☐ D. Adam's apple

Q.69 Where can we find the glomerulus in a human being?

- Ans
- ✓ A. In the kidney
  - ✗ B. In the bone marrow
  - ✗ C. In the liver
  - ✗ D. In the uterus

Q.70 pH paper shows light blue colour when dipped into milk of magnesia. This indicates that milk of magnesia is:

- Ans
- ✗ A. a mild acid
  - ✓ B. a mild base
  - ✗ C. neutral
  - ✗ D. a strong acid

Q.71 Which of the following statements correctly describes a homologous series?

- Ans
- ✗ A.  
The members of a homologous series have different chemical properties due to the same functional group.
  - ✓ B.  
The members of a homologous series have almost the same chemical properties due to the same functional group.
  - ✗ C.  
The members of a homologous series have almost the same chemical properties due to different functional groups.
  - ✗ D.  
The members of a homologous series have different chemical properties due to different functional groups.

Q.72 Where can we find such cells with thickened cell walls in a plant?



- Ans
- ✗ A. In xylem
  - ✓ B. In phloem
  - ✗ C. In epidermis
  - ✗ D. In meristem

Q.73 Which of the following takes up carbon dioxide at night and prepares an intermediate which is acted upon by the energy absorbed by the chlorophyll during the day?

- Ans
- ✗ A. Fungi
  - ✗ B. Bacteria
  - ✗ C. Blue-green algae
  - ✓ D. Desert plants

Q.74 The formation of zinc ion from zinc is due to:

- Ans
- ✗ A. reduction
  - ✓ B. oxidation
  - ✗ C. combination reaction
  - ✗ D. hydrolysis



**Q.75** What is a good strategy of serving food, if you have to serve buffet food to around 150 guests in a family function? Note that this means the person has to hold the plate while standing and eating.

- Ans**
- ☐ A. Metal plates
  - ☐ B. Banana leaves
  - ☐ C. Plastic plates
  - ☒ D. Banana leaves on washable and reusable plastic plates

**Q.76** A material of length  $l$  and area of cross section  $A$  has a resistance  $R$ . What should be changes in the area of cross section  $A$  if its length is tripled to produce the same resistance  $R$ ?

- Ans**
- ☐ A. The area of cross section should be decreased by 3 times.
  - ☒ B. The area of cross section should be increased by 3 times.
  - ☐ C. The area of cross section should be decreased by 9 times.
  - ☐ D. The area of cross section should be increased by 9 times.

**Q.77** A student performs an experiment wherein he adds barium chloride to aluminium sulphate. Which of the following reaction is correct?

- Ans**
- ☒ A.  $3\text{BaCl}_2(\text{aq}) + \text{Al}_2(\text{SO}_4)_3(\text{aq}) \rightarrow 3\text{BaSO}_4(\text{s}) + 2\text{AlCl}_3(\text{aq})$
  - ☐ B.  $\text{BaCl}_2(\text{aq}) + \text{Al}_2(\text{SO}_4)_3(\text{aq}) \rightarrow \text{Ba}(\text{s}) + \text{SO}_2(\text{g}) + 2\text{AlCl}_3(\text{aq})$
  - ☐ C.  $\text{BaCl}_2(\text{aq}) + \text{Al}_2(\text{SO}_4)_3(\text{aq}) \rightarrow 3\text{BaSO}_4(\text{s}) + \text{Al}(\text{s}) + \text{Cl}_2(\text{g})$
  - ☐ D.  $3\text{BaCl}_2(\text{aq}) + \text{Al}_2(\text{SO}_4)_3(\text{aq}) \rightarrow \text{BaSO}_4(\text{s}) + \text{AlCl}_3(\text{aq})$

**Q.78** The net resistance of two resistors  $R_1$  and  $R_2$  connected in series is 8 ohm and their net resistance in parallel is 2 ohm. What are the values of individual resistances  $R_1$  and  $R_2$ , respectively?

- Ans**
- ☐ A. 6 ohm; 2 ohm
  - ☒ B. 4 ohm; 4 ohm
  - ☐ C. 2 ohm; 6 ohm
  - ☐ D. 8 ohm; 0 ohm

**Q.79** Which of the following is the correct chemical formula of bleaching powder?

- Ans**
- ☒ A.  $\text{CaOCl}_2$
  - ☐ B.  $\text{Ca}(\text{OH})_2$
  - ☐ C.  $\text{CaO}$
  - ☐ D.  $\text{CaCl}_2$

**Q.80** Which of the following statements is INCORRECT?

- Ans**
- ☐ A. Coal, petroleum and natural gas are fossil fuels.
  - ☒ B. Fossil fuels are inexhaustible resources.
  - ☐ C. Coke, coal tar and coal gas are the products of coal.
  - ☐ D. We should use coal, petroleum and natural gas judiciously.

Section : General Awareness and Current Affairs

**Q.81** The \_\_\_\_\_ originates from the confluence of two rivers, the Chandra and the Bhaga, which themselves originate from either side of the Bara Lacha Pass in Lahul.

- Ans**
- ☒ A. Beas
  - ☒ B. Jhelum
  - ☒ C. Chenab
  - ☒ D. Sutlej

**Q.82** Which set of the statements is true about land use?

1. The use of land is determined by physical factors such as topography, soil, climate, minerals and availability of water.
2. Human factors such as population and technology are not determinants of land use patterns.
3. People and their demands are ever growing but the availability of land is limited.
4. Expansion of construction activities is one of the reasons for land degradation, landslides and soil erosion.

- Ans**
- ☒ A. 1, 2 and 3
  - ☒ B. 2, 3 and 4
  - ☒ C. 4, 3 and 1
  - ☒ D. 1, 2 and 4

**Q.83** The Annual Boat Race Festival is held in which state?

- Ans**
- ☒ A. Kerala
  - ☒ B. Goa
  - ☒ C. Tamil Nadu
  - ☒ D. Odisha

**Q.84** What does Article 243D of the Panchayat Constitution speak about?

- Ans**
- ☒ A. Reservation of seats in Panchayat
  - ☒ B. Gram Sabha
  - ☒ C. Constitution of Panchayats
  - ☒ D. Composition of Panchayats

**Q.85** Which of the following cities hosted the first Khelo India Fencing Women's League in July 2022?

- Ans**
- ☒ A. New Delhi
  - ☒ B. Chennai
  - ☒ C. Karnal
  - ☒ D. Chandigarh

**Q.86** Which of the four Vedas is known as 'Veda of Sacrificial Formulas' and contains prose formulas applicable to various rites, along with verses intended for a similar purpose?

- Ans**
- ☒ A. Rigveda
  - ☒ B. Yajurveda
  - ☒ C. Samaveda
  - ☒ D. Atharvaveda

**Q.87** When was the Council of States (Rajya Sabha) first constituted?

- Ans**
- ☒ A. 3 April 1952
  - ☐ B. 26 January 1950
  - ☐ C. 15 August 1947
  - ☐ D. 7 May 1951

**Q.88** A \_\_\_\_\_ is the collection of all bundles that the consumer can buy with his/her income at the prevailing market prices.

- Ans**
- ☐ A. Budget Model
  - ☐ B. Budget Value
  - ☐ C. Budget Line
  - ☒ D. Budget Set

**Q.89** The 16th Annual Status of Education Report (ASER) 2021 (Rural) was released by \_\_\_\_\_ in November 2021.

- Ans**
- ☐ A. Goonj
  - ☒ B. Pratham foundation
  - ☐ C. Navjyoti Foundation
  - ☐ D. Bhumi

**Q.90** Under the Indian budgetary classification of Central or State governments, which of the following would be classified as revenue receipts?

- Ans**
- ☐ A. Recoveries of loans
  - ☐ B. Borrowings
  - ☒ C. Tax receipts
  - ☐ D. Receipts from disinvestment

**Q.91** The Tropic of Cancer does not pass through \_\_\_\_\_.

- Ans**
- ☒ A. Nagaland
  - ☐ B. Madhya Pradesh
  - ☐ C. Gujarat
  - ☐ D. Jharkhand

**Q.92** Which of the following is a microfinance institution of India?

- Ans**
- ☐ A. Small Industries Development Bank of India
  - ☐ B. National Housing Bank
  - ☐ C. Industrial Finance Corporation of India
  - ☒ D. Arohan Financial Services

**Q.93** The removal of poverty was the foremost objective of which Five-Year Plan in India?

- Ans**
- ☐ A. Fourth
  - ☐ B. Fifth
  - ☒ C. Sixth
  - ☐ D. Seventh

**Q.94** Who among the following aquaculture scientists from Karnataka was awarded the Padma Shri 2022 in the Science and Engineering category?

- Ans**
- ☐ A. Sanghamitra Bandyopadhyay
  - ☐ B. Aditya Prasad Dash
  - ☒ C. Subbanna Ayyappan
  - ☐ D. Moti Lal Madan

**Q.95** The North Eastern Regional Language Centre is located in \_\_\_\_\_.

- Ans**
- ☐ A. Kohima
  - ☐ B. Itanagar
  - ☐ C. Dispur
  - ☒ D. Guwahati

**Q.96** In 2021, the Government of West Bengal state launched the 'Maa' scheme for provision of meals at a nominal cost of \_\_\_\_\_ per meal to poor people.

- Ans**
- ☒ A. ₹5
  - ☐ B. ₹10
  - ☐ C. ₹15
  - ☐ D. ₹20

**Q.97** Select the correct combination of personality and his/her associated organisation.

- Ans**
- ☐ A. Poona Sarvajanik Sabha – Subhash Chandra Bose
  - ☐ B. Hindustan Socialist Republican Association – Annie Besant
  - ☒ C. Satyashodhak Samaj – Jyotiba Phule
  - ☐ D. Theosophical Society – Sarojini Naidu

**Q.98** How many more Fundamental duty/duties had been added to the Indian Constitution by 86th Amendment Act 2002?

- Ans**
- ☐ A. Four
  - ☐ B. Three
  - ☐ C. Two
  - ☒ D. One

**Q.99** In March 2022 which company among the following founded the Startups Founders Hub, it is a new digital and inclusive platform for startup founders in India?

- Ans**
- ☒ A. Microsoft
  - ☐ B. IBM
  - ☐ C. Apple
  - ☐ D. Google

**Q.100** Who among the following became the first para-athlete to be conferred with the Padma Bhushan award, in 2022?

- Ans**
- ☐ A. Pramod Bhagat
  - ☐ B. Manish Narwal
  - ☒ C. Devendra Jhajharia
  - ☐ D. Suhas L Yathiraj



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 30/09/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** Currently Hema is 48 years old and Roja is 32 years old. How many years ago was the ratio of their ages 5 : 3?

- Ans**
- ☒ A. 8 years
  - ☐ B. 9 years
  - ☐ C. 7 years
  - ☐ D. 6 years

**Q.2** The external length, breadth and depth of a cuboidal iron storage space are 4 m, 3.6 m, and 1.5 m, respectively. It is open at the top. What is the cost (in ₹) of painting its outer surface at the rate of ₹55 per  $m^2$ ?

- Ans**
- ☐ A. 1,936
  - ☐ B. 1,991
  - ☒ C. 2,046
  - ☐ D. 2,838

**Q.3** Which of the following is divisible by 9?

- Ans**
- ☐ A. 1099
  - ☐ B. 2121
  - ☐ C. 2352
  - ☒ D. 3132

**Q.4** Find the gain percentage, given that Bushra sold her scooter for ₹15,000 gaining one-fifth of the selling price.

- Ans**
- ☐ A. 10%
  - ☐ B. 15%
  - ☒ C. 25%
  - ☐ D. 20%

**Q.5** Arun is the elder brother of Kiran. The difference in their ages is 20 years. If 5 years ago, Arun was 5 times as old as Kiran then was, then find the present age (in years) of Arun.

- Ans**
- ☐ A. 10
  - ☐ B. 20
  - ☒ C. 30
  - ☐ D. 40

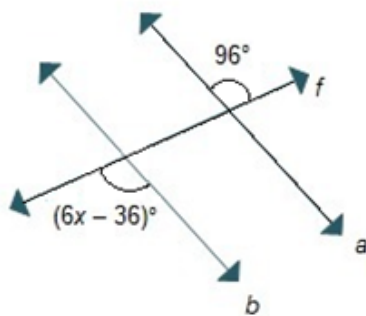
Q.6 If the arithmetic mean of 11, 15, 13,  $p$  and 10 is 11, then the value of  $p$  is:

- Ans ☒ A. 5  
☒ B. 6  
☒ C. 7  
☒ D. 8

Q.7 Find the ratio between the LCM and the HCF of 5, 15 and 20.

- Ans ☒ A. 8 : 1  
☒ B. 14 : 3  
☒ C. 11 : 2  
☒ D. 12 : 1

Q.8 In the given figure, line  $a$  is parallel to line  $b$ . Find the value of  $x$ .



- Ans ☒ A.  $32^\circ$   
☒ B.  $36^\circ$   
☒ C.  $96^\circ$   
☒ D.  $22^\circ$

Q.9 Arrange the numbers given below in ascending order.

705.0, 7.005, 7.500, 70.50, 7050, 7.050, 75

- Ans ☒ A. 7.005, 7.500, 7.050, 70.50, 75, 705.0, 7050  
☒ B. 7.005, 7.050, 7.500, 70.50, 75, 705.0, 7050  
☒ C. 7.005, 7.500, 7.050, 75, 70.50, 705.0, 7050  
☒ D. 7050, 705.0, 75, 70.50, 7.500, 7.050, 7.005

Q.10 If  $\sin^2 x + 3 \cos^2 x = 2$ , and  $(0^\circ < x < 90^\circ)$ , find the value of  $\operatorname{cosec} x$ .

- Ans ☒ A.  $\sqrt{2}$   
☒ B. 2  
☒ C.  $\sqrt{3}$   
☒ D.  $\frac{2\sqrt{3}}{3}$

**Q.11** The width of a rectangle is one-third of its length. If the perimeter of the rectangle is 64 cm, find the width of the rectangle.

- Ans**
- ☐ A. 24 cm
  - ☐ B. 21 cm
  - ☒ C. 8 cm
  - ☐ D. 16 cm

**Q.12** The graph of  $y = 9x^2 + 16$ :

- Ans**
- ☐ A. intersects the x-axis at  $-\frac{4}{3}$  and  $\frac{4}{3}$
  - ☐ B. touches the x-axis at  $\frac{4}{3}$
  - ☐ C. either intersects or touches the x-axis
  - ☒ D. neither intersects nor touches the x-axis

**Q.13** Mr. X travelled 220 km, 250 km and 140 km at a speed of 11 km/h, 5 km/h and 7 km/h, respectively. Find his average speed in km/h.

- Ans**
- ☐ A.  $7\frac{7}{9}$
  - ☐ B.  $6\frac{2}{9}$
  - ☐ C.  $6\frac{5}{9}$
  - ☒ D.  $6\frac{7}{9}$

**Q.14** Find the value of  $n$ , when  $216^{\frac{2}{n}} = 36$ .

- Ans**
- ☐ A. 9
  - ☐ B. 6
  - ☒ C. 3
  - ☐ D. 1

**Q.15** 20% of the population of a city died due to war, and of the remaining population, 5% died in an epidemic. If the present population of the city is 15,200, then find the population of the city before the war.

- Ans**
- ☐ A. 19,680
  - ☐ B. 20,100
  - ☐ C. 23,500
  - ☒ D. 20,000

**Q.16** A man sells potatoes at ₹27 per kg, which he bought at ₹25 per kg. He also uses a faulty weight and each time gives 800 g instead of 1 kg. His actual gain percentage is:

- Ans**
- ☐ A. 20%
  - ☐ B. 25%
  - ☒ C. 35%
  - ☐ D. 40%



**Q.17** Find the total surface area of a solid right circular cylinder whose radius of base is 2 cm, and the height is 10 cm.

- Ans**
- ✓ A.  $48\pi \text{ cm}^2$
  - ✗ B.  $84000\pi \text{ cm}^2$
  - ✗ C.  $8.4\pi \text{ cm}^2$
  - ✗ D.  $840000\pi \text{ cm}^2$

**Q.18** If  $25 : 15 :: 15 : x$ , then find the value of x.

- Ans**
- ✓ A. 9
  - ✗ B. 11
  - ✗ C. 13
  - ✗ D. 15

**Q.19** A person borrows ₹20,000 at 25% compound interest per year, compounded annually. At the end of every year, he pays ₹2,500 as part payment. How much does he still owe after two such instalments?

- Ans**
- ✓ A. ₹25,625
  - ✗ B. ₹25,725
  - ✗ C. ₹25,825
  - ✗ D. ₹25,925

**Q.20** Evaluate  $\left(\frac{-5}{7}\right)^{-6} \times \left(\frac{-5}{7}\right)^4$ .

- Ans**
- ✓ A.  $\frac{49}{25}$
  - ✗ B.  $\frac{25}{49}$
  - ✗ C.  $\frac{343}{125}$
  - ✗ D.  $\frac{125}{343}$

**Q.21** Find the arithmetic mean of the given frequency distribution.

| Marks | Frequency |
|-------|-----------|
| 50    | 3         |
| 28    | 4         |
| 85    | 6         |
| 40    | 7         |

- Ans**
- ✓ A. 52.6
  - ✗ B. 56.2
  - ✗ C. 40.95
  - ✗ D. 50.5



Q.22

The value of  $\sqrt{2 + \sqrt{2 + \sqrt{2}}}$  is:

Ans

- ✓ A. 2
- ✗ B. 1.75
- ✗ C. 2.5
- ✗ D. 1.5

Q.23

X people were given a contract for doing a piece of work in 15 days. 3 people did not turn up to work due to sickness, and the rest of the people completed the work in 20 days. What is the value of X?

Ans

- ✓ A. 12
- ✗ B. 15
- ✗ C. 10
- ✗ D. 14

Q.24

The ratio of the ages of Arjun and Dharma is 4 : 5. Four years ago, this ratio was 10 : 13. What will be the ratio of their ages after 3 years?

Ans

- ✓ A. 9 : 11
- ✗ B. 8 : 13
- ✗ C. 7 : 9
- ✗ D. 5 : 7

Q.25

In a triangle ABC, the lengths of its sides  $\overline{AB}$ ,  $\overline{AC}$  and  $\overline{BC}$  are 4 cm, 5 cm and 6 cm, respectively. An angle bisector  $\overline{AD}$  is drawn from A onto  $\overline{BC}$ , intersecting  $\overline{BC}$  at D. Find  $m(\overline{BD})$ , correct to two places of decimal.

Ans

- ✗ A. 1.50 cm
- ✓ B. 2.67 cm
- ✗ C. 2.25 cm
- ✗ D. 3.00 cm

#### Section : General Intelligence and Reasoning

Q.26

Puneet walks 4 m towards the west. He turns right and walks 7 m. He turns left and walks 4 m. He again turns left and walks 7 m. He turns right and walks 3 m. In which direction is he facing now? (All turns are 90 degree turns only)

Ans

- ✗ A. East
- ✓ B. West
- ✗ C. North
- ✗ D. South

Q.27

Refer to the following number series and answer the question.

(Left) 9 2 3 5 7 8 6 3 2 1 5 6 7 9 4 3 6 3 5 8 2 (Right)

How many such even numbers are there in the series each of which is immediately preceded and followed by an odd number?

Ans

- ✗ A. Three
- ✗ B. Four
- ✓ C. Five
- ✗ D. Six

**Q.28** Select the option that is related to the third term in the same way as the second term is related to the first term and the sixth term is related to the fifth term.

7 : 4096 :: 6 : ? :: 4 : 1

- Ans**
- ☒ A. 245
  - ☒ B. 243
  - ☒ C. 246
  - ☒ D. 242

**Q.29** Select the option that represents the letters that, when placed from left to right in the same sequence in the blanks below, will complete the letter series.

F G \_ C \_ I Q \_ S F \_ S C A I Q \_ S F \_ S C \_ I \_ P S

- Ans**
- ☒ A. S A P G P G A Q
  - ☒ B. S A P G B G A P
  - ☒ C. S A P G P G B Q
  - ☒ D. S A P F B F A P

**Q.30** Six boxes M, N, O, P, Q and R are kept one above the other but not necessarily in the same order. Only 2 boxes are kept below M. Only one box is kept above Q. O is kept at any of the positions above R but not at the topmost position. R is not kept at the bottom most position. N is kept at any of positions below Q. Where is box P kept?

- Ans**
- ☒ A. 2<sup>nd</sup> from the bottom
  - ☒ B. 3<sup>rd</sup> from the bottom
  - ☒ C. 3<sup>rd</sup> from the top
  - ☒ D. At the topmost position

**Q.31** P, Q, R, S and T live on five different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 5. P lives immediately below T and immediately above S. P lives on an odd numbered floor. If R is not on the lowermost floor, where does T live?

- Ans**
- ☒ A. 1st floor
  - ☒ B. 2nd floor
  - ☒ C. 5th floor
  - ☒ D. 4th floor

**Q.32** A statement is given followed by four conclusions. Find out which conclusion is NOT true based on the given statement.

Statement:  $P < Q \leq R < S > T \geq U > V$

**Conclusions:**

- 1)  $T > V$
- 2)  $P < R$
- 3)  $S \geq V$
- 4)  $Q < S$

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.33** Which of the following numbers will replace the question mark (?) in the given series?

40    31.2    23.2    16    9.6    ?

- Ans**
- ☒ A. 4.2
  - ☒ B. 3.8
  - ☒ C. 4
  - ☒ D. 3

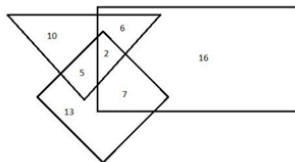
**Q.34** Select the correct combination of mathematical signs that can sequentially replace the \* and balance the given equation.

$32 * 16 * 8 * 2 * 3 * 5 * 5$

- Ans**
- ☒ A. -, +, ×, =, ÷, +
  - ☒ B. -, +, ÷, ×, =, +
  - ☒ C. +, -, ÷, ×, =, +
  - ☒ D. -, +, ÷, =, ×, +

**Q.35** In the following Venn diagram, the rectangle represents 'fruits', the triangle represents 'sour tasting eatables', and the square represents 'yellow coloured eatables'.

Select the option which represents the number of sour tasting yellow fruits.



- Ans**
- ☒ A. 6
  - ☒ B. 2
  - ☒ C. 5
  - ☒ D. 7

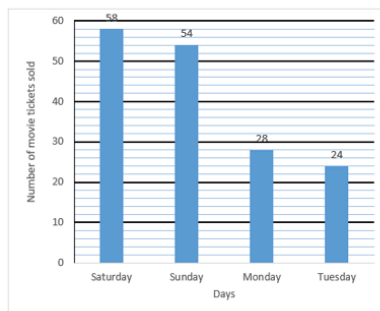
**Q.36** Which of the following options is the closest approximate value which will come in place of the question mark (?) in the following equation?

$3.01^3 \div 2.99 \times 6.01 = ?$

- Ans**
- ☒ A. 54
  - ☒ B. 46
  - ☒ C. 36
  - ☒ D. 64

**Q.37** Study the given bar graph and answer the following question.

The given bar graph depicts the number of movie tickets sold on four days.

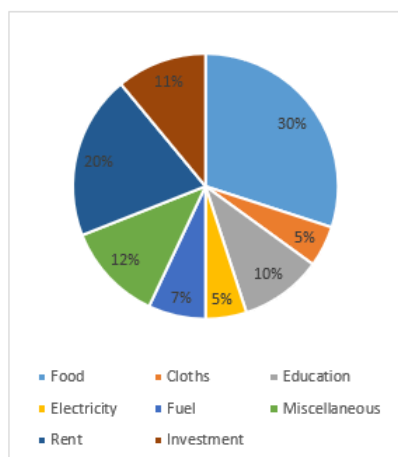


If the average number of tickets sold on Monday, Tuesday and Wednesday was 31, what was the number of tickets sold on Wednesday?

- Ans**
- ☒ A. 39
  - ☒ B. 43
  - ☒ C. 41
  - ☒ D. 45

**Q.38** The given pie chart shows the expenses of a family in a month.

Read the chart and answer the question that follows.



What is the central angle for total expenditure on fuel, miscellaneous and investment?

- Ans**
- ☒ A.  $100^\circ$
  - ☒ B.  $102^\circ$
  - ☒ C.  $108^\circ$
  - ☒ D.  $98^\circ$

**Q.39** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

ADG : EHK  
TJF : XNJ

- Ans**
- ☒ A. KOH : OSL
  - ☒ B. FJW : HLZ
  - ☒ C. IPD : RKW
  - ☒ D. JQR : NTV

**Q.40** A statement is given, followed by two arguments I and II. Read the statement and the arguments carefully and select the appropriate answer from the given options.

Statement:

Kids should be allowed to use mobile phones from an early age.

Arguments:

- I. Continuous use of mobile phone causes distraction for the kids.
- II. A lot of educational apps encourage playful competition among kids while enhancing the way they learn new ideas.

**Ans** ☒ A. I weakens, while II strengthens the statement

☐ B. II weakens, while I strengthens the statement

☐ C. Both I and II weaken the statement

☐ D. Both I and II strengthen the statement

**Q.41** A statement is given followed by four conclusions. Find out which conclusion is INCORRECT based on the given statement.

Statement:  $S > W = T < L < O \leq R$

Conclusions:

1.  $W < R$

2.  $S > L$

3.  $W < O$

4.  $T < S$

**Ans** ☐ A. 1

☒ B. 2

☐ C. 3

☐ D. 4

**Q.42** Town X is west of town Y. Town Q is north of X. Town P is east of Q and north-west of Y. What is the position of town P with respect to X?

**Ans** ☐ A. North-west

☒ B. North-east

☐ C. East

☐ D. South-west

**Q.43** Seven boxes E, F, G, H, I, J and K are kept one over the other but not necessarily in the same order. Only three boxes are kept between F and J. Neither G nor I is kept at the top. Only H is kept between G and I. K is kept immediately below J. Only one box is kept above F. How many boxes are kept between H and K?

**Ans** ☐ A. Four

☐ B. One

☒ C. Two

☐ D. Three

**Q.44** Each vowel in the word 'REASON' is changed to the letter following it in the English alphabetical order and each consonant is changed to the letter preceding it in the English alphabetical order. If each letter of the word thus formed is arranged in alphabetical order, which letter will be fourth from the left?

**Ans** ☐ A. F

☐ B. M

☒ C. P

☐ D. Q

**Q.45** If the time in the mirror image of a 12-hour clock is 3:25, what is the actual time?

- Ans**
- ☒ A. 7:45
  - ☒ B. 9:35
  - ☒ C. 8:35
  - ☒ D. 8:45

**Q.46** In this question, a group of numbers/symbols is coded using letters as per the given table and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number / Symbol | \$ | 3 | @ | 8 | % | 2 | # | & | 6 | ψ | π | 7 | 5 | φ |
|-----------------|----|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code            | A  | V | L | K | R | M | B | F | N | T | E | C | S | W |

Conditions:

- (i) If the first element is a symbol and the last element is a number, the codes for these two (the first and the last elements) are to be interchanged.
- (ii) If the first element is an odd number and the last element is an even number, the first and last elements are to be coded as ©.
- (iii) If both the second and third elements are perfect squares, the third element is to be coded as the code for the second element.

ψ62%85

- Ans**
- ☒ A. SNLRBT
  - ☒ B. TNBRLS
  - ☒ C. TNMRKS
  - ☒ D. SNMRKT

**Q.47** Which of the following numbers will replace the question mark (?) in the given number series?

29, 30, 34, 43, 59, ?

- Ans**
- ☒ A. 82
  - ☒ B. 86
  - ☒ C. 84
  - ☒ D. 79

**Q.48** Seven boys, M, N, O, P, Q, R and S, are sitting around a circular table facing the centre. Exactly two boys sit between S and N, to the right of S. P is an immediate neighbour of M and S. R is second to the right of P and to the immediate right of S. N is an immediate neighbour of Q and O. If O is third to the left of M, where is Q seated?

- Ans**
- ☒ A. To the immediate left of P
  - ☒ B. Fourth to the left of P
  - ☒ C. Third to the left of P
  - ☒ D. Second to the left of P

- Q.49** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/Symbol | 3 | # | 6 | 4 | @ | \$ | 7 | 2 | % | 5 | = | 9 | 8 |
|---------------|---|---|---|---|---|----|---|---|---|---|---|---|---|
| Code          | T | H | J | K | M | P  | U | D | U | E | W | V | S |

Conditions:

- If the first element is a symbol and the last, a number, the codes for these two (the first and the last elements) are to be interchanged.
- If the first element is an odd number and the last, an even number, the first and last elements are to be coded as ©
- If both second and third elements are perfect squares, the third element is to be coded as the code for the second element.

Decode %\$7#8 using the above information.

- Ans**  **A. SPUHU**  
 **B. UPUHS**  
 **C. SKUHU**  
 **D. SPIHU**

- Q.50** Six students are sitting around a circular table facing the centre. Taran is an immediate neighbour of Karam and Viraj. Param is sitting second to the right of Taran. Sunny is an immediate neighbour of Param and Manjit. Karam is sitting second to the right of Sunny. Who is an immediate neighbour of Sunny and Viraj?

- Ans**  **A. Param**  
 **B. Taran**  
 **C. Karam**  
 **D. Manjit**

- Q.51** Which of the following options is the closest approximate value which will come in place of the question mark (?) in the following equation?

$$2.33 - 4.12 + 6.13 \times 11.3 = ?$$

- Ans**  **A. 106**  
 **B. 43**  
 **C. 64**  
 **D. 39**

- Q.52** Three statements are given, followed by two conclusions numbered I and II. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

Statements:

- All flowers are white.
- Some flowers are dark.
- All darks are blue.

Conclusions:

- Some whites are blue.
- All darks are white.

- Ans**  **A. Only conclusion I follows**  
 **B. Only conclusion II follows**  
 **C. Both conclusions I and II follow**  
 **D. Neither conclusion I nor II follows**

**Q.53** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding/deleting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(22, 49, 568)

(25, 45, 560)

**Ans** ☒ A. (30, 15, 225)

☒ B. (33, 38, 568)

☒ C. (18, 27, 225)

☒ D. (15, 33, 240)

**Q.54** This question is based on the five three-digit numbers given below.

423 875 652 246 168

(Example - 697 – First digit = 6, second digit = 9 and third digit = 7)

What will be the resultant, if third digit of the second greatest number is added to the second digit of the smallest number?

**Ans** ☒ A. 8

☒ B. 10

☒ C. 13

☒ D. 11

**Q.55** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements: 1. Some classical dancers are students.

2. Rama is a classical dancer.

3. Sohan is a student of class X.

Conclusions : (I) Sohan is not a classical dancer.

(II) Rama is a student.

**Ans** ☒ A. Only conclusion II follows.

☒ B. Only conclusion I follows.

☒ C. Both conclusions I and II follow.

☒ D. None of the conclusions definitely follow.

#### Section : General Science

**Q.56** The process of obtaining images of different body parts by using a weak magnetic field produced inside the body is called \_\_\_\_\_.

**Ans** ☒ A. CT scan

☒ B. MRI scan

☒ C. PET scan

☒ D. Ultrasound scan

**Q.57** The net resistance of the two resistors connected in series is 6 ohm. If one of the resistances is 2 ohm, what is the other resistance if the current flowing through them is 4 amp?

**Ans** ☒ A. 8 ohm

☒ B. 3 ohm

☒ C. 4 ohm

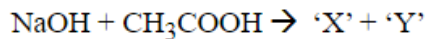
☒ D. 12 ohm



Q.58 Which of the following compounds can conduct electricity?

- Ans
- ☐ A. Glucose
  - ☒ B. Sodium chloride
  - ☐ C. Kerosene
  - ☐ D. Alcohol

Q.59 Identify 'X' and 'Y' products respectively, in the given chemical equation.



- Ans
- ☐ A. NaO and CO<sub>2</sub>
  - ☒ B. CH<sub>3</sub>COONa and H<sub>2</sub>O
  - ☐ C. CH<sub>3</sub>CO<sub>2</sub>H and Na(OH)<sub>2</sub>
  - ☐ D. Na<sub>2</sub>OH and CO<sub>2</sub>

Q.60 Aquatic animals like fishes, excrete waste in which of the following forms?

- Ans
- ☒ A. Ammonia
  - ☐ B. Urea
  - ☐ C. Uric acid
  - ☐ D. Sweat salts

Q.61 The radius of curvature of a convex mirror of focal length 2 m is:

- Ans
- ☐ A. 0.5 m
  - ☐ B. 2.0 m
  - ☒ C. 4.0 m
  - ☐ D. 1.0 m

Q.62 Which of the following is non-biodegradable?

- Ans
- ☐ A. Cotton
  - ☐ B. Coffee powder
  - ☒ C. Nylon
  - ☐ D. Wool

Q.63 The polarity of an electromagnet can be reversed by changing the \_\_\_\_\_.

- Ans
- ☒ A. direction of current
  - ☐ B. number of turns in the electromagnet
  - ☐ C. distance between the turns
  - ☐ D. magnitude of the current flowing through it

Q.64 An object of size 3.0 cm is placed at a distance of 50 cm from a concave lens of focal length 25 cm. The size of the image formed will be :

- Ans
- ☐ A. 1.5 cm
  - ☐ B. 1.2 cm
  - ☒ C. 1.0 cm
  - ☐ D. 0.33 cm

**Q.65** What is the genetic material inherited from one generation to other?

- Ans**
- ☐ A. Proteins
  - ☐ B. RNA
  - ☒ C. DNA
  - ☐ D. Enzymes

**Q.66** How is urea removed from the blood by an artificial kidney?

- Ans**
- ☐ A. By filtration
  - ☒ B. By osmosis
  - ☐ C. By absorption
  - ☐ D. By enzymatic action

**Q.67** The allotrope of which non-metal conducts electricity?

- Ans**
- ☐ A. Phosphorous
  - ☐ B. Sulfur
  - ☐ C. Oxygen
  - ☒ D. Carbon

**Q.68** In the phenomena of electromagnetic induction, when the coil carrying current and magnetic field are stationary, the galvanometer \_\_\_\_\_.

- Ans**
- ☐ A. deflects right
  - ☐ B. deflects left
  - ☒ C. shows null deflection
  - ☐ D. Shows deflection on both sides alternately

**Q.69** Hemodialysis consists of several tubes having semi-permeable lining suspended in tank having fluid that has \_\_\_\_\_.

- Ans**
- ☐ A. Same composition as renal filtrate
  - ☒ B. Same osmotic pressure as blood and is devoid of nitrogenous wastes
  - ☐ C. Same composition as blood except that it has more heparin
  - ☐ D. Low osmotic pressure to enable movement of molecules

**Q.70** Which of the following statements with respect to position of elements having atomic number 11, 12, 13, 14, 15, 16, 17 and 18, respectively, in the modern periodic table is INCORRECT?

- Ans**
- ☐ A. These elements are placed in the same period in the modern periodic table.
  - ☒ B. These elements belong to the second period of the modern periodic table.
  - ☐ C. Electrons in the atoms of these elements are filled in K, L and M shells.
  - ☐ D. These elements belong to the third period of the modern periodic table.

**Q.71** A cross between a tall plant (TT) and short plant (tt) resulted in F<sub>1</sub> progeny which were all tall plants because:

- Ans**
- ☐ A. The plant height is governed by T or t
  - ☐ B. The plant height is governed by T and t
  - ☐ C. The plant height is governed by t only
  - ☒ D. The plant height is governed by T only

**Q.72** Which of the following reactions is the most accurate representation of the reaction between barium chloride and sodium sulphate?

- Ans**
- ☒ A.  $\text{NaSO}_4 + \text{BaCl} \rightarrow \text{BaSO}_4 + \text{NaCl}$
  - ☒ B.  $\text{Na}_2\text{SO}_4 + \text{BaCl}_2 \rightarrow \text{BaSO}_4 + 2\text{NaCl}$
  - ☒ C.  $\text{NaSO}_4 + \text{BaCl}_2 \rightarrow \text{BaSO}_4 + \text{NaCl}_2$
  - ☒ D.  $\text{Na}_2\text{SO}_4 + \text{BaCl} \rightarrow \text{BaSO}_4 + 2\text{NaCl}$

**Q.73** Narmada Bachao Andolan is related to:

- Ans**
- ☒ A. Bhakra Nangal Dam
  - ☒ B. Hirakud Dam
  - ☒ C. Nagarjuna Sagar Dam
  - ☒ D. Sardar Sarovar Dam

**Q.74** The commercial unit of electrical energy is \_\_\_\_\_.

- Ans**
- ☒ A. Joule
  - ☒ B. Watt
  - ☒ C. Calorie
  - ☒ D. Kilowatt hour

**Q.75** The emergent ray from the optical centre of the lens will be \_\_\_\_\_.

- Ans**
- ☒ A. deviated
  - ☒ B. reflected
  - ☒ C. bent
  - ☒ D. un-deviated

**Q.76** An element 'A' reacts with chlorine to give a compound  $\text{ACl}$  with a high melting point. This compound is also soluble in water. The element 'A' is likely to be:

- Ans**
- ☒ A. sodium
  - ☒ B. carbon
  - ☒ C. silicon
  - ☒ D. iron

**Q.77** In which group of modern periodic table are halogens placed?

- Ans**
- ☒ A. 16<sup>th</sup>
  - ☒ B. 18<sup>th</sup>
  - ☒ C. 1<sup>st</sup>
  - ☒ D. 17<sup>th</sup>

**Q.78** Which among the following statement is FALSE about transportation through phloem?

- Ans**
- ☒ A. Transportation in phloem is by Utilization of energy (ATP)
  - ☒ B. Sucrose is transported initially by using energy into phloem
  - ☒ C. Transportation in phloem uses GTP & CTP
  - ☒ D. Increase in osmotic pressure due to sucrose causes water to move into phloem.

**Q.79** Which of the following DOES NOT contain covalent bond?

- Ans**
- ☐ A.  $H_2$
  - ☐ B.  $CH_4$
  - ☐ C.  $NH_3$
  - ☒ D.  $NaOH$

**Q.80** The nature of the image formed behind the mirror, in case of a convex mirror is \_\_\_\_\_.

- Ans**
- ☐ A. real and inverted
  - ☐ B. virtual and inverted
  - ☐ C. real and erect
  - ☒ D. virtual and erect

Section : General Awareness and Current Affairs

**Q.81** What is the correct statement about Mayor?

- Ans**
- ☐ A. Mayor is the second citizen of the Municipal Corporation after City Magistrate.
  - ☒ B. Mayor is the head of the Municipal Corporation.
  - ☐ C. Tenure of Mayors of cities in India is fixed for five years.
  - ☐ D. Mayor is elected by the Governor of the State.

**Q.82** The Shanti Swarup Bhatnagar Prize for Science and Technology is a science award in India given annually by which of the following scientific bodies?

- Ans**
- ☒ A. Council of Scientific and Industrial Research (CSIR)
  - ☐ B. Indian Council of Medical Research (ICMR)
  - ☐ C. Department of Biotechnology (DBT)
  - ☐ D. Department of Science and Technology (DST)

**Q.83** Which of the following alternatives is NOT a source of formal data on unemployment in India?

- Ans**
- ☐ A. Reports of Census of India
  - ☒ B. Reports of National Family Health Survey
  - ☐ C. National Sample Survey Reports
  - ☐ D. Reports by Directorate General of Employment

**Q.84** Mango showers can be defined as:

- Ans**
- ☐ A. post-monsoon showers which are common in the states of Maharashtra and Madhya Pradesh
  - ☒ B. pre-monsoon showers which are common in the states of Karnataka and Kerala
  - ☐ C. monsoon showers which are common in the states of Uttar Pradesh and Bihar
  - ☐ D. Snow storms during the winter season

**Q.85** Which of the following countries won the Thomas Cup for the first time ever, in 2022?

- Ans**
- ✓ **A. India**
  - ✗ **B. Indonesia**
  - ✗ **C. China**
  - ✗ **D. Japan**

**Q.86** Match the cities in column-A with the rivers in column-B.

| Column-A (City) | Column-B (River) |
|-----------------|------------------|
| a. Ahmedabad    | 1. Godavari      |
| b. Kolkata      | 2. Brahmaputra   |
| c. Guwahati     | 3. Sabarmati     |
| d. Nasik        | 4. Hooghly       |

- Ans**
- ✗ **A. a-1, b-2, c-3, d-4**
  - ✗ **B. a-4, b-3, c-2, d-1**
  - ✓ **C. a-3, b-4, c-2, d-1**
  - ✗ **D. a-4, b-3, c-1, d-2**

**Q.87** The 'NavIC' is an independent regional navigation satellite system being developed by which country?

- Ans**
- ✗ **A. Russia**
  - ✗ **B. Japan**
  - ✗ **C. France**
  - ✓ **D. India**

**Q.88** Select the correct chronological order of Acts and policies according to their first appearance in the Indian Constitution and legislative.

- Ans**
- ✗ **A.**  
Information Technology Act, Right to Information Act, Right to Person with Disabilities Act, Right to Education Act
  - ✓ **B.**  
Information Technology Act, Right to Information Act, Right to Education Act, Right to Person with Disabilities Act
  - ✗ **C.**  
Right to Information Act, Right to Education Act, Right to Person with Disabilities Act, Information Technology Act
  - ✗ **D.**  
Right to Education Act, Information Technology Act, Right of Persons with Disabilities Act, Right to Information Act

**Q.89** The budget of any government is defined as:

- Ans**
- ✗ **A.**  
a monthly statement of the estimated receipts and expenditure of the government over the last month
  - ✓ **B.**  
an annual statement of the estimated receipts and expenditure of the government over the fiscal year
  - ✗ **C.**  
a biennial statement of the estimated receipts and expenditure of the government over the last two fiscal years
  - ✗ **D.**  
a weekly statement of the estimated receipts and expenditure of the government over the last week



**Q.90** Select the correct group of fundamental rights provided by the Constitution of India from the given alternatives.

- A. Right to equality
- B. Right to freedom of religion
- C. Right to financial support for higher and professional education
- D. Right to constitutional remedies
- E. Right to paternal properties

**Ans** ☒ A. A, C and E

☒ B. B, D and E

☒ C. A, B and D

☒ D. C, D and E

**Q.91** A production cycle in which at least one production factor is fixed is known as:

**Ans** ☒ A. short run production

☒ B. long run production

☒ C. variable long term production

☒ D. constant long term production

**Q.92** Who won the Male Single's title of the All England Badminton Championship 2022?

**Ans** ☒ A. Lee Zii Jia

☒ B. Lakshya Sen

☒ C. Viktor Axelsen

☒ D. Kidambi Srikanth

**Q.93** Select the correct statement about Rajya Sabha.

**Ans** ☒ A. The President of India act as ex-officio Chairman of Rajya Sabha.

☒ B. It is the lower house of parliament and it dissolves every five years.

☒ C. It is called upper house of parliament and it never dissolves.

☒ D. A member who is elected for a full term in Rajya Sabha serves for a period of four years.

**Q.94** Maulana Azad National Urdu University (MANUU) is a Central University established at National Level in \_\_\_\_\_ by an act of Parliament.

**Ans** ☒ A. 1998

☒ B. 1999

☒ C. 2001

☒ D. 2004

**Q.95** Which of the following festivals is the mark of the triumph of Rama, an avatar of Vishnu, over the 10-headed demon king Ravana?

**Ans** ☒ A. Ram Navmi

☒ B. Rakshabandhan

☒ C. Holi

☒ D. Dussehra

**Q.96** Mother Teresa was canonized by Pope Francis I on September 4,\_\_\_\_\_.

- Ans**
- ☐ A. 2012
  - ☐ B. 2014
  - ☒ C. 2016
  - ☐ D. 2018

**Q.97** In December 2021, to improve leadership skills of grassroot women political leaders, the National Commission for Women (NCW) launched a pan-India capacity building programme. What is the name of this programme?

- Ans**
- ☐ A. 'Ladki Hoon, Lad Sakti Hoon'
  - ☒ B. 'She is a Changemaker'
  - ☐ C. 'She is a Leader'
  - ☐ D. 'Womanhood at Grassroot'

**Q.98** The Mahanadi River system is the third largest in the peninsula of India and the largest river of \_\_\_\_\_.

- Ans**
- ☐ A. Assam
  - ☐ B. West Bengal
  - ☒ C. Odisha
  - ☐ D. Telangana

**Q.99** How many districts of West Bengal were included in the 'Combating Child Trafficking' campaign in August 2022?

- Ans**
- ☐ A. 5
  - ☒ B. 11
  - ☐ C. 15
  - ☐ D. 22

**Q.100** On the eve of independence, what was the GDP of India?

- Ans**
- ☐ A. ₹27 lakh crore
  - ☐ B. ₹270 lakh crore
  - ☒ C. ₹2.7 lakh crore
  - ☐ D. ₹1 lakh crore



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 30/09/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1**  $\Delta ABC \sim \Delta QPR$  and (area of  $\Delta ABC$ ) : (area of  $\Delta PQR$ ) = 3 : 2 . If  $AB = 12$  cm,  $BC = 10$  cm, and  $AC = 9$  cm, then the length of  $QR$  (in cm) is:

**Ans**

☐ A.  $\frac{20}{\sqrt{3}}$

☒ B.  $3\sqrt{6}$

☐ C.  $\frac{10}{\sqrt{3}}$

☐ D.  $8\sqrt{3}$

**Q.2** If  $a = \left(\frac{3}{7}\right)^2 \div \left(\frac{9}{7}\right)^0$ , then find the value of  $a^{-2}$ .

**Ans**

☐ A.  $\frac{81}{2401}$

☒ B.  $\frac{2401}{81}$

☐ C.  $\frac{343}{81}$

☐ D.  $\frac{81}{343}$

**Q.3** The sum of 6 times Bob's age and 5 times Will's age is 43 years, and the sum of 5 times Bob's age and 5 times Will's age is 40 years. Find the age of Bob.

**Ans**

☐ A. 1 year

☐ B. 10 years

☒ C. 3 years

☐ D. 5 years



**Q.4** The radius of the base of a right circular closed cylinder is 3.5 cm and its total surface area is  $269.5 \text{ cm}^2$ . What is the ratio of its height to its diameter? (Take  $\pi = \frac{22}{7}$ )

- Ans**
- ☐ A. 4 : 5
  - ☐ B. 5 : 7
  - ☐ C. 7 : 5
  - ☒ D. 5 : 4

**Q.5** 6 men and 10 women complete a work in 10 days. 5 men and 4 women complete the same work in 14 days. How many days will it take for 1 woman to complete the same work?

- Ans**
- ☐ A. 390
  - ☐ B. 280
  - ☐ C. 350
  - ☒ D. 364

**Q.6** 8 men and 13 women can complete a piece of work in 12 days, and 10 men and 14 women can complete the same work in 10 days. The work of how many women is equivalent to that of one man?

- Ans**
- ☐ A. 3
  - ☐ B. 2
  - ☐ C. 1.5
  - ☒ D. 4

**Q.7** Ramu is older than Lakshman by 4 years. If their present ages are in the ratio 6 : 5, how old is Lakshman?

- Ans**
- ☐ A. 18 years
  - ☒ B. 20 years
  - ☐ C. 22 years
  - ☐ D. 24 years

**Q.8** The roots of the quadratic equation  $x^2 - 4x - 1 = 0$  are:

- Ans**
- ☐ A.  $-2 \pm \sqrt{5}$
  - ☒ B.  $2 \pm \sqrt{5}$
  - ☐ C.  $2 \pm \sqrt{3}$
  - ☐ D.  $-2 \pm \sqrt{3}$

**Q.9** Solve the given equation.

$$(5x^2 - 5) + 5(-x^2 + 2x - 7) = 0$$

- Ans**
- ☐ A.  $x = 2$
  - ☐ B.  $x = -2$
  - ☐ C.  $x = -4$
  - ☒ D.  $x = 4$

**Q.10** Which of the following is equal to  $0.\overline{182}$ ?

- Ans**
- ✓ A.  $\frac{181}{990}$
- ✗ B.  $\frac{1}{9}$
- ✗ C.  $\frac{1}{999}$
- ✗ D.  $\frac{81}{500}$

**Q.11** Surbhi invested a total sum of ₹47,740 in three schemes A, B and C such that the simple interest received from scheme A at 10% p.a. after 3 years, from scheme B at 9% p.a. after 4 years and from scheme C at 8% p.a. after 5 years were the same. What is the positive difference (in ₹) between the sums invested in schemes C and A?

- Ans**
- ✗ A. 1,540
- ✗ B. 3,080
- ✗ C. 3,840
- ✓ D. 4,620

**Q.12** Raghu sold an article at a loss of 15%. If he had bought the item at 5% less and had sold it for ₹195 more, then he would have gained 10%. Find the cost price (in ₹) of the article.

- Ans**
- ✗ A. 1,500
- ✓ B. 1,000
- ✗ C. 750
- ✗ D. 1,250

**Q.13** Find the median of the frequency distribution given below.

| Marks | Frequency |
|-------|-----------|
| 30    | 4         |
| 40    | 7         |
| 50    | 2         |
| 85    | 6         |

- Ans**
- ✗ A. 10
- ✗ B. 50
- ✗ C. 30
- ✓ D. 40

**Q.14** In  $\triangle ABC$ ,  $m(\overline{AB}) = m(\overline{AC})$ , and  $m\angle BAC = 30^\circ$ . If the side BC of  $\triangle ABC$  is extended to D, then find  $m\angle ACD$ .

- Ans**
- ✓ A.  $105^\circ$
- ✗ B.  $75^\circ$
- ✗ C.  $50^\circ$
- ✗ D.  $120^\circ$

**Q.15** The ratio of the length and the width of a rectangle is 5 : 2. If the width of the rectangle is 48 cm, find the length of the rectangle.

- Ans** ☒ A. 120 cm  
☐ B. 102 cm  
☐ C. 186 cm  
☐ D. 168 cm

**Q.16** The area of a right-angled triangle, whose base is 24 cm and hypotenuse is 26 cm, is:

- Ans** ☐ A.  $312 \text{ cm}^2$   
☐ B.  $240 \text{ cm}^2$   
☐ C.  $130 \text{ cm}^2$   
☒ D.  $120 \text{ cm}^2$

**Q.17** If a 1950 m long train crosses a pole in 150 seconds, then find the time (in seconds) taken by the train to cross a 338 m long platform.

- Ans** ☐ A. 175  
☒ B. 176  
☐ C. 170  
☐ D. 174

**Q.18** If the sum and the product of the roots of a quadratic equation are  $\frac{q}{p}$  and  $\frac{r^2}{q}$ , respectively, where  $p, q \neq 0$ , then the quadratic equation and the discriminant of the quadratic equation are given, respectively, as:

- Ans** ☐ A.  $pqx^2 + q^2x + pr^2 = 0$  and  $q^2 - 4p^2r^2$   
☐ B.  $pqx^2 - q^2x + pr^2 = 0$  and  $q^4 + 4p^2r^2q$   
☒ C.  $pqx^2 - q^2x + pr^2 = 0$  and  $q^4 - 4p^2r^2q$   
☐ D.  $pqx^2 + q^2x + pr^2$  and  $q^4 - 4p^2r^2q$

**Q.19** If  $\cot^4 x + \cot^2 x = 1$ , then the value of  $\operatorname{cosec}^4 x - \operatorname{cosec}^2 x$  is:

- Ans** ☐ A. 4  
☐ B. 2  
☐ C. -1  
☒ D. 1

**Q.20** Two numbers are in the ratio 5 : 7. If the sum of the numbers is 108, find the smaller number.

- Ans** ☐ A. 36  
☐ B. 42  
☒ C. 45  
☐ D. 47

**Q.21** The average speed of a car for a given 4-hour journey is 60 km/h. If it travels at 65 km/h for the first 2 hours, then the speed of the car in the next 2 hours is:

- Ans** ☐ A. 50 km/h  
☐ B. 53 km/h  
☒ C. 55 km/h  
☐ D. 60 km/h

**Q.22** In the set  $\{61, 62 \dots 100\}$ , find the sum of the second largest and the second smallest primes.

- Ans**
- ☒ A. 150
  - ☒ B. 156
  - ☒ C. 158
  - ☒ D. 164

**Q.23** Four bells toll at intervals of 2, 4, 6 and 8 seconds, respectively. They chimed together at 12 noon. How many times will they chime together in the next 50 minutes, excluding their chiming at 12 noon, but including the one at 12:50 p.m.?

- Ans**
- ☒ A. 123
  - ☒ B. 124
  - ☒ C. 125
  - ☒ D. 126

**Q.24** 6 kg of ₹48 per kg rice is mixed with 3 kg of another variety of rice to get a mixture costing ₹60 per kg. What is the price per kg of another variety rice in the mixture?

- Ans**
- ☒ A. ₹80
  - ☒ B. ₹72
  - ☒ C. ₹64
  - ☒ D. ₹84

**Q.25** If  $x = 2$ , then find the value of  $\sqrt{(4x)(x) + 4x + 1} + 5x$ .

- Ans**
- ☒ A. 9
  - ☒ B. 13
  - ☒ C. 15
  - ☒ D. 17

#### Section : General Intelligence and Reasoning

**Q.26** Sujoy starts from Point A and drives 11 km towards the east. He then takes a left turn, drives 5 km, turns left and drives 7 km. He then takes a left turn and drives 13 km, takes a right turn and drives 4 km and stops at Point B. How far and towards which direction should he drive in order to reach Point A from Point B? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 4 km towards the north
  - ☒ B. 8 km towards the south
  - ☒ C. 6 km towards the south
  - ☒ D. 8 km towards the north

**Q.27** Refer to the given number, symbol series and answer the question that follows.

(Left) 2 @ 1 o S λ £ 5 3 & 9 # \* 2 @ 6 7 & % 3 £ 2 & 1 5 (Right)

How many such numbers are there, each of which is immediately preceded by a symbol and also immediately followed by a number?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.28** If 2 is added to each even digit and 3 is added to each odd digit in the number 4311253, what will be the sum of the digits which are third from the left and second from the right in the new number thus formed?

- Ans**
- ☒ A. 9
  - ☒ B. 12
  - ☒ C. 11
  - ☒ D. 15

**Q.29** In this question, a statement is followed by two conclusions numbered I and II. You have to assume everything in the statement to be true and decide which of them logically follow(s) beyond a reasonable doubt from the information given in the statement.

**Statement:**

Radha knew that watermelon always tastes good in summer. The one she bought today was tasteless.

**Conclusions:**

- I. It is not summer season at present.
- II. The shopkeeper has cheated Radha.

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Neither conclusion I nor II follows
  - ☒ D. Both conclusions I and II follow

**Q.30** If 1 is added to each odd digit and 2 is subtracted from each even digit in the number 1374856, which of the following digits will appear more than once in the new number thus formed?

- Ans**
- ☒ A. Only 8
  - ☒ B. 4, 6 and 8
  - ☒ C. 2, 4 and 6
  - ☒ D. Both 6 and 7

**Q.31** Read the given statement(s) and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statement(s).

**Statements:**

All grapes are apples

No apple is a pine

All pines are cones

**Conclusions:**

- (I) No cone is a grape
- (II) No grape is a pine
- (III) Some cones are apples

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Both conclusion I and conclusion II follow
  - ☒ D. None of the conclusions follow

**Q.32** Refer to the following letter, number, symbol series and answer the question.

(Left) 9 C W 7 S K T @ B 1 6 L C S 8 & J F 2 % U D 7 P 5 \* 4 V Z ? A (Right)

If all the elements that are on the prime number position in the above series are to be dropped, then which of the following elements will be 18th from the left end?

- Ans**
- ☒ A. K
  - ☒ B. F
  - ☒ C. 4
  - ☒ D. P

**Q.33** Refer to the following number series and answer the question that follows.

4 3 7 9 2 5 6 8 7 9 1 5 3 9 2 4 3 5 9

How many such odd digits are there, each of which is immediately preceded by an odd digit and also immediately followed by an even digit?

- Ans**
- ☒ A. Four
  - ☒ B. Three
  - ☒ C. Two
  - ☒ D. One

**Q.34** Kritika walks 6 m towards the south. She turns right to walk 6 m. She turns left and walks 5 m. She again turns left and walks 6 m. Again she turns left and walks 5 m. In which direction is she facing now? (All turns are 90 degree turns only)

- Ans**
- ☒ A. North
  - ☒ B. West
  - ☒ C. South
  - ☒ D. East

**Q.35** Select the set in which the numbers are related in the same way as are the numbers of the following sets.  
(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding / subtracting / multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

(4, 17, 33)  
(5, 34, 59)

- Ans**
- ☒ A. (6, 82, 118)
  - ☒ B. (9, 19, 37)
  - ☒ C. (3, 45, 51)
  - ☒ D. (27, 13, 28)

**Q.36** Each of the digits in the number 7235491 is arranged in ascending order from left to right. What will be the sum of the digits that will remain unchanged as compared to that in the original number?

- Ans**
- ☒ A. 17
  - ☒ B. 14
  - ☒ C. 9
  - ☒ D. 5

- Q.37** In this question, a group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number / Symbol | \$ | 3 | @ | 8 | % | 2 | # | & | 6 | φ | π | 7 | 5 | φ |
|-----------------|----|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code            | A  | V | L | K | R | M | B | F | N | T | E | C | S | W |

**Conditions:**

- (i) If the first element is a symbol and the last element is a number, the codes for these two (the first and the last elements) are to be interchanged.
- (ii) If the first element is an odd number and the last element is an even number, the first and last elements are to be coded as ☉
- (iii) If both second and fourth elements are multiples of 3, both second and fourth elements are to be coded as the code for the second element.

#376φ%

- Ans** ☒ A. KVCVWB  
☒ B. BVCVTR  
☒ C. ☉ACAS☉  
☒ D. BVCTRV

- Q.38** Based on the given statement, four conclusions are drawn. Find out which conclusion is true based on the statement.

Statement:  $L < W > X = V > B \geq E$

- Ans** ☒ A.  $X < E$   
☒ B.  $W > B$   
☒ C.  $L = E$   
☒ D.  $W = V$

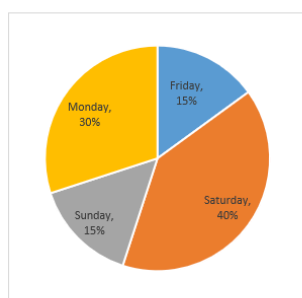
- Q.39** Which of the following terms will replace the question mark (?) in the given series to make it logically complete?

VPR 3, TNP 7, RLN 11, ?, NHJ 19

- Ans** ☒ A. PLJ 13  
☒ B. PJJ 15  
☒ C. PJJ 13  
☒ D. PLJ 15

- Q.40** Study the given pie-chart and answer the question that follows.

The pie-chart depicts the percentage of children who visited a playground on 4 days, out of the total number of children (which is 40) who visited the playground on the given 4 days together.



If the price of the entry ticket for the playground was ₹25 for each child, what was the amount collected on Sunday?

- Ans** ☒ A. ₹250  
☒ B. ₹200  
☒ C. ₹150  
☒ D. ₹300

**Q.41** Six teachers are sitting around a circular table facing the centre. Tommy is sitting second to the right of Priya. Oliver is sitting second to the left of Kavita. Oliver is an immediate neighbour of both Priya and Veena. Sagar is sitting second to the right of Kavita. Who is an immediate neighbour of both Sagar and Kavita?

- Ans**
- ☒ A. Priya
  - ☒ B. Veena
  - ☒ C. Tommy
  - ☒ D. Oliver

**Q.42** Select the option that is related to the fifth term in the same way as the fourth term is related to the third term and the second term is related to the first term.

SPACE : URCEG :: PLANET : RNCPGV :: MACHINE : ?

- Ans**
- ☒ A. OCEJKPG
  - ☒ B. OCEFGPG
  - ☒ C. KYAJKPG
  - ☒ D. KYAFGLC

**Q.43** Amongst six friends P, Q, R, S, T and U, each has a different height. P is taller than only three other friends. R is taller than only one friend. S is taller than R but shorter than U. T is taller than U. Who is the second tallest among all the friends?

- Ans**
- ☒ A. Q
  - ☒ B. S
  - ☒ C. U
  - ☒ D. T

**Q.44** Select the number from among the given options that can replace the question mark (?) in the following series.  
233, 404, 575, 746, 917, ?

- Ans**
- ☒ A. 1078
  - ☒ B. 1088
  - ☒ C. 1079
  - ☒ D. 1089

**Q.45** Which of the following numbers will replace the question mark (?) in the given series?  
0, 7, 26, 63, 124, 215, ?

- Ans**
- ☒ A. 342
  - ☒ B. 343
  - ☒ C. 344
  - ☒ D. 340

**Q.46** All 29 students of a class are standing in a straight row facing north. Suresh is 24<sup>th</sup> from the right end, while Bhaskar is 16<sup>th</sup> from the left end. How many students stand between Suresh and Bhaskar?

- Ans**
- ☒ A. 12
  - ☒ B. 14
  - ☒ C. 9
  - ☒ D. 6



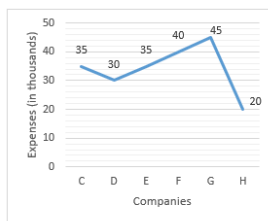
**Q.47** All 32 students of a class are standing in a straight row facing north. Anand is 6<sup>th</sup> from the right end, while Meena is 14<sup>th</sup> from the left end. How many students stand between Anand and Meena?

- Ans**
- ☒ A. 8
  - ☒ B. 13
  - ☒ C. 12
  - ☒ D. 10

**Q.48** Six boxes are kept vertically one above the other. F is kept at an even numbered position from the top but not at the 2<sup>nd</sup> position. B is kept at the bottommost position. Only one box is kept between F and E. C is kept immediately above F. F is kept immediately above A. What is the position of box A from the bottom?

- Ans**
- ☒ A. 4<sup>th</sup>
  - ☒ B. 2<sup>nd</sup>
  - ☒ C. 3<sup>rd</sup>
  - ☒ D. 5<sup>th</sup>

**Q.49** The following line graph shows expenditure of different companies in the month of January. Study the graph and answer the question.



What is the respective ratio of the total expenditure of companies C, D and E together to the total expenditure of companies F, G and H together?

- Ans**
- ☒ A. 11 : 21
  - ☒ B. 100 : 101
  - ☒ C. 20 : 21
  - ☒ D. 21 : 11

**Q.50** Three statements are followed by three conclusions numbered I, II and III. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts. Decide which of the given conclusions logically follow(s) from the given statements.

**Statements:**

All wires are metals  
All metals are plastics  
Some wires are coppers

**Conclusions:**

(I) Some coppers are metals  
(II) Some plastics are coppers  
(III) No copper is a plastic

- Ans**
- ☒ A. Only conclusions I and II follow
  - ☒ B. Only conclusions II and III follow
  - ☒ C. Either conclusion I or III follows
  - ☒ D. None of the conclusions follow

**Q.51** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding/deleting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(18, 27, 225)

(15, 33, 240)

**Ans** ☒ A. (22, 49, 568)

☒ B. (25, 45, 560)

☒ C. (33, 38, 568)

☒ D. (30, 15, 225)

**Q.52** Three statements are followed by three conclusions numbered I, II and III. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts. Decide which of the given conclusions logically follow(s) from the given statements.

**Statements:**

All potatoes are tomatoes.

All tomatoes are brinjals.

All brinjals are onions.

**Conclusions:**

(I) Some onions are potatoes

(II) All tomatoes are potatoes

(III) No tomato is a potato

**Ans** ☒ A. Only conclusion I follows

☒ B. Only conclusion II follows

☒ C. Either conclusion I or III follows

☒ D. None of the conclusions follow

**Q.53** In a certain code language, 'PROUD' is written as 'RPQSF' and 'FLICK' is written as 'HJKAM'. How will 'TEMPT' be written in that language?

**Ans** ☒ A. VCONV

☒ B. UCNNU

☒ C. VNOCV

☒ D. UDOOU

**Q.54** Refer to the following letter series and answer the question.

(Left) G H U B Q R P M E N S T A V L M A (Right)

How many vowels are immediately preceded by a consonant and also immediately followed by a consonant?

**Ans** ☒ A. 3

☒ B. 4

☒ C. 1

☒ D. 6

**Q.55** Six friends, A, B, C, D, E, and F are sitting around a circular table facing the centre. E is the immediate neighbour of B and D. F is to the immediate right of B, and second to the left of C. Where is A seated?

**Ans** ☒ A. Second to the right of D

☒ B. Third to the left of B

☒ C. To the immediate right of F

☒ D. To the immediate right of C

**Q.56** Which of the following statements is/are correct with regard to the principal axis of a spherical mirror?

- (a) A principal axis is an imaginary line extended on both sides of the mirror.
- (b) A principal axis passes through the center of curvature, principal focus and pole.
- (c) The principal axis for a curved mirror is curved.

**Ans** ☒ A. Only (a) is correct  
☒ B. Only (b) is correct  
☒ C. Only (a) and (b) are correct  
☒ D. (a), (b) and (c) are correct

**Q.57** The path of a beam of light is visible through a \_\_\_\_\_ solution in which the size of the particles is relatively larger.

**Ans** ☒ A. colloidal  
☒ B. sugar  
☒ C. water  
☒ D. salt

**Q.58** Which of the following animal tissues contain(s) flattened cells?

**Ans** ☒ A. Cuboidal epithelium  
☒ B. Squamous epithelium  
☒ C. Plasma cells  
☒ D. Mast cells

**Q.59** The element used as a fuse \_\_\_\_\_ when a huge current flows through it.

**Ans** ☒ A. heats up  
☒ B. cools  
☒ C. boils  
☒ D. melts

**Q.60** Which of the following statements is true about precipitation reaction?

**Ans** ☒ A. An insoluble salt is formed.  
☒ B. Only water is formed.  
☒ C. Only soluble solution is formed.  
☒ D. Only hydrogen gas is formed.

**Q.61** Which of the following compounds contains only one carbon-carbon single bond?

**Ans** ☒ A. Methane  
☒ B. Ethane  
☒ C. Propane  
☒ D. Butane

**Q.62** Ozone at the higher levels of the atmosphere is a product of UV radiation acting on \_\_\_\_\_ molecule.

- Ans**
- ✓ A. oxygen (O<sub>2</sub>)
  - ✗ B. carbon dioxide (CO<sub>2</sub>)
  - ✗ C. carbon monoxide (CO)
  - ✗ D. sulphur dioxide (SO<sub>2</sub>)

**Q.63** The oustees of which dam built in the 1970s are still fighting for the benefits they were promised?

- Ans**
- ✓ A. Tawa dam
  - ✗ B. Sardar Sarovar dam
  - ✗ C. Nagarjuna Sagar dam
  - ✗ D. Hirakud dam

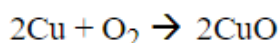
**Q.64** Maintenance processes are needed in life processes to:

- Ans**
- ✗ A. transfer a source of energy from inside the body of organism
  - ✓ B. prevent damage and breakdown
  - ✗ C. add raw material from inside the body
  - ✗ D. transfer food material outside the body

**Q.65** Where in a human body can anaerobic respiration take place?

- Ans**
- ✗ A. Only in red blood cells in the veins
  - ✗ B. In mitochondria of all cells
  - ✗ C. Only in striated muscle cells
  - ✓ D. In the cytoplasm of cells

**Q.66** In the given reaction which substance undergoes oxidation?



- Ans**
- ✗ A. Copper oxide
  - ✗ B. Only copper
  - ✗ C. Only oxygen
  - ✓ D. Copper and oxygen

**Q.67** Fleming's right hand rule gives the direction of current induced in a conductor moving in a \_\_\_\_\_.

- Ans**
- ✗ A. electric field
  - ✓ B. magnetic field
  - ✗ C. electromagnetic field
  - ✗ D. gravitational field

**Q.68** How does a loop act as a contraceptive?

- Ans**
- ☒ A. It blocks access to the fallopian tubes.
  - ☐ B. It blocks the release of sperm.
  - ☐ C. It inhibits implantation of the embryo.
  - ☐ D. It inhibits release of ovum.

**Q.69** During photosynthesis, the carbohydrates synthesised are stored in the form of:

- Ans**
- ☐ A. proteins
  - ☒ B. starch
  - ☐ C. fats
  - ☐ D. vitamins

**Q.70** Which of the following elements belongs to the second group?

- Ans**
- ☐ A. Na
  - ☐ B. B
  - ☐ C. C
  - ☒ D. Be

**Q.71** The length of a conducting wire is 1 km and its radius of cross section is 7 mm. A resistor of resistance  $10\ \Omega$  is made out of this wire. The resistivity of this conductor will be \_\_\_\_\_.

- Ans**
- ☐ A.  $2.22 \times 10^{-6}\ \Omega\text{-m}$
  - ☒ B.  $1.54 \times 10^{-6}\ \Omega\text{-m}$
  - ☐ C.  $7 \times 10^{-6}\ \Omega\text{-m}$
  - ☐ D.  $1 \times 10^{-6}\ \Omega\text{-m}$

**Q.72** Which of the following compounds is cyclic and unsaturated?

- Ans**
- ☐ A. Ethane
  - ☒ B. Benzene
  - ☐ C. Cyclopropane
  - ☐ D. Cyclohexane

**Q.73** Throbbing movements called pulse is felt due to:

- Ans**
- ☒ A. blood flowing in the arteries
  - ☐ B. blood flowing in the veins
  - ☐ C. blood flowing in the heart
  - ☐ D. blood flowing in the lungs

**Q.74** 'X' gas is produced during the electrolysis of brine. Then, 'X' gas is used in dry slaked lime to produce  $\text{CaOCl}_2$ . What is 'X'?

- Ans**
- ☒ A. Chlorine
  - ☐ B. Hydrogen
  - ☐ C. Nitrogen
  - ☐ D. Sulphur

**Q.75** In the normal eye, the distance of the retina from the eye lens is 2.5 cm. The power of the eye lens when it is focussed at its near point 25 cm from the eye is :

- Ans**
- ☒ A. 4 D
  - ☒ B. 44 D
  - ☒ C. 40 D
  - ☒ D. 22 D

**Q.76** If two parallel straight conductors are carrying current in the same direction, then the directions of the magnetic fields produced will be:

- Ans**
- ☒ A. in the same direction
  - ☒ B. opposite to each other
  - ☒ C. perpendicular to each other
  - ☒ D. in random directions

**Q.77** The rate at which electrical energy is dissipated in an electric circuit is called \_\_\_\_\_.

- Ans**
- ☒ A. electric power
  - ☒ B. electric heat
  - ☒ C. electric work
  - ☒ D. electric force

**Q.78** Suppose a satellite is  $10^2$  km above the ground and it is used to take high resolution images of objects. If a concave mirror is used to form a primary image of an object of size 1.0 m and if the image size is  $5\text{ }\mu\text{m}$  and it is inverted, then the principal focus of the concave mirror should be:

- Ans**
- ☒ A. +1.0 m
  - ☒ B. -0.5 m
  - ☒ C. +0.50 m
  - ☒ D. -1.0 m

**Q.79** Select the correct increasing order of atomic radii.

- Ans**
- ☒ A.  $\text{B} < \text{Be} < \text{Li} < \text{Rb}$
  - ☒ B.  $\text{B} < \text{Be} < \text{Rb} < \text{Li}$
  - ☒ C.  $\text{Li} < \text{B} < \text{Be} < \text{Rb}$
  - ☒ D.  $\text{Li} < \text{Be} < \text{B} < \text{Rb}$

**Q.80** Which of the following statements is/are correct?

- A) pH value of saliva: 6.2 – 8
- B) pH value of pure blood : 7.35 – 7.45
- C) pH value of pure water: 9

- Ans**
- ☒ A. A and B
  - ☒ B. Only B
  - ☒ C. Only C
  - ☒ D. B and C

- Q.81** In which year did PV Sindhu win the Swiss Open Super 300 badminton competition in Basel, Switzerland, defeating Busanan Ongbamrungphan of Thailand in the finals?
- Ans** ☒ A. 2019  
☒ B. 2020  
☒ C. 2021  
☒ D. 2022
- Q.82** What is the full form of ESIC, which is an autonomous body created by the law under the Ministry of Labour and Employment, Government of India?
- Ans** ☒ A. Employers' State Insurance Corporation  
☒ B. Employees' Statuary Insurance Corporation  
☒ C. Employees' State Indemnity Corporation  
☒ D. Employees' State Insurance Corporation
- Q.83** Between the ages of six and fourteen, parents or guardians should provide opportunities for their children's education. When did this become a part of the right to education legislation?
- Ans** ☒ A. 2004  
☒ B. 2005  
☒ C. 2008  
☒ D. 2009
- Q.84** Which of the following has the authority to create a municipality, municipal corporation, or panchayat in a given area?
- Ans** ☒ A. State Government  
☒ B. Divisional Commissioner  
☒ C. Central Government  
☒ D. District Collector
- Q.85** Ranikhet hill station is located in which state of India?
- Ans** ☒ A. Uttarakhand  
☒ B. Himachal Pradesh  
☒ C. Sikkim  
☒ D. Kerala
- Q.86** When was the First Five-Year Plan launched?
- Ans** ☒ A. 1956-1961  
☒ B. 1951-1956  
☒ C. 1961-1966  
☒ D. 1946-1951
- Q.87** In the universal prayer of Jains, Navakara Mantra, what is the literal meaning of 'Namo Arihantanam'?
- Ans** ☒ A. I bow down to all souls who have escaped all their gati karmas.  
☒ B. I bow down to all completely liberated souls.  
☒ C. I bow to all spiritual masters or divine teachers.  
☒ D. I bow down to all preceptors.



**Q.88** After receiving recognition as a classical language in 2008, the Centre of Excellence for Studies in Classical Telugu (CESCT) was set up under which institution?

- Ans**
- ☒ A. Central Institute of Indian Languages, Mysore
  - ☐ B. English and Foreign University, Hyderabad
  - ☐ C. Rashtriya Sanskrit Sansthan, New Delhi
  - ☐ D. American Institute of Tamil Language

**Q.89** The Council of States consists of \_\_\_\_\_ members, which are nominated by the President on the basis of their excellence in literature, science, art and social service.

- Ans**
- ☐ A. 10
  - ☐ B. 11
  - ☐ C. 21
  - ☒ D. 12

**Q.90** Where is the head office of the Barefoot College, which completed 50 years of community empowerment in 2022, located?

- Ans**
- ☐ A. Odisha
  - ☐ B. West Bengal
  - ☒ C. Rajasthan
  - ☐ D. Gujarat

**Q.91** Who among the following extends the jurisdiction of a High Court to, or excludes it from, any union territory?

- Ans**
- ☐ A. Legislature of the State in which the High Court is situated
  - ☐ B. The Chief Justice of India
  - ☐ C. The President of India
  - ☒ D. Parliament by law

**Q.92** The Sunderbans Biosphere Reserve is located in which of the following states?

- Ans**
- ☐ A. Sikkim
  - ☒ B. West Bengal
  - ☐ C. Odisha
  - ☐ D. Madhya Pradesh

**Q.93** The Microfinance Institutions Network (MFIN) was recognised by the Reserve Bank of India (RBI) as India's first Self-Regulatory Organization (SRO) for Non-Banking Financial Company-Micro Finance Institutions (NBFC-MFI) in \_\_\_\_\_.

- Ans**
- ☐ A. 2017
  - ☐ B. 2018
  - ☒ C. 2014
  - ☐ D. 2015



**Q.94**

In February 2022, who was appointed as the new director of the Vikram Sarabhai Space Centre (VSSC)?

**Ans**

☐ A. S Somnath

☒ B. Dr. S. Unnikrishnan Nair

☐ C. G Ashok Kumar

☐ D. Dr. K Sivan

**Q.95**

Which of the following is the consumer complaint body of the Advertising Standards Council of India (ASCI)?

**Ans**

☒ A. Consumer Complaints Council (CCC)

☐ B. Consumer Complaints Commission (CCC)

☐ C. Consumer Complaints Company (CCC)

☐ D. Consumer Complaints Committee (CCC)

**Q.96**

Which of the following states or union territories has zero per cent forest area?

**Ans**

☐ A. Goa

☒ B. Lakshadweep

☐ C. Chandigarh

☐ D. Haryana

**Q.97**

From which of the following places was the Polar Satellite Launch Vehicle PSLV-C52 launched with EOS-04 Satellite?

**Ans**

☐ A. Bhubaneswar

☒ B. Sriharikota

☐ C. Thiruvananthapuram

☐ D. Thumba

**Q.98**

Which Commission was formed by the Government of India to investigate the Jallianwala Bagh incident of 1919?

**Ans**

☐ A. Babington Smith Commission

☐ B. Fraser Commission

☒ C. Hunter Commission

☐ D. Butler Commission

**Q.99**

Which of the following Indian teams won the gold medal at the Commonwealth Games 2022, creating history by winning India's first ever gold in this event at the Commonwealth Games?

**Ans**

☐ A. Women's tennis team

☒ B. Women's fours lawn bowls team

☐ C. Women's hand ball team

☐ D. Women's rugby sevens team

**Q.100** In the Republic Day Parade 2022, which state's theme of the tableau was based on Anglo-Abor (Adi) wars?

**Ans**  **A. Arunachal Pradesh**

 **B. Sikkim**

 **C. Assam**

 **D. Tripura**



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 30/09/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** The roots of the quadratic equations  $6x^2 - 11x + 3 = 0$  are:

- Ans
- ✓ A.  $\frac{1}{3}, \frac{3}{2}$
  - ✗ B.  $\frac{1}{3}, \frac{2}{3}$
  - ✗ C.  $\frac{1}{2}, \frac{3}{2}$
  - ✗ D.  $\frac{2}{3}, \frac{3}{2}$

**Q.2** Hema is the mother of Deeksha. 10 years ago, the age of Hema was 3 times the then age of Deeksha. After 10 years, Hema will be twice as old as Deeksha will then be. Find the present age (in years) of Deeksha.

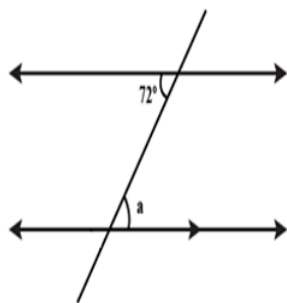
- Ans
- ✗ A. 20
  - ✓ B. 30
  - ✗ C. 15
  - ✗ D. 50

**Q.3** Find the mode of the given frequency distribution.

| Marks | Frequency |
|-------|-----------|
| 51    | 3         |
| 29    | 4         |
| 85    | 6         |
| 40    | 7         |

- Ans
- ✗ A. 51
  - ✗ B. 85
  - ✗ C. 7
  - ✓ D. 40

**Q.4** In the given figure, a pair of parallel lines are intersected by a transversal. Find the value of angle a.



- Ans**
- ✓ A.  $72^\circ$
  - ✗ B.  $36^\circ$
  - ✗ C.  $96^\circ$
  - ✗ D.  $108^\circ$

**Q.5** One year ago, Praveena was four times as old as her daughter. Six years hence, Praveena's age will exceed twice her daughter's age by 7 years. What is the sum of their present ages?

- Ans**
- ✗ A. 32 years
  - ✗ B. 35 years
  - ✓ C. 37 years
  - ✗ D. 39 years

**Q.6** Find the least number which, when divided by 12, 16 and 18, leaves a remainder of 5 in each case.

- Ans**
- ✗ A. 144
  - ✗ B. 145
  - ✗ C. 147
  - ✓ D. 149

**Q.7** The selling price of 10 books is equal to the cost price of 15 books. Find the loss or gain percentage.

- Ans**
- ✗ A.  $\frac{100}{3}\%$  Gain
  - ✗ B. 50% Loss
  - ✗ C.  $\frac{100}{3}\%$  Loss
  - ✓ D. 50% Gain

**Q.8** In a parallelogram ABCD, if  $m\angle A = (3x + 16)^\circ$  and  $m\angle B = (2x + 24)^\circ$ , then find  $m\angle C$ .

- Ans**
- ✗ A.  $28^\circ$
  - ✗ B.  $56^\circ$
  - ✓ C.  $100^\circ$
  - ✗ D.  $110^\circ$

**Q.9** A solid metallic cuboid of dimensions  $9\text{ cm} \times 32\text{ cm} \times 48\text{ cm}$  is melted and recast into 8 identical cubes. What is the sum of the lateral surface areas (in  $\text{cm}^2$ ) of 5 such cubes?

- Ans**
- ✗ A. 2160
  - ✓ B. 2880
  - ✗ C. 3600
  - ✗ D. 4320

**Q.10** The present age of a father is 5 years more than three times the age of his daughter. Four years hence, the father's age will be 8 years more than twice the age of his daughter. The present age of the daughter is:

- Ans**
- ☒ A. 6 years
  - ☒ B. 7 years
  - ☒ C. 8 years
  - ☒ D. 9 years

**Q.11** 20, 38, 40 and x are in proportion. Find the value of x.

- Ans**
- ☒ A. 66
  - ☒ B. 70
  - ☒ C. 74
  - ☒ D. 76

**Q.12** 10 men can dig a well 50 feet deep in 8 days. How many men can dig a well 100 feet deep in 10 days?

- Ans**
- ☒ A. 18
  - ☒ B. 14
  - ☒ C. 15
  - ☒ D. 16

**Q.13** A man's monthly income is ₹50,000. He spends 25% of it on tax, 30% of the remaining income on household expenses, and 10% of the still remaining income on entertainment. He saves the remaining part of his income. How much money will the man save per year, assuming that the above data is same for all 12 months?

- Ans**
- ☒ A. ₹2,83,050
  - ☒ B. ₹2,38,500
  - ☒ C. ₹2,85,300
  - ☒ D. ₹2,83,500

**Q.14** The value of the discriminant of the quadratic equation  $9x + 2x^2 = 5$  is:

- Ans**
- ☒ A. 41
  - ☒ B. 184
  - ☒ C. -176
  - ☒ D. 121

**Q.15** Simplify the following.

$$\frac{1}{12} + \frac{1}{16} - \frac{1}{8}$$

- Ans**
- ☒ A.  $\frac{13}{48}$
  - ☒ B.  $\frac{1}{48}$
  - ☒ C.  $\frac{1}{24}$
  - ☒ D.  $\frac{3}{24}$

**Q.16** The value of  $\sin 30^\circ - \cos 60^\circ + \tan 45^\circ + \operatorname{cosec} 60^\circ$  is:

**Ans**

☐ A.  $\frac{3 - 2\sqrt{3}}{3}$

☒ B.  $\frac{3 + 2\sqrt{3}}{3}$

☐ C.  $\frac{2\sqrt{3}}{3}$

☐ D. 2

**Q.17** In which of the pairs of numbers below none of the two numbers is a prime number, but the two numbers are co-primes?

**Ans**

☐ A. (11, 17)

☒ B. (8, 25)

☐ C. (21, 35)

☐ D. (19, 27)

**Q.18** One side of a triangle is 7 metres longer than twice the smallest side. Another side is 5 metres longer than three times the smallest side. If the perimeter of the triangle is 90 metres, find the length of its smallest side.

**Ans**

☒ A. 13 m

☐ B. 10 m

☐ C. 12 m

☐ D. 9 m

**Q.19** A toy is made of a solid cube and a solid cuboid. Each side of the cube is 5 cm long, and the cuboid has dimensions given as 5 cm  $\times$  2 cm  $\times$  8 cm. What is the volume of the toy?

**Ans**

☒ A. 205 cm<sup>3</sup>

☐ B. 250 cm<sup>3</sup>

☐ C. 215 cm<sup>3</sup>

☐ D. 225 cm<sup>3</sup>

**Q.20** Find the value of  $\sqrt{\frac{(0.05)^2 + (0.15)^2 + (0.053)^2}{0.005^2 + 0.015^2 + 0.0053^2}}$ .

**Ans**

☒ A. 10

☐ B. 10<sup>2</sup>

☐ C. 10<sup>3</sup>

☐ D. 10<sup>4</sup>

**Q.21** The cost of a camera is ₹25,000. A leather case costing ₹2,750 was also sold along with this. Arti bought these two items. After using them for few years, she sold them for ₹26,085. What is the loss percentage?

**Ans**

☐ A. 4%

☐ B. 8%

☒ C. 6%

☐ D. 5%

**Q.22** What time is required for a 150 m long train to cross a 100 m long tunnel, if the train travels at a speed of 25 km/h?

- Ans**
- ☐ A. 30 seconds
  - ☐ B. 25 seconds
  - ☒ C. 36 seconds
  - ☐ D. 32 seconds

**Q.23** The total amount payable at maturity on a certain sum invested at simple interest at 8% p.a. for  $3\frac{1}{2}$  years exceeds the simple interest payable on the same sum at 10.5% p.a. for 12 years by ₹156. The sum (in ₹) is:

- Ans**
- ☐ A. 7,500
  - ☒ B. 7,800
  - ☐ C. 8,000
  - ☐ D. 8,200

**Q.24** Simplify  $(3^{-1} \times 6^{-1})^{-1} \div 3^{-1}$

- Ans**
- ☐ A. 45
  - ☒ B. 54
  - ☐ C. 65
  - ☐ D. 56

**Q.25** In a Lions Club, 70% of the members are young and 30% of the members are old. The average age of the old members is 40 years and that of the young members is 20 years. What is the average age of all the members (in years)?

- Ans**
- ☒ A. 26
  - ☐ B. 24
  - ☐ C. 28
  - ☐ D. 22

#### Section : General Intelligence and Reasoning

**Q.26** Sneha starts walking 5 m towards the east. She turns right and walks 5 m. Then she takes a left, walks 4 m and again takes a left. She walks 2 m and then again takes a left. She walks 3 m and then takes a right. She walks 2 m, takes a right again and walks 3 m. In which direction is she facing now? (All turns are 90 degree turns only)

- Ans**
- ☐ A. West
  - ☐ B. North
  - ☐ C. South
  - ☒ D. East

**Q.27** Among six friends A, B, C, D, E and F, each has a different height. Only two people are shorter than B. Only one person is taller than A. E is neither the tallest nor the shortest. C is shorter than E but taller than F. Who is the taller than B but shorter than A?

- Ans**
- ☐ A. D
  - ☒ B. E
  - ☐ C. C
  - ☐ D. F

**Q.28** Refer to the following letter series and answer the question.

MOVEOIFVASKCOSDVINS DINIS

How many such consonants are there each of which is immediately preceded by a vowel and also immediately followed by a vowel?

- Ans**
- ☒ A. One
  - ☒ B. Two
  - ☒ C. Three
  - ☒ D. Four

**Q.29** Three statements are given followed by two conclusions numbered I and II. You have to take the statements to be true, even if they seem to be at variance with commonly known facts and decide which of the conclusions logically follow(s) from the statements.

**Statements:**

Some Dogs are Barks.

Some Barks are Trees.

All Trees are Woods.

**Conclusions:**

(I) Some Dogs are Trees.

(II) Some Woods are Barks.

- Ans**
- ☒ A. Only conclusion (I) follows.
  - ☒ B. Only conclusion (II) follows.
  - ☒ C. Both conclusions (I) and (II) follow.
  - ☒ D. Neither conclusion (I) nor (II) follows.

**Q.30** Each of the digits in the number 7639482 is arranged in ascending order from right to left. The position of how many digits will remain unchanged as compared to that in the original number?

- Ans**
- ☒ A. None
  - ☒ B. One
  - ☒ C. Two
  - ☒ D. Three

**Q.31** Which of the following options is the closest approximate value which will come in place of question mark (?) in the following equation?

$$19.99 - 10.01 + 24.99 \times 10.01 = ?$$

- Ans**
- ☒ A. 260
  - ☒ B. 265
  - ☒ C. 270
  - ☒ D. 280

**Q.32** Which of the following numbers will replace the question mark (?) in the given series?

4    8    35    51    176    ?

- Ans**
- ☒ A. 234
  - ☒ B. 212
  - ☒ C. 226
  - ☒ D. 208



**Q.33** All 24 students of a class are standing in a straight row facing north. Amit is 3<sup>rd</sup> from the right end, while Maria is 3<sup>rd</sup> from the left end. How many students stand between Maria and Amit?

- Ans**
- ☒ A. 14
  - ☒ B. 17
  - ☒ C. 16
  - ☒ D. 18

**Q.34** The position of how many letters will remain unchanged if each of the letters in the word PROUDLY is arranged in alphabetical order?

- Ans**
- ☒ A. Three
  - ☒ B. Two
  - ☒ C. Four
  - ☒ D. One

**Q.35** If each of the letters in the word 'ACQUIRE' is arranged in alphabetical order, then how many letters will be there in the English alphabetical series between the letter that is fifth from the left end and the one that is first from the right end?

- Ans**
- ☒ A. 2
  - ☒ B. 3
  - ☒ C. 5
  - ☒ D. 4

**Q.36** Select the set in which the numbers are related in the same way as are the numbers of the given sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(8, 5, 12)  
(2, 6, 22)

- Ans**
- ☒ A. (5, 9, 19)
  - ☒ B. (9, 12, 23)
  - ☒ C. (17, 8, 11)
  - ☒ D. (1, 6, 23)

**Q.37** Which of the following numbers will replace the question mark (?) in the given series?

3    30    300    3000 ?

- Ans**
- ☒ A. 3000
  - ☒ B. 300000
  - ☒ C. 30000
  - ☒ D. 3000000

**Q.38** In a certain code language, 'FAR' is written as 'SARF' and 'PICK' is written as 'SICKP'. How will 'BLACK' be written in the same code language?

- Ans**
- ☒ A. SBLACK
  - ☒ B. SKBLAC
  - ☒ C. SLBACK
  - ☒ D. SLACKB

- Q.39** Read the given statement and conclusions carefully. Assuming that the information given in the statement is true, decide which of the given conclusions logically follow(s) from the statement.

Statement:

Infants born alive before 37 weeks of pregnancy are called Preterm babies.

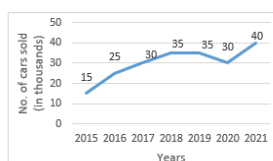
Conclusions:

I. Babies born before 37 weeks of pregnancy have issues in adjusting properly in the world outside their mother's womb and need to be in a Neonatal Intensive Care Unit for durations varying from a few days to several weeks.

II. Infants born after 37 weeks of pregnancy are called full term babies and are completely healthy.

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Both the conclusions follow
  - ☒ D. Neither conclusion I nor II follows

- Q.40** The following line graph shows number of cars sold by company A over the years. Study the graph and answer the question.



What is the respective ratio of the total cars sold by company A in 2015 and 2017 together to the total cars sold in 2019 and 2021 together?

- Ans**
- ☒ A. 5 : 3
  - ☒ B. 3 : 13
  - ☒ C. 3 : 5
  - ☒ D. 13 : 3

- Q.41** Sudesh starts from point A and drives 9 km towards North. He takes a left turn and drives for 4 km, he then turns right and drives for 2 km. He then turns right and drives for 9 km. He takes a final right turn and drives for 11 km to reach point M. What is the distance between points A and M (all turns are 90 degree turns only)?

- Ans**
- ☒ A. 4 km
  - ☒ B. 6 km
  - ☒ C. 5 km
  - ☒ D. 2 km

- Q.42** A, B, C, D, E and F live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 6. D lives on an odd numbered floor but not on floor number 3. Only two people live between D and A. C lives immediately above A. Only two people live between C and B. F lives on one of the floors below B but not on the lowermost floor. Who lives on floor number 4?

- Ans**
- ☒ A. F
  - ☒ B. A
  - ☒ C. C
  - ☒ D. E

- Q.43** Six colleagues are sitting around a circular table facing the centre. Amrita is sitting second to the left of Kavita. Meagan is sitting second to the right of Sabina. Rohan is an immediate neighbour of both Kavita and Amrita. Rochelle is an immediate neighbour of both Meagan and Sabina. Who is sitting to the immediate right of Meagan?

- Ans**
- ☒ A. Amrita
  - ☒ B. Rohan
  - ☒ C. Rochelle
  - ☒ D. Sabina

**Q.44** Select the option that is related to the fifth letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster and the fourth letter-cluster is related to the third letter-cluster.

BOOK : YLLP :: NOTE : MLGV :: WORD : ?

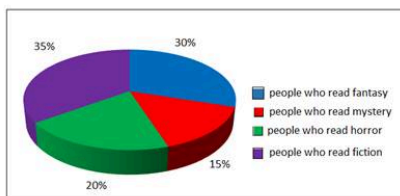
- Ans**
- ☒ A. IWDL
  - ☒ B. DLIW
  - ☒ C. LDWI
  - ☒ D. ILDW

**Q.45** Four friends R, S, T and U are sitting at the exact centre of the sides of a rectangular table facing the centre (but not necessarily in the same order). R is sitting to the immediate right of S. T is sitting to the immediate left of U.

Which of the following pairs of friends is sitting opposite to each other?

- Ans**
- ☒ A. S - U
  - ☒ B. R - U
  - ☒ C. R - S
  - ☒ D. T - R

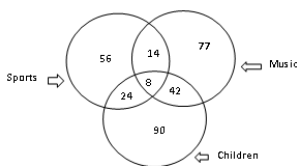
**Q.46** According to a survey, the percentage of people who read different genres books is shown in the following pie-chart. Blue represents people who read fantasy, red represents people who read mystery, green represents people who read horror, and purple represents people who read fiction. Study the pie-chart and answer the question.



The survey was conducted on 80% students of a school. How many students read mystery and horror books if the school has 47,500 students overall?

- Ans**
- ☒ A. 5,700
  - ☒ B. 12,400
  - ☒ C. 7,600
  - ☒ D. 13,300

**Q.47** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



How many such children are there who like music but NOT sports?

- Ans**
- ☒ A. 50
  - ☒ B. 42
  - ☒ C. 56
  - ☒ D. 8

**Q.48** P, Q, R, S, T and U are six different cars, each of a different weight. Q is heavier than only one car. S is heavier than Q. R is heavier than P. T is heavier than S. P is heavier than T. Which car among the six is the heaviest?

- Ans**
- ☒ A. S
  - ☒ B. R
  - ☒ C. T
  - ☒ D. P

**Q.49** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(5, 315, 21)

(9, 486, 18)

**Ans** ☒ A. (12, 560, 11)

☒ B. (10, 480, 16)

☒ C. (7, 294, 21)

☒ D. (8, 368, 23)

**Q.50** Which of the following two numbers should be interchanged to make the given equation correct?

$$3 \times 5 + 20 \div 8 - 17 = 11$$

**Ans** ☒ A. 17 and 3

☒ B. 5 and 17

☒ C. 8 and 17

☒ D. 5 and 8

**Q.51** A certain number of people are sitting in a row, facing north. R sits third to the right of P. Q is an immediate neighbour of both R and M. M is not an immediate neighbour of P. Exactly four people sit between M and T. If no other person is sitting in the row, what is the total number of people seated in the row?

**Ans** ☒ A. 9

☒ B. 10

☒ C. 11

☒ D. 12

**Q.52** Which of the following alphanumeric-clusters will replace the question mark (?) in the given series to make it logically complete?

SU5, UR7, WO11, YL13, ?

**Ans** ☒ A. AO17

☒ B. AN15

☒ C. AI17

☒ D. AH19

**Q.53** Study the given series and answer the question that follows (all numbers are single digit numbers only).

4 7 2 1 8 6 9 1 2 5 3 1 9 4 7 1 8 3 5 6 8 2 7 1 8 5 6 9

How many such even digits are there each of which is immediately preceded by a perfect square and immediately followed by an odd digit (NOTE: 1 is also a perfect square)?

**Ans** ☒ A. Two

☒ B. Three

☒ C. Four

☒ D. Five

- Q.54** Three statements are given followed by two conclusions numbered I and II. You have to take the statements to be true, even if they seem to be at variance with commonly known facts and decide which of the conclusions logically follow(s) from the statements.

**Statements:**

Some Baskets are Canes.  
Some Canes are Woods.  
All Woods are Forests.

**Conclusions:**

(I) All Canes are Forests.  
(II) Some Baskets are Woods.

- Ans**
- ☒ A. Only conclusion (I) follows.
  - ☒ B. Only conclusion (II) follows.
  - ☒ C. Both conclusions (I) and (II) follow.
  - ☒ D. Neither conclusion (I) nor (II) follows.

- Q.55** In this question, a group of numbers/symbols is coded using letters as per the given table and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number / Symbol | \$ | 3 | @ | 8 | % | 2 | # | & | 6 | Ψ | π | 7 | 5 | φ |
|-----------------|----|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Code            | A  | V | L | K | R | M | B | F | N | T | E | C | S | W |

**Conditions:**

- (i) If the first element is a symbol and the last element is a number, the codes for these two (the first and the last elements) are to be interchanged.
- (ii) If the first element is an odd number and the last element is an even number, the first and last elements are to be coded as ©.
- (iii) If both the second and third elements are perfect squares, the third element is to be coded as the code for the second element.

72π3@6

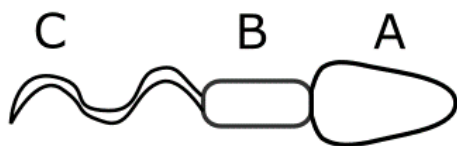
- Ans**
- ☒ A. NMEVLC
  - ☒ B. ©MCFL©
  - ☒ C. ©MEVL©
  - ☒ D. CMEVLN

**Section : General Science**

- Q.56** Which of the following statements is correct about litmus solution?

- Ans**
- ☒ A. Litmus solution is an orange dye, which is extracted from lichen.
  - ☒ B. Litmus solution is an orange dye, which is extracted from moss.
  - ☒ C. Litmus solution is a purple dye, which is extracted from lichen.
  - ☒ D. Litmus solution is a purple dye, which is extracted from moss.

**Q.57** Which part of the human sperm is responsible for determination of sex of the zygote?



- Ans**
- ☒ A. Part A only
  - ☐ B. Parts A and B
  - ☐ C. Part B only
  - ☐ D. Parts B and C

**Q.58** Which of the following is considering as balanced food in itself and good for adolescents?

- Ans**
- ☐ A. Roti/Rice
  - ☐ B. Pulses
  - ☒ C. Milk
  - ☐ D. Vegetables

**Q.59** The photographs taken from a satellite show the sky as dark. This is because:

- Ans**
- ☐ A. no refraction occurs
  - ☐ B. no reflection occurs
  - ☒ C. no scattering occurs
  - ☐ D. no dispersion occurs

**Q.60** In which year Namami Gange Programme is an Integrated Conservation Mission approved as a Flagship Programme by the Union Government?

- Ans**
- ☒ A. 2014
  - ☐ B. 2013
  - ☐ C. 2015
  - ☐ D. 2016

**Q.61** How many carbon atoms are arranged in the shape of a football like structure in fullerene?

- Ans**
- ☒ A. 60
  - ☐ B. 40
  - ☐ C. 55
  - ☐ D. 30

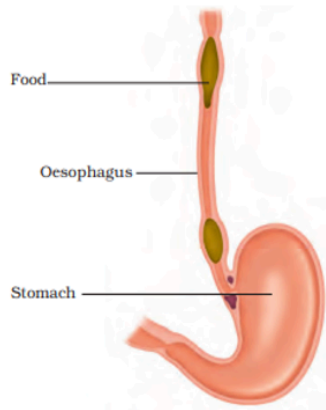
**Q.62** In a room, a magnetic field is applied vertically upwards. Electron and proton beams are released horizontally from south towards the north direction into this field. The directions of deflections of these beams will be \_\_\_\_\_ and \_\_\_\_\_, respectively.

- Ans**
- ☒ A. east, west
  - ☐ B. west, east
  - ☐ C. vertically up, vertically down
  - ☐ D. vertically down, vertically up

**Q.63** The device which converts chemical energy to electrical energy is called \_\_\_\_\_.

- Ans**
- ☐ A. ammeter
  - ☐ B. voltmeter
  - ☐ C. resistor
  - ☒ D. voltaic cell

**Q.64** The diagram below shows a part of the human alimentary canal. Which process is taking place and how?



- Ans**
- ☒ A. Peristalsis, due to rhythmic contraction and relaxation of muscular walls
  - ☐ B. Digestion, due to enzymes present
  - ☐ C. Peristalsis, due to enzymes present
  - ☐ D. Digestion, due to rhythmic contraction and relaxation of muscular walls

**Q.65** In a chemical reaction, a substance gains hydrogen. This process is said to be \_\_\_\_\_.

- Ans**
- ☒ A. reduction
  - ☐ B. chlorination
  - ☐ C. bromination
  - ☐ D. oxidation

**Q.66** Which group of elements constitutes a triad?

- Ans**
- ☐ A. F(19.0), Cl(35.5), Br(79.9)
  - ☐ B. B(10.8), Al(27.0), Ga(69.7)
  - ☒ C. Li(6.9), Na(23.0), K(39.1)
  - ☐ D. N(14.0), P(30.9), As(74.9)

**Q.67** Which of the following is NOT an animal-produced nitrogenous waste product?

- Ans**
- ☐ A. Urea
  - ☐ B. Uric acid
  - ☐ C. Ammonia
  - ☒ D. Lactic acid



Q.68 The heat produced in an electric circuit is proportional to \_\_\_\_\_.

- Ans
- ☐ A. current
  - ☐ B.  $1/\text{current}$
  - ☒ C.  $(\text{current})^2$
  - ☐ D.  $1/(\text{current})^2$

Q.69 Which of the following is an example of combination reaction?

- Ans
- ☐ A.  $\text{HCl(aq)} + \text{NaOH(aq)} \rightarrow \text{NaCl(aq)} + \text{H}_2\text{O(l)}$
  - ☒ B.  $2\text{H}_2(\text{g}) + \text{O}_2(\text{g}) \rightarrow 2\text{H}_2\text{O(l)}$
  - ☐ C.  $2\text{HCl(aq)} + 2\text{Na(s)} \rightarrow \text{NaCl(aq)} + \text{H}_2(\text{g})$
  - ☐ D.  $\text{CH}_4(\text{g}) + 2\text{O}_2(\text{g}) \rightarrow \text{CO}_2(\text{g}) + 2\text{H}_2\text{O(g)}$

Q.70 Which of the following metals has least reactivity?

- Ans
- ☒ A. Gold
  - ☐ B. Silver
  - ☐ C. Sodium
  - ☐ D. Mercury

Q.71 The correct sign conventions for focal length (f) and radius of curvature (R) for the formation of images by spherical mirrors is:

- Ans
- ☐ A. for convex mirror f is negative, R is positive
  - ☐ B. for concave mirror f is positive, R is negative
  - ☐ C. for convex mirror f is negative, R is negative
  - ☒ D. for concave mirror f is negative, R is negative

Q.72 Why were noble gases NOT included in the Newlands law of octaves?

- Ans
- ☐ A. These elements do not follow the octet rule.
  - ☐ B. These elements do not follow the law of octaves.
  - ☒ C. These elements were not known at that time.
  - ☐ D. These elements are inert.

Q.73 In the case of reflection from a concave mirror, if the object distance is 5 cm and the image distance is 2 cm then magnification produced by the mirror is:

- Ans
- ☒ A.  $-2/5$
  - ☐ B.  $2/5$
  - ☐ C.  $-5/2$
  - ☐ D.  $5/2$



**Q.74** Focal length of the concave lens of power 10 D is:

- Ans**
- ☒ A. -0.1 m
  - ☒ B. 0.1 m
  - ☒ C. -10 m
  - ☒ D. 10 m

**Note:** For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

**Q.75** In 1987, the United Nations Environment Programme (UNEP) succeeded in forging an agreement to freeze CFC production at \_\_\_\_\_ levels.

- Ans**
- ☒ A. 1986
  - ☒ B. 1967
  - ☒ C. 1985
  - ☒ D. 1988

**Q.76** A student performed a reaction with zinc and sulphuric acid. zinc sulphate is formed along with a gas. Which gas is evolved?

- Ans**
- ☒ A. Oxygen
  - ☒ B. Hydrogen
  - ☒ C. Carbon monoxide
  - ☒ D. Carbon dioxide

**Q.77** Electric motor works on the principle of \_\_\_\_\_. It converts \_\_\_\_\_ energy into \_\_\_\_\_ energy.

- Ans**
- ☒ A. Fleming's Right Hand Rule, electrical, mechanical
  - ☒ B. Fleming's Left Hand Rule, electrical, mechanical
  - ☒ C. Fleming's Right Hand Rule, mechanical, electrical
  - ☒ D. Fleming's Left Hand Rule, mechanical, electrical

**Q.78** A current flowing through a 10 ohm resistor per second in which 360 J energy is produced is \_\_\_\_\_.

- Ans**
- ☒ A. 90 amp
  - ☒ B. 3600 amp
  - ☒ C. 6 amp
  - ☒ D. 36 amp

**Q.79** Which of the following pathways correctly shows the transportation of water from soil to leaves?

- Ans**
- ☒ A. Soil → root hairs → root cortex → xylem of roots → xylem of stem → xylem of leaf
  - ☒ B. Soil → root cortex → root hairs → xylem of roots → phloem of roots → phloem of stem → phloem of leaf
  - ☒ C. Soil → root hairs → xylem of roots → phloem of roots → xylem of leaf
  - ☒ D. Soil → root hairs → root cortex → xylem of roots → phloem of leaf

**Q.80** Which of the following options shows the main waste products produced by plants?

- Ans**
- ☒ A. Only CO<sub>2</sub> and O<sub>2</sub>
  - ☒ B. Only O<sub>2</sub> and water vapour
  - ☒ C. Only CO<sub>2</sub> and water vapour
  - ☒ D. CO<sub>2</sub>, O<sub>2</sub> and water vapour

- Q.81** Under which Article of the Constitution of India do we consider Hindi in Devanagari script as an official language of India?
- Ans** ☒ A. Article 336  
☒ B. Article 347  
☒ C. Article 351  
☒ D. Article 343
- Q.82** Launched in May 2020, which of the following scheme unifies all efforts related to digital/online/on-air education to enable coherent multi-mode access to education?
- Ans** ☒ A. National Digital Education Architecture (NDEAR)  
☒ B. Vidyanjali  
☒ C. PM e-Vidya  
☒ D. Samagra Shiksha
- Q.83** How many gold medals were secured by India at the Tokyo Olympics 2020?
- Ans** ☒ A. One  
☒ B. Two  
☒ C. Three  
☒ D. Four
- Q.84** Identify the correct definition of Long Run Marginal Cost (LRMC) from the following.
- Ans** ☒ A. The change in total expense per unit of change in input.  
☒ B. The change in average expense per unit of change in output.  
☒ C. The change in marginal cost per unit of change in input.  
☒ D. The change in total cost per unit of change in output.
- Q.85** The inlet of the Bay of Bengal between south-eastern India and northern Sri Lanka is called:
- Ans** ☒ A. Palk Strait  
☒ B. Palk Channel  
☒ C. Palk Canal  
☒ D. Palk Passage
- Q.86** Delhi generally receives the monsoon showers from the \_\_\_\_\_ by the end of June (tentative date is 29th of June).
- Ans** ☒ A. Bay of Bengal branch  
☒ B. Arabian Sea branch  
☒ C. Returning Monsoon  
☒ D. Mediterranean region branch

**Q.87** As of April 2022, to avail the scheme of Permanent Residency Status to Foreign Investors, how much investment a foreign investor will have to make within 18 months?

- Ans**
- ☐ A. ₹15 crore
  - ☒ B. ₹10 crore
  - ☐ C. ₹20 crore
  - ☐ D. ₹25 crore

**Q.88** Which of the following forms a part of the State Executive as per the Constitution of India?

- Ans**
- ☐ A. Attorney-General for India
  - ☐ B. Vice President of India
  - ☒ C. Governor of State
  - ☐ D. Prime Minister of India

**Q.89** What is the name of the programme launched by the Ministry of Electronics and Information Technology in 2021 to assist startups in their early stages?

- Ans**
- ☐ A. ASPIRE
  - ☐ B. Multiplier Grants Scheme
  - ☐ C. Startup India Seed Fund
  - ☒ D. SAMRIDH

**Q.90** Which of the following is one of the Central Government's schemes of interest subsidy on educational loans for overseas studies for students belonging to the minority communities?

- Ans**
- ☐ A. Naya Savera
  - ☐ B. Nai Manzil
  - ☒ C. Padho Pardesh
  - ☐ D. Padho Videsh

**Q.91** Which of the following is an indirect tax?

- Ans**
- ☐ A. Wealth tax
  - ☐ B. Income tax
  - ☐ C. Gift tax
  - ☒ D. Goods and Services Tax

**Q.92** Which of the following teams won the Indian Premier League (IPL) 2022?

- Ans**
- ☒ A. Gujarat Titans
  - ☐ B. Rajasthan Royals
  - ☐ C. Lucknow Super Giants
  - ☐ D. Royal Challengers Bangalore

**Q.93** Which was the principal source and sector of occupation of the Indian economy on the eve of Independence?

- Ans**
- ☐ A. Education
  - ☐ B. Industry
  - ☐ C. Services
  - ☒ D. Agriculture

**Q.94** What is the full form of TEDP, which is a structured training programme of the Department of Science and Technology (DST), Government of India?

- Ans**
- ☒ A. Technology Based Entrepreneurship Development Programme
  - ☐ B. Technology and Entrepreneurship Development Programme
  - ☐ C. Technological Enterprises and Development Programme
  - ☐ D. Technical and Entrepreneurship Development Programme

**Q.95** Where is the Lokrang Utsav celebrated?

- Ans**
- ☐ A. Sikkim
  - ☐ B. Rajasthan
  - ☒ C. Madhya Pradesh
  - ☐ D. Nagaland

**Q.96** Under Article 243 S of the Constitution of India, there is a provision for constitution of Ward Committees within the territorial area of a Municipality having a population of \_\_\_\_\_ or more.

- Ans**
- ☐ A. one lakh
  - ☐ B. two lakh
  - ☒ C. three lakh
  - ☐ D. four lakh

**Q.97** Hinduism encourages full participation in life through the Purusharthas – life goals. Which of the following is NOT one of them?

- Ans**
- ☒ A. Sattva
  - ☐ B. Artha
  - ☐ C. Kama
  - ☐ D. Moksha

**Q.98** The Articles of the Indian Constitution are grouped into how many different parts?

- Ans**
- ☐ A. 8
  - ☐ B. 12
  - ☐ C. 22
  - ☐ D. 395

**Note:** For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

**Q.99** Henry Louis Vivian Derozio was associated with which movement?

- Ans**
- ☒ A. Young Bengal Movement
  - ☐ B. Theosophical Society
  - ☐ C. Arya Samaj
  - ☐ D. Prarthana Sabha

**Q.100** In which one of the following Indian state is Mawsynram located which is at present the wettest place in India, with an average annual rainfall of 11802.4 mm (average of the 1974-2022 period)?

**Ans**  **A. Meghalaya**

 **B. Mizoram**

 **C. Tripura**

 **D. Assam**



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 06/10/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** Kamal is the father of Vishnu. The sum of their present ages is 60 years. If 6 years ago, Kamal's age was 5 times the then age of Vishnu, then find the present age (in years) of Vishnu.

- Ans**
- ☒ A. 10
  - ☒ B. 15
  - ☒ C. 20
  - ☒ D. 14

**Q.2** A show ticket costs ₹7.50 for a parent and ₹3 for a child. If a total of ₹5,925 is collected by selling 952 tickets in all, then find the number of children's tickets sold.

- Ans**
- ☒ A. 682
  - ☒ B. 300
  - ☒ C. 270
  - ☒ D. 500

**Q.3** A sum of money triples itself at a certain rate of compound interest in 10 years. In how many years will it amount to 9 times of itself?

- Ans**
- ☒ A. 15 years
  - ☒ B. 20 years
  - ☒ C. 25 years
  - ☒ D. 30 years

**Q.4** Vishnu scored X runs in his 10<sup>th</sup> innings. After scoring those runs, his average per innings increased by 8 runs. If the new average is 28, then find the value of X.

- Ans**
- ☒ A. 110
  - ☒ B. 105
  - ☒ C. 100
  - ☒ D. 90

**Q.5** The sum of two numbers is 205. If one of these numbers is reduced by 5% and the other is increased by 10%, the resulting numbers are equal to each other. Find the smaller of the two initial numbers.

- Ans** ☒ A. 95  
☐ B. 110  
☐ C. 100  
☐ D. 105

**Q.6** Find the area of a triangle whose sides measure 42 cm, 36 cm and 34 cm, respectively.

- Ans** ☒ A.  $56\sqrt{110}\text{ cm}^2$   
☐ B.  $112\sqrt{110}\text{ cm}^2$   
☐ C.  $28\sqrt{55}\text{ cm}^2$   
☐ D.  $14\sqrt{55}\text{ cm}^2$

**Q.7** Find the value of n, when  $2^{-7} \times 2^{3n+4} = 2^{11} \div 2^5$ .

- Ans** ☐ A. 2  
☐ B. 4  
☐ C. 5  
☒ D. 3

**Q.8** A shopkeeper finds that when he sells one kind of rice at ₹50 per kg he loses 20% and when he sells another kind of rice at ₹72 per kg he gains 20%. If he mixes them in the ratio 3 : 2 and sells the mixture at ₹64 per kg., then what is his overall gain percentage (correct to one decimal place)?

- Ans** ☒ A. 4.1%  
☐ B. 4.5%  
☐ C. 5.4%  
☐ D. 5.6%

**Q.9** In  $\triangle ABC$ ,  $\overline{AD}$  bisects  $\angle A$  and D is a point on  $\overline{BC}$ . If  $m(\overline{AC}) = 4.2$  cm,  $m(\overline{BD}) = 4$  cm and  $m(\overline{BC}) = 7$  cm, then find  $m(\overline{AB})$ .

- Ans** ☐ A. 5.2 cm  
☒ B. 5.6 cm  
☐ C. 4.8 cm  
☐ D. 4.2 cm

**Q.10** At present, the difference of the ages of a mother and son is 30 years. 15 years ago, the mother's age was twice the then age of the son. The present age (in years) of the mother is:

- Ans** ☒ A. 75  
☐ B. 45  
☐ C. 60  
☐ D. 90

**Q.11** A shopkeeper offers a scheme of either selling articles at successive discounts of 30% and 20% or one where a customer can "buy 2, get 1 free". The positive difference in overall nominal percentage discounts offered in the two schemes is:

- Ans**
- ✓ A.  $10\frac{2}{3}\%$
  - ✗ B.  $11\frac{2}{3}\%$
  - ✗ C.  $10\frac{1}{3}\%$
  - ✗ D.  $11\frac{1}{3}\%$

**Q.12** Train A leaves station M at 6.00 a.m. and reaches station N at 2.00 p.m. on the same day. Train B leaves station N at 8.00 a.m. and reaches station M at 3.00 p.m. on the same day. Find the time when Trains A and B meet.

- Ans**
- ✓ A. 10.48 a.m.
  - ✗ B. 11.00 a.m.
  - ✗ C. 10.55 a.m.
  - ✗ D. 10.45 a.m.

**Q.13** The LCM of 62 and 30 is:

- Ans**
- ✗ A. 310
  - ✗ B. 9300
  - ✓ C. 930
  - ✗ D. 1860

**Q.14** Which of the following is divisible by 4?

- Ans**
- ✗ A. 2122
  - ✗ B. 2123
  - ✓ C. 2124
  - ✗ D. 2125

**Q.15** If  $\frac{5}{2}$  is a root of the equation  $4x^2 - mx + 25 = 0$ , then the value of  $m$  is:

- Ans**
- ✓ A. 20
  - ✗ B. 25
  - ✗ C. 50
  - ✗ D. 10

**Q.16** Which is the smallest fraction among the options given below?

- Ans**
- ✗ A.  $\frac{1981}{150}$
  - ✗ B.  $\frac{1981}{153}$
  - ✗ C.  $\frac{1981}{152}$
  - ✓ D.  $\frac{1981}{155}$



**Q.17** Find the measure of each interior angle of a regular hexagon.

- Ans**
- ☐ A.  $135^\circ$
  - ☐ B.  $45^\circ$
  - ☐ C.  $80^\circ$
  - ☒ D.  $120^\circ$

**Q.18** Find the value of  $(3 + 11) \times 4 \div (6 + 1) - 21$ .

- Ans**
- ☐ A. 15
  - ☐ B. -15
  - ☒ C. -13
  - ☐ D. 13

**Q.19** In a right-angled triangle ABC, right-angled at B, if  $\tan A = \frac{1}{\sqrt{3}}$ , the value of  $(\sin A \cos C + \cos A \sin C)$  is:

- Ans**
- ☐ A.  $\frac{1}{4}$
  - ☐ B.  $\frac{1}{2}$
  - ☐ C.  $\frac{3}{4}$
  - ☒ D. 1

**Q.20** The volume of a right circular cylinder is  $814 \text{ cm}^3$ . If the radius and the height of the cylinder are equal, find the height (in cm) of the cylinder.

(Use  $\pi = \frac{22}{7}$ )

- Ans**
- ☐ A.  $\sqrt[3]{259}$
  - ☒ B.  $\sqrt[3]{259}$
  - ☐ C.  $\sqrt[3]{295}$
  - ☐ D.  $2\sqrt[3]{259}$

**Q.21** The LCM of two numbers is 14 times their HCF. If one of the numbers is 36 and the sum of the LCM and the HCF is 270, then the other number is:

- Ans**
- ☐ A. 144
  - ☒ B. 126
  - ☐ C. 252
  - ☐ D. 234

**Q.22** The sum of a number and its reciprocal is -2. Find the quadratic equation associated with the situation and also the number.

- Ans**
- ☒ A.  $x^2 + 2x + 1 = 0, x = -1$
  - ☐ B.  $x^2 - 2x + 1 = 0, x = -1$
  - ☐ C.  $x^2 + 2x + 1 = 0, x = 1$
  - ☐ D.  $x^2 + 2x - 1 = 0, x = -1$

**Q.23** A and B can do a piece of work in 9 days and 12 days, respectively. A starts the work and they work on alternate days. They can finish the work in:

- Ans**
- ☒ A. 11 days
  - ☒ B.  $11\frac{1}{4}$  days
  - ☒ C.  $10\frac{2}{7}$  days
  - ☒ D.  $10\frac{1}{4}$  days

**Q.24** A sum of ₹150 is divided into two parts. The first part is ₹2 more than three times the second part. Find the second part.

- Ans**
- ☒ A. ₹113
  - ☒ B. ₹37
  - ☒ C. ₹115
  - ☒ D. ₹35

**Q.25** If  $48 : b :: b : 75$ , and  $b > 0$ , find the value of  $b$ .

- Ans**
- ☒ A. 55
  - ☒ B. 60
  - ☒ C. 65
  - ☒ D. 70

#### Section : General Intelligence and Reasoning

**Q.26** If 2 is added to each odd digit and 1 is subtracted from each even digit in the number 94387251, what will be the sum of the first, fifth and last digits in the new number thus formed?

- Ans**
- ☒ A. 12
  - ☒ B. 10
  - ☒ C. 11
  - ☒ D. 14

**Q.27** Given below are two letter-cluster pairs in which the second letter-cluster is related to the first letter-cluster following a certain logic. Select the letter-cluster pair from among the options that follows the same logic.

CPG : PGC

TJM : JMT

- Ans**
- ☒ A. UQK : KQU
  - ☒ B. UQK : QUK
  - ☒ C. UQK : QKV
  - ☒ D. UQK : QKU

**Q.28** Consider the given statement and decide which of the given assumptions is/are implicit in the statement.

Statement:

During winters, the sky is very clear at night.

Assumptions:

- I. The sun sets early in the winter months.
- II. During winter, it even rains.

- Ans**
- ☒ A. Only assumption I is implicit
  - ☒ B. Only assumption II is implicit
  - ☒ C. Neither assumptions I nor II is implicit
  - ☒ D. Both assumptions I and II are implicit

**Q.29** Which of the following options is the closest approximate value which will come in place of the question mark (?) in the following equation?

$$18.01 \times 3.99 + 9.99 \times 3.99 = ?$$

- Ans**
- ☒ A. 92
  - ☒ B. 112
  - ☒ C. 84
  - ☒ D. 122

**Q.30** Seven people (E, F, G, H, I, J and K), are sitting in a straight row, facing north. Only three people sit between E and I. Only two people sit to the right of J. E sits third to the left of J. H is an immediate neighbour of E and G. K is not an immediate neighbour of E. Who sits in the exact middle position of the row?

- Ans**
- ☒ A. G
  - ☒ B. H
  - ☒ C. J
  - ☒ D. I

**Q.31** H, N, P, T, W and Y live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 6. H lives on an odd numbered floor but not on floor number 3. Only two people live between H and N. P lives on an odd numbered floor above N. Only two people live between P and T. Neither T nor W live on the topmost floor. How many people live below T?

- Ans**
- ☒ A. More than three
  - ☒ B. Three
  - ☒ C. Two
  - ☒ D. One

**Q.32** Three statements are given followed by two conclusions numbered I and II. You have to take the statements to be true, even if they seem to be at variance with commonly known facts and decide which of the conclusions logically follow(s) from the statements.

**Statements:**

Some Lipsticks are Red.

Some Red are Pink.

All Lipsticks are Colours.

**Conclusions:**

(I) Some Lipsticks are Pink.

(II) Some Colours are Red.

- Ans**
- ☒ A. Only conclusion (I) follows.
  - ☒ B. Only conclusion (II) follows.
  - ☒ C. Both conclusions (I) and (II) follow.
  - ☒ D. Neither conclusion (I) nor (II) follows.

**Q.33** Select the option that represents the letters that, when placed from left to right in the blanks below, will complete the letter series.

E \_ F G \_ E \_ F G H E \_ G G H \_ F G H \_

- Ans**
- ☒ A. EFHHFH
  - ☒ B. EGFHFF
  - ☒ C. EHFFE H
  - ☒ D. EHFGEH

**Q.34** A group of numbers/symbols is coded using letters as per the table given below and the conditions that follow. The correct combination of codes following the conditions is your answer.

| Number /symbol | 2 | % | 4 | 3 | 5 | \$ | @ | 9 | # | + | 8 | ^ | 7 | 9 |
|----------------|---|---|---|---|---|----|---|---|---|---|---|---|---|---|
| Code Letter    | L | D | B | S | G | A  | H | K | L | Z | F | X | Q | Y |

Conditions:

- (i) If the first element is a symbol and the last element is a number, the codes for these two (the first and the last elements) are to be interchanged.
- (ii) If the first element is an odd number and the last element is an even number, the first and last elements are to be coded as ©.
- (iii) If both the second and third elements are perfect squares, the third element is to be coded as the code for the second element.

What will be the code for \$ 2 3 % 4 ?

- Ans**
- ☒ A. BLDSA
  - ☒ B. ASLDB
  - ☒ C. ALSDB
  - ☒ D. BLSDA

**Q.35** How many such pairs of letters are there in the word **PLATE** (in both forward and backward directions) which have as many letters between them in the word as there are in the English alphabetical order?

- Ans**
- ☒ A. None
  - ☒ B. One
  - ☒ C. Two
  - ☒ D. Three

**Q.36** H, N, P, T, W and Y live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 6. H lives on one of the floors above floor number 4. Only three people live between H and N. P lives immediately above N. Only three people live between P and T. W lives on one of the odd numbered floors below T. Who lives immediately above Y?

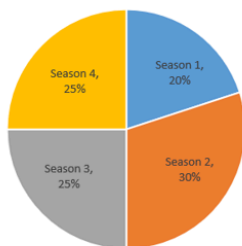
- Ans**
- ☒ A. T
  - ☒ B. W
  - ☒ C. H
  - ☒ D. N

**Q.37** If today is Monday the 22nd of January 2020, then what date and day will it be after 100 days from today?

- Ans**
- ☒ A. 1 May 2020, Monday
  - ☒ B. 2 May 2020, Wednesday
  - ☒ C. 3 May 2020, Thursday
  - ☒ D. 1 May 2020, Wednesday

**Q.38** Study the given pie-chart and answer the following question.

The given pie chart depicts the number of episodes watched of four different seasons (1, 2, 3 and 4). The total number of episodes watched of the four seasons together is 60.



What is the central angle corresponding to the number of episodes watched of season 3?

- Ans**
- ✓ A.  $90^\circ$
  - ✗ B.  $80^\circ$
  - ✗ C.  $108^\circ$
  - ✗ D.  $84^\circ$

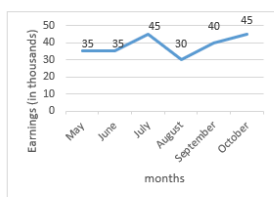
**Q.39** Six students, A, B, C, D, E and F, participated in one of the International Mathematics Olympiad. Each of them scored different marks. C scored more than D but less than B. E scored less than A. B scored more than A but less than F. C scored less than E. Who scored the maximum marks among the given students?

- Ans**
- ✓ A. F
  - ✗ B. B
  - ✗ C. A
  - ✗ D. E

**Q.40** In a class test, a certain number of students got different ranks based on their marks. Vivek is ranked 12<sup>th</sup> from the top and 15<sup>th</sup> from the bottom. How many total students gave the test?

- Ans**
- ✗ A. 27
  - ✗ B. 32
  - ✓ C. 26
  - ✗ D. 35

**Q.41** The following graph shows the earnings of Mr. Rajesh from his grocery shop, over the months. Study the graph and answer the question.



What is the respective ratio of the total earnings in May, June and July together to the total earnings in August, September and October together?

- Ans**
- ✓ A. 1 : 1
  - ✗ B. 2 : 1
  - ✗ C. 11 : 21
  - ✗ D. 1 : 2

**Q.42** Vinny starts from Point A and drives 8 km towards the east. He then takes a right turn, drives 9 km, turns left and drives 12 km. He then takes a left turn and drives 17 km. He takes a final left turn, drives 20 km and stops at Point B. How far and towards which direction should he drive in order to reach Point A from Point B? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 4 km towards the east
  - ☒ B. 6 km towards the north
  - ☒ C. 8 km towards the south
  - ☒ D. 2 km towards the south

**Q.43** Refer to the following letter, number, symbol series and answer the question.

(Left) Z & U P # 2 9 ! 3 B @ 7 4 S L 5 T 8 5 \* X (Right)

If all the numbers are dropped from the series, which of the following will be tenth from the left?

- Ans**
- ☒ A. L
  - ☒ B. \*
  - ☒ C. T
  - ☒ D. S

**Q.44** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. EXAMPLE: 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(4, 11, 31)

(3, 9, 25)

- Ans**
- ☒ A. (5, 13, 29)
  - ☒ B. (7, 11, 35)
  - ☒ C. (6, 15, 43)
  - ☒ D. (2, 8, 19)

**Q.45** A statement is given followed by four conclusions. Find out which conclusion is true based on the given statement.

Statement:  $P < Q < R \leq S = T \leq U$

**Conclusions:**

- 1)  $Q \leq T$
- 2)  $T > U$
- 3)  $Q \leq U$
- 4)  $S \leq U$

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.46** This question is based on the five, three-digit numbers given below.

(Left) 567 243 186 689 427 (Right)

(Example- 123 – First digit = 1, second digit = 2 and third digit = 3)

NOTE - All operations to be done from left to right.

What will be the resultant if the first digit of the second greatest number is added to the third digit of the smallest number?

**Ans** ☒ A. 10

☒ B. 11

☒ C. 12

☒ D. 13

**Q.47** Eight friends are sitting around a square table facing the centre. Four of them are sitting at the corners and remaining four are sitting at the exact middle of the four sides. Arhaan is sitting to the immediate left of Sunita. Hari is sitting fourth to the left of Tarini. Tarini is second to the left of Arhaan. Only Daisy is sitting between Tarini and Neelima. Only Prashant is sitting between Hari and Neelima. Yash is sitting fourth to the left of Prashant. Who amongst the following has Tarini and Arhaan as the immediate neighbours?

**Ans** ☒ A. Neelima

☒ B. Yash

☒ C. Daisy

☒ D. Prashant

**Q.48** If 2 is multiplied to each odd digit and 1 is added to each even digit in the number 6311624, what will be the difference between the largest of the digits and the smallest of the digits thus formed?

**Ans** ☒ A. 3

☒ B. 4

☒ C. 6

☒ D. 5

**Q.49** Which of the following numbers will replace the question mark (?) in the given series?

2    1.5    1.1    0.8    0.6    ?

**Ans** ☒ A. 0.4

☒ B. 0.5

☒ C. 0.6

☒ D. 0.3

**Q.50** Town Q is to the south-east of Town P. Town R is to the south-west of Town Q. Town R is to the south of Town P. Town S is to the west of Town R. What is the direction of Town P with respect to Town S?

**Ans** ☒ A. South-west

☒ B. North

☒ C. South-east

☒ D. North-east

**Q.51** Which of the following numbers will replace the question mark (?) in the given number series?

87, 88, 80, 107, 43, ?

**Ans** ☒ A. 168

☒ B. 70

☒ C. 126

☒ D. 98

**Q.52** Three statements are given followed by two conclusions numbered I and II. You have to take the statements to be true, even if they seem to be at variance with commonly known facts and decide which of the conclusions logically follow(s) from the statements.

**Statements:**

Some Watches are Clocks.  
All Clocks are Towers.  
All Towers are Bricks.

**Conclusions:**

(I) Some Bricks are Watches.  
(II) All Clocks are Bricks.

- Ans**
- ☒ A. Only conclusion (I) follows.
  - ☒ B. Only conclusion (II) follows.
  - ☒ C. Both conclusions (I) and (II) follow.
  - ☒ D. Neither conclusion (I) nor (II) follows.

**Q.53** Select the option that is related to the third term in the same way as the second term is related to the first term and the sixth term is related to the fifth term.

48 : 16 :: 96 : ? :: 108 : 21

- Ans**
- ☒ A. 20
  - ☒ B. 22
  - ☒ C. 21
  - ☒ D. 23

**Q.54** Three statements are given followed by two conclusions numbered I and II. You have to take the statements to be true, even if they seem to be at variance with commonly known facts and decide which of the conclusions logically follow(s) from the statements.

**Statements:**

Some Pots are Mud.  
Some Flowers are Mud.  
All Mud are Worms.

**Conclusions:**

(I) Some Flowers are Worms.  
(II) Some Pots are Flowers.

- Ans**
- ☒ A. Only conclusion (I) follows.
  - ☒ B. Only conclusion (II) follows.
  - ☒ C. Both conclusions (I) and (II) follow.
  - ☒ D. Neither conclusion (I) nor (II) follows.

**Q.55** In a certain code language, 'ANGRY' is coded as 'CKIOA' and 'THINK' is coded as 'VEKKM'. How will 'CROWN' be coded in that language?

- Ans**
- ☒ A. FPRUQ
  - ☒ B. EPRTQ
  - ☒ C. EOQTP
  - ☒ D. FOQUP

Section : General Science



**Q.56** The ideal waste disposal method in case of metal is:

- Ans**
- ☐ A. incineration
  - ☐ B. composting
  - ☒ C. recycling
  - ☐ D. reusing

**Q.57** According to right hand thumb rule, \_\_\_\_\_ represent(s) the direction of current.

- Ans**
- ☒ A. the thumb
  - ☐ B. the middle finger
  - ☐ C. the little finger
  - ☐ D. the fore finger

**Q.58** An object is placed in front of a concave lens of focal length 15 cm and an image is formed at 7.5 cm. Then the magnification of the lens is:

- Ans**
- ☐ A. 1.25
  - ☒ B. 0.50
  - ☐ C. 0.75
  - ☐ D. 1.5

**Q.59** Which of the following acid-base pairs will produce a salt of ammonium chloride?

- Ans**
- ☐ A. HCl - NaOH
  - ☒ B. HCl - NH<sub>4</sub>OH
  - ☐ C. HNO<sub>3</sub> - NH<sub>4</sub>OH
  - ☐ D. H<sub>2</sub>SO<sub>4</sub> - NH<sub>4</sub>OH

**Q.60** A perfect pair of sex chromosomes is found in:

- Ans**
- ☐ A. snakes
  - ☐ B. starfish
  - ☒ C. human women
  - ☐ D. human men

**Q.61** A 12 V battery is connected across an unknown resistor. If a current of 2 mA is flowing through the circuit, the value of the resistance is \_\_\_\_\_.

- Ans**
- ☐ A. 6 ohm
  - ☐ B. 60 ohm
  - ☐ C. 600 ohm
  - ☒ D. 6000 ohm

Q.62 The following is the data for an image formed by a convex mirror:

Object distance = 30 cm,

Size of object = 10 cm,

Size of image = 2.5 cm,

The focal length of this mirror is \_\_\_\_\_.

Ans ☒ A. 10 cm

☐ B. 20 cm

☐ C. 15 cm

☐ D. 30 cm

Q.63 Regulating the natural flow of a river by building large dams affects agriculture in downstream regions by \_\_\_\_\_.

Ans ☐ A. lowering the water table due to reduced water flow

☒ B. blocking annual deposits of mineral rich sediment from floods

☐ C. making the water salty due to reduced water supply

☐ D. preventing the recharging of ground water during monsoons

Q.64 Precipitation reactions are a specific class of \_\_\_\_\_.

Ans ☐ A. Decomposition reactions

☒ B. double displacement reactions

☐ C. combination reactions

☐ D. redox reactions

Q.65 Which of the following statements about carbon is correct?

Ans ☒ A. Carbon is non-metal in nature.

☐ B. Carbon is metal in nature.

☐ C. Carbon is metalloid in nature.

☐ D. Carbon is a noble gas.

Q.66 Frogs have a pair of lungs like human beings but they can also breathe through their:

Ans ☐ A. spiracles

☐ B. tracheae

☒ C. slippery and moist skin

☐ D. gills

Q.67 Arrange the following metals in the correct order of reactivity.

K, Al, Fe, Au, Pb

Ans ☐ A.  $K > Al > Pb > Fe > Au$

☐ B.  $K > Fe > Al > Pb > Au$

☒ C.  $K > Al > Fe > Pb > Au$

☐ D.  $K > Al > Fe > Au > Pb$

**Q.68** A beam of light after passing through a concave lens appears to diverge from a point 25 cm behind the lens. The power of the lens is

**Ans**

- ☒ A. + 4 D
- ☒ B. - 0.25 D
- ☒ C. - 4 D
- ☒ D. + 0.25 D

**Q.69** The symbol for resistance (R) is denoted with \_\_\_\_\_.

**Ans**

- ☒ A. 
- ☒ B. 
- ☒ C. 
- ☒ D. 

**Q.70** An adult human being has only \_\_\_\_\_ incisors in his/her mouth.

**Ans**

- ☒ A. four
- ☒ B. eight
- ☒ C. ten
- ☒ D. twelve

**Q.71** Which of the following processes does NOT occur during photosynthesis?

**Ans**

- ☒ A. Absorption of light energy
- ☒ B. Absorption of oxygen
- ☒ C. Reduction of carbon dioxide
- ☒ D. Splitting of water molecules

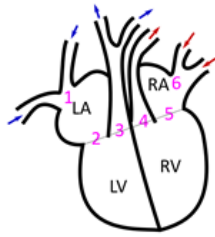
**Q.72** Which of the following statements is/are correct?

- A) Classification is necessary in order to compare the physical and chemical properties of the elements.
- B) Classification is necessary to arrange the same kind of elements in the same group.
- C) Classification is necessary to arrange the different kinds of elements in the same group.

**Ans**

- ☒ A. Only A
- ☒ B. Only A and B
- ☒ C. A, B and C
- ☒ D. Only B and C

- Q.73** The following figure shows the human heart. LA = left auricle; LV = left ventricle; RA = right auricle; RV = right ventricle. Where are the valves located?



- Ans**
- ☒ A. At positions 1, 2, 4 and 6
  - ☒ B. At positions 2, 3, 4 and 5
  - ☒ C. At positions 4, 5 and 6
  - ☒ D. At all positions: 1, 2, 3, 4, 5 and 6

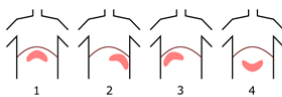
- Q.74** The valency of carbon is \_\_\_\_.

- Ans**
- ☒ A. 3
  - ☒ B. 4
  - ☒ C. 2
  - ☒ D. 6

- Q.75** The resistivity of a material of length 5 m is  $1.6 \times 10^{-8}$  ohm-m. If the length of the material is increased by 10 m, then the value of resistivity is \_\_\_\_.

- Ans**
- ☒ A.  $3.2 \times 10^{-8}$
  - ☒ B.  $1.6 \times 10^{-8}$
  - ☒ C.  $0.8 \times 10^{-8}$
  - ☒ D.  $12.4 \times 10^{-8}$

- Q.76** Which figure shows the correct location of the liver (shown as the pink shape) in the human body (given that the person is facing you, the reader)?



- Ans**
- ☒ A. Figure 1
  - ☒ B. Figure 2
  - ☒ C. Figure 3
  - ☒ D. Figure 4

- Q.77** In accordance to Fleming's left hand rule used to find the direction of force on a current carrying conductor placed inside a magnetic field, the centre finger and the index finger represent the directions of \_\_\_\_\_ and \_\_\_\_\_, respectively.

- Ans**
- ☒ A. force, magnetic field
  - ☒ B. magnetic field, force
  - ☒ C. magnetic field, current
  - ☒ D. current, magnetic field

**Q.78** According to Newland's Law of Octaves, every \_\_\_\_\_ element had properties similar to that of the first element

- Ans**
- ☒ A. sixth
  - ☒ B. seventh
  - ☒ C. eighth
  - ☒ D. fourth

**Q.79** Which gas is produced during electrolysis of brine, that burns with a pop sound?

- Ans**
- ☒ A.  $H_2$
  - ☒ B.  $Cl_2$
  - ☒ C.  $N_2$
  - ☒ D.  $O_2$

**Q.80** Which of the following statements is/are true regarding the centre of curvature of a spherical mirror?

(S - I) The centre of curvature (C) of a spherical mirror is the centre of the sphere of which the mirror is a cut part.

(S - II) The aperture (D) of a spherical mirror is the diameter of the sphere of which the mirror is a cut part.

(S - III) The principal focus (F) is strictly the mid-point between the pole (P) and the centre of curvature (C) of a spherical mirror.

- Ans**
- ☒ A. (S - I) only
  - ☒ B. (S - I) and (S - II) only
  - ☒ C. (S - I) and (S - III) only
  - ☒ D. (S - I), (S - II) and (S - III)

#### Section : General Awareness and Current Affairs

**Q.81** In Jainism, who is a Tirthankara?

- Ans**
- ☒ A. A person who never believes in God.
  - ☒ B. A person who believes in one God and one spirit and believes in rebirth.
  - ☒ C. A group of pilgrims.
  - ☒ D. A saviour and spiritual teacher of the dharma who teaches the way to moksha, or liberation.

**Q.82** Under The National Air Sports Policy 2022 there will be \_\_\_\_\_-tier governance structure for air sports in India.

- Ans**
- ☒ A. Four
  - ☒ B. Three
  - ☒ C. Two
  - ☒ D. Six

**Q.83** In February 2022, which service provider announced that it will land its next generation multi-terabit India-Asia-Xpress (IAX) undersea cable system in Hulhumale, Maldives?

- Ans**
- ☒ A. Vodafone Idea Limited
  - ☒ B. Reliance Communications Limited
  - ☒ C. Reliance Jio Infocomm Limited
  - ☒ D. Bharti Airtel Limited

**Q.84** Which incident intensified British control over India's foreign trade?

- Ans**
- ✓ **A.** Opening of Suez Canal
  - ✗ **B.** Building railways
  - ✗ **C.** Drainage of Indian wealth
  - ✗ **D.** British's monopoly on foreign trade

**Q.85** In March 2022, under the project of setting up health clinics in schools, a health clinic at a government school that will focus on the physical and mental well-being of students was inaugurated in which state of India?

- Ans**
- ✗ **A.** West Bengal
  - ✗ **B.** Punjab
  - ✓ **C.** Delhi
  - ✗ **D.** Andhra Pradesh

**Q.86** Which of the following events is known as the Calcutta killings?

- Ans**
- ✗ **A.** Bengal satyagraha
  - ✗ **B.** Quit India movement
  - ✓ **C.** Direct action day
  - ✗ **D.** Salt satyagraha

**Q.87** The Ministry of Women and Child Development, Government of India, celebrated the International Women's Day week from \_\_\_\_\_ 2022 as an 'Iconic Week' as a part of 'Azadi Ka Amrit Mahotsav'.

- Ans**
- ✗ **A.** 8 to 15 March
  - ✓ **B.** 1 to 8 March
  - ✗ **C.** 15 to 22 March
  - ✗ **D.** 22 to 28 March

**Q.88** Which of the following is NOT one of the determinants of demand?

- Ans**
- ✗ **A.** Price of goods
  - ✗ **B.** Future expectation to change in price
  - ✓ **C.** Taste and preference of seller
  - ✗ **D.** Income of consumer

**Q.89** In \_\_\_\_\_ it was decided by the Indian Government to proclaim Indian Languages meeting certain requirements as "Classical Language".

- Ans**
- ✓ **A.** 2004
  - ✗ **B.** 2006
  - ✗ **C.** 2008
  - ✗ **D.** 2010

**Q.90** Which of the following statements is NOT true?

- Ans**
- ✗ **A.** In the short run, a firm cannot vary all the inputs.
  - ✗ **B.** One of the factors cannot be varied, and therefore, remain fixed in the short run.
  - ✗ **C.** In the long run, all factors of production can be varied.
  - ✓ **D.**
- A firm, in order to produce different levels of output in the long run may not vary one of the inputs.

**Q.91** Who among the following was one of the recipients of the Major Dhyan Chand Khel Ratna Award 2021?

- Ans**
- ☐ A. Mary Kom
  - ☐ B. Jwala Gutta
  - ☐ C. Virat Kohli
  - ☒ D. Neeraj Chopra

**Q.92** Subject Expert Committee (SEC) on COVID-19, India, has recommended which of the following vaccines for phase II/III clinical trial in the age group 2 to 18 Years in May 2021?

- Ans**
- ☐ A. Sputnik light vaccine
  - ☒ B. Covaxin
  - ☐ C. Corbevax
  - ☐ D. Covishield

**Q.93** Article \_\_\_\_\_ of the Constitution which enshrines one of the Directive Principles of State Policy, lays down that the State shall take steps to organise village panchayats and endow them with such powers and authority as may be necessary to enable them to function as units of self-government.

- Ans**
- ☐ A. 31
  - ☐ B. 37
  - ☒ C. 40
  - ☐ D. 48

**Q.94** Lokapavani and Bhavani are tributaries of the River \_\_\_\_\_.

- Ans**
- ☒ A. Cauvery
  - ☐ B. Krishna
  - ☐ C. Mahanadi
  - ☐ D. Godavari

**Q.95** Which Five-Year Plan emphasised the setting up of Basic and Heavy Industries so as to establish a strong base for rapid industrialisation, self-reliance, and technological development?

- Ans**
- ☐ A. Third Five-Year Plan
  - ☒ B. Second Five-Year Plan
  - ☐ C. Fourth Five-Year Plan
  - ☐ D. First Five-Year Plan

**Q.96** According to clause (2) of \_\_\_\_\_ of the Constitution of India, the President of India appoints the Chief Justice of India.

- Ans**
- ☐ A. Article 118
  - ☐ B. Article 121
  - ☒ C. Article 124
  - ☐ D. Article 127



**Q.97** Which of the following statements about fundamental duties of the Indian Constitution is correct?

- Ans**
- ✓ **A.** To make compulsory education to children of 6 to 14 years as our fundamental duty
  - ✗ **B.** To obey parents is a fundamental duty
  - ✗ **C.** To preserve the biodiversity is a fundamental duty
  - ✗ **D.** To save money for future is a fundamental duty

**Q.98** Rama Navami is a Hindu spring festival that commemorates God Rama's birthday, which is usually comes in the month of \_\_\_\_\_.

- Ans**
- ✗ **A.** June
  - ✓ **B.** April
  - ✗ **C.** July
  - ✗ **D.** August

**Q.99** What is the habitat of the Musk Deer?

- Ans**
- ✗ **A.** Thar desert
  - ✗ **B.** Western Ghat
  - ✓ **C.** High alpine environments above altitudes of 2500 m
  - ✗ **D.** Plains of the Ganga below altitudes of 500 m

**Q.100** Which of the following mountains and states/UT is NOT correct matched?

- Ans**
- ✗ **A.** Kanchenjunga – Sikkim
  - ✗ **B.** Nandadevi – Uttarakhand
  - ✗ **C.** Saser Kangari – Ladakh
  - ✓ **D.** K2 mountain – Himachal Pradesh





# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 06/10/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** In 10 years A will be twice as old as B was 10 years ago. If A is 9 years older than B, then the present age of A is:

- Ans**
- ☒ A. 39 years
  - ☒ B. 48 years
  - ☒ C. 13 years
  - ☒ D.  $21\frac{1}{2}$  years

**Q.2**  $\sqrt{8836} + \sqrt{6084} - \sqrt{1849}$  equals:

- Ans**
- ☒ A. 121
  - ☒ B. 129
  - ☒ C. 162
  - ☒ D. 126

**Q.3** The difference between the ages of a father and son is 35 years. Five years from now the father's age would be double that of the son's age. What is the son's present age?

- Ans**
- ☒ A. 25 years
  - ☒ B. 20 years
  - ☒ C. 15 years
  - ☒ D. 30 years

**Q.4** The value of  $(x^{\frac{2}{3}} - x^{\frac{-2}{3}})(x^{\frac{4}{3}} + 1 + x^{\frac{-4}{3}})$  is \_\_\_\_\_.

- Ans**
- ☒ A. 0
  - ☒ B.  $\frac{1}{x^2}$
  - ☒ C.  $x^2$
  - ☒ D.  $x^2 - \frac{1}{x^2}$

**Q.5** If  $a = (0.\overline{29} \div 0.3\overline{2}) \times (0.\overline{2} \div 0.\overline{15}) + 0.\overline{3}$ , then the value of a is:

**Ans**

☒ A.  $1\frac{1}{3}$

☒ B.  $2\frac{1}{3}$

☒ C.  $1\frac{2}{3}$

☒ D.  $3\frac{2}{3}$

**Q.6** A and B are emptying pipes and C is a filling pipe. Pipes A and B can empty a full tank in 15 hours and 18 hours, respectively. When all three pipes are opened together, it takes  $1\frac{1}{4}$  hours to empty  $\frac{1}{9}$  part of the tank. In how many hours can pipe C alone fill  $\frac{2}{3}$  part of the tank?

**Ans**

☒ A. 18

☒ B. 20

☒ C. 25

☒ D. 30

**Q.7** Aruna bought 8 bananas for ₹25 and sold 6 bananas for ₹20. What is her profit or loss percentage?

**Ans**

☒ A.  $6\frac{1}{3}\%$  loss

☒ B.  $6\frac{2}{3}\%$  profit

☒ C.  $3\frac{2}{3}\%$  profit

☒ D.  $5\frac{2}{3}\%$  loss

**Q.8** MNOP is a quadrilateral in which each of its angles is a right angle. Side MN equals side PO and side MP equals side NO and its both diagonals do not intersect at  $90^\circ$ . What type of quadrilateral is MNOP?

**Ans**

☒ A. Kite

☒ B. Rhombus

☒ C. Square

☒ D. Rectangle

**Q.9** The median of the data 9, 12, 11, 8, 16, 18, 10, 14, 15, 13, 17, 20, 2, 24 is x. If 2 and 8 are replaced by 21 and 18 in this data, respectively, then the median of the data so obtained is y. What is the value of  $(3x - y)$ ?

**Ans**

☒ A. 23.5

☒ B. 24.5

☒ C. 25

☒ D. 26

**Q.10** The LCM of two numbers is 20 times their HCF and their HCF is 213. If one of the two numbers is divided by 225, the quotient is 4 and the remainder is 165. The other number is:

**Ans**

☒ A. 426

☒ B. 639

☒ C. 852

☒ D. 1065

**Q.11** Pipe A can fill a tank in 8 hours. Pipes B and C can empty the full tank in 20 hours and 15 hours, respectively. Pipes A and B are opened together for 5 hours, and then B is closed, and C is opened instantly. The tank will be full in a total time of:

- Ans**
- ☒ A.  $10\frac{5}{7}$  hours
  - ☒ B.  $11\frac{2}{7}$  hours
  - ☒ C.  $10\frac{3}{7}$  hours
  - ☒ D.  $15\frac{5}{7}$  hours

**Q.12** If  $4a + 3b = 2c$ , then find  $(4a)^3 + (3b)^3 + (-2c)^3$ .

- Ans**
- ☒ A.  $-72abc$
  - ☒ B.  $72abc$
  - ☒ C. 0
  - ☒ D. 1

**Q.13** Let  $0.\overline{27} + 3.\overline{2} = x$ , where  $x$  is a proper fraction in the simplest form. Then the sum of the numerator and the denominator of  $x$  is:

- Ans**
- ☒ A. 296
  - ☒ B. 340
  - ☒ C. 342
  - ☒ D. 346

**Q.14** Two numbers  $a$  and  $b$  are such that  $a : 24 :: 24 : b$ , and  $a : b :: b : 192$ . Find the value of  $(a + b)$ .

- Ans**
- ☒ A. 48
  - ☒ B. 54
  - ☒ C. 60
  - ☒ D. 72

**Q.15**  $\frac{3-4\sin^2\theta}{\cos^2\theta}$  can be simplified as:

- Ans**
- ☒ A.  $3 - \tan^2\theta$
  - ☒ B.  $3 + \tan^2\theta$
  - ☒ C.  $3\cot^2\theta - \tan^2\theta$
  - ☒ D.  $3\cos^2\theta - 4\sec^2\theta$

**Q.16** A metallic sphere of radius 10.5 cm is melted and then recast into small spheres, each of radius 3.5 cm. Find the number of small spheres thus obtained.

- Ans**
- ☒ A. 32
  - ☒ B. 30
  - ☒ C. 27
  - ☒ D. 72

**Q.17** If the interest earned during the 2<sup>nd</sup> year on a certain sum is ₹2,761, and the rate of interest is 10% per annum compounded annually, then the sum is:

- Ans**
- ☒ A. ₹21,500
  - ☒ B. ₹26,100
  - ☒ C. ₹25,100
  - ☒ D. ₹25,150

**Q.18** Which of the numbers given below is divisible by 11?

- Ans**
- ☒ A. 359247615447536920
  - ☒ B. 359247615447536915
  - ☒ C. 359247615447536923
  - ☒ D. 35924761544753698

**Q.19** A trader owes a merchant ₹12,500 due in one year. However, the trader wants to settle the amount after 6 months. If the rate of interest is 8% per annum, then how much money should he pay? (Give your answer correct to the nearest whole number value.)

- Ans**
- ☒ A. ₹12,019
  - ☒ B. ₹10,219
  - ☒ C. ₹12,091
  - ☒ D. ₹10,291

**Q.20** If the mean and mode of a particular data are 12 and 21, respectively, then using empirical relation, find the median.

- Ans**
- ☒ A. 12
  - ☒ B. 16
  - ☒ C. 14
  - ☒ D. 15

**Q.21** A starts a business with ₹7,250 and after 3 months, B joins A as his partner. After a year since A started the business, the profit is divided between A and B in the ratio 8 : 9. What is B's contribution in the capital?

- Ans**
- ☒ A. ₹10,250
  - ☒ B. ₹10,500
  - ☒ C. ₹10,875
  - ☒ D. ₹10,000

**Q.22** Find the total surface area (in square units) of a hollow hemisphere whose outer radius is 10 units and inner radius is 5 units.

- Ans**
- ☒ A.  $325\pi$
  - ☒ B.  $225\pi$
  - ☒ C.  $425\pi$
  - ☒ D.  $375\pi$

**Q.23** The sum of the interior angles of a polygon with 200 sides is:

- Ans**
- ☒ A.  $35,640^\circ$
  - ☒ B.  $35,460^\circ$
  - ☒ C.  $36,540^\circ$
  - ☒ D.  $35,604^\circ$

**Q.24** Find the quadratic equation whose roots are  $\sqrt{3} + 1$  and  $\sqrt{3} - 1$ .

- Ans**
- ☒ A.  $x^2 - 2\sqrt{3}x + 4 = 0$
  - ☒ B.  $x^2 - 2\sqrt{3}x + 2 = 0$
  - ☒ C.  $x^2 + 2\sqrt{3}x + 2 = 0$
  - ☒ D.  $x^2 - \sqrt{3}x + 2 = 0$

**Q.25**  $x^4 - (x^2 - 2)^2 + (2 - x) = 0$  is:

- Ans**
- ☒ A. a quadratic equation
  - ☒ B. a linear equation
  - ☒ C. just a number
  - ☒ D. a bi-quadratic equation

Section : General Intelligence and Reasoning

**Q.26** If '+' means '-', '-' means '+', '+' means '+', '+' means '×', what will come in place of the question mark (?) in the following equation?

$$27 \div 288 + 2 \times 2 \times 22 - 2 = ?$$

- Ans**
- ☒ A. 450
  - ☒ B. 550
  - ☒ C. 420
  - ☒ D. 590

**Q.27** Read the given statement(s) and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statement(s).

Statements:

No river is a mountain.

Some mountains are lakes.

All lakes are ponds.

Conclusions:

(I) Some lakes are not rivers.

(II) Some lakes are mountains.

(III) Some ponds are mountains.

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Either conclusion I or conclusion III follows
  - ☒ D. All the conclusions I, II and III follow

**Q.28** A certain number of people are sitting in a row, facing north. A sits fourth to the left of D. Only two people sit between P and L. K sits to the immediate left of L. D sits fourth to the left of K. P sits at one of the positions to the right of K. If no other person is sitting in the row, what is the total number of people seated?

- Ans**
- ☒ A. 13
  - ☒ B. 14
  - ☒ C. 10
  - ☒ D. 12

**Q.29** Study the given arrangement of letters and symbols and answer the question that follows:

(LEFT) W & T O ! A L % V E N # J \* U D \$ I X @ C ^ (RIGHT)

How many such consonants are there in the arrangement each of which is both immediately preceded by a vowel and immediately followed by a symbol?

- Ans**
- ☒ A. Two
  - ☒ B. Four
  - ☒ C. Three
  - ☒ D. Five

**Q.30** If

P means 'multiplication',

Q means 'subtraction',

R means 'addition', and,

S means 'division',

then  $15 \text{ S } 5 \text{ P } 10 \text{ Q } 4 \text{ R } 2 = ?$

- Ans**
- ☒ A. 28
  - ☒ B. 29
  - ☒ C. 27
  - ☒ D. 26

**Q.31** R, S, T, U, V and W are six cousins sitting around a circular dinner table facing the centre of the table. U is seated second to the right of S. T is seated to the immediate right of U. R is an immediate neighbour of both W and T. Who is seated to the immediate right of S?

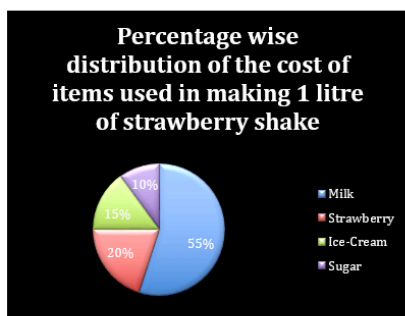
- Ans**
- ☒ A. W
  - ☒ B. T
  - ☒ C. R
  - ☒ D. V

**Q.32** Select the option that is related to the fifth letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster and the fourth letter-cluster is related to the third letter-cluster.

PAIN : APNI :: MODE : OMED :: JUST : ?

- Ans**
- ☒ A. JTUS
  - ☒ B. SUJT
  - ☒ C. UJTS
  - ☒ D. TUJS

- Q.33** The given pie chart shows the percentage wise distribution of the cost of items used in making 1 litre of strawberry shake. Study the chart and answer the question that follows.



If the total cost in making 3 litres of strawberry shake is ₹1,500, then what is the cost of strawberries in making 1 litre of strawberry shake?

- Ans** ☒ A. ₹120  
☒ B. ₹100  
☒ C. ₹150  
☒ D. ₹180

- Q.34** In a certain code language, 'BDSHK' is written as 'GHVJL' and 'FGLRU' is written as 'KKOTV'. How will 'ELPHT' be written in that language?

- Ans** ☒ A. JPTJU  
☒ B. JPSJU  
☒ C. JPSJV  
☒ D. JPTJV

- Q.35** The given table shows the use of chemicals (in litres) in three science laboratories of a school from 2002 to 2006. Study the table and answer the question that follows.

| Year | Laboratory |         |           |
|------|------------|---------|-----------|
|      | Biology    | Physics | Chemistry |
| 2002 | 52         | 61      | 47        |
| 2003 | 81         | 56      | 51        |
| 2004 | 67         | 49      | 57        |
| 2005 | 91         | 67      | 69        |
| 2006 | 93         | 73      | 72        |

What is the ratio of the total use of chemicals (in litres) in the Biology laboratory to the total use of chemicals (in litres) in the Chemistry laboratory from 2002 to 2006?

- Ans** ☒ A. 48 : 37  
☒ B. 37 : 48  
☒ C. 96 : 71  
☒ D. 71 : 96

- Q.36** Select the option that is related to the fifth number in the same way as the fourth number is related to the third number and the second number is related to the first number.

139 : 150 :: 73 : 84 :: 17 : ?

- Ans** ☒ A. 28  
☒ B. 32  
☒ C. 44  
☒ D. 25

**Q.37** Refer to the following letter, number, symbol series and answer the question.

(Left) S 3 F X # 7 M T & 8 R 9 Y Z \* 2 C G 6 A (Right) .

If all numbers are dropped from the series, which of the following will be sixth from the right?

**Ans** ✓ A. Y

✗ B. R

✗ C. M

✗ D. &

**Q.38** Amongst six friends, A, D, E, F, K and Z, each has a different height. Only two friends are taller than D. Only four friends are shorter than Z. K is taller than Z. F is immediately shorter than E. A is the shortest among all. Who is the second tallest among all the friends?

**Ans** ✓ A. Z

✗ B. K

✗ C. D

✗ D. E

**Q.39** In this question, the statement is followed by four conclusions. Find out which conclusion is NOT true based on the given statement.

Statement :  $C > N = R \geq H > Q < S$

**Ans** ✗ A.  $S > Q$

✗ B.  $C > R$

✗ C.  $N \geq H$

✓ D.  $C \geq H$

**Q.40** Five friends, A, B, C, D and E appeared for the same exam and each scored differently. B scored higher than only two of her friends. C did not score the highest, but scored more than B. E scored higher than only D. Who scored the second highest in the exam?

**Ans** ✓ A. C

✗ B. A

✗ C. B

✗ D. E

**Q.41** Five boxes containing different fruits, namely strawberry, apple, litchi, cherry and pear, are kept one above the other, not necessarily in the same order. The strawberry box is in the exact middle of the stack. The pear box is immediately below the litchi box. Only the apple box is in between the cherry and strawberry boxes. The box at the bottom most position contains pears. Which box is second from the top?

**Ans** ✗ A. Litchi

✓ B. Apple

✗ C. Cherry

✗ D. Pear

**Q.42** The positions of the first and fourth letters in the word 'QUIRKY' are interchanged. Similarly the positions of the second and fifth letters are interchanged and in the same pattern the positions of the third and sixth letters are interchanged. If all letters are counted from left to right, then which letter will be the fourth letter from the right in the word so formed?

**Ans** ✓ A. Y

✗ B. Q

✗ C. K

✗ D. R



**Q.43** A statement is given followed by two arguments I and II. Read the statement and the arguments carefully and select the appropriate answer from the given options.

**Statement:**

A celebrity applies for a gun licence for self-protection after receiving death threats.

**Arguments:**

- (I) A popular singer was recently found shot dead immediately after a week of him receiving a death threat letter.  
(II) Celebrities are known to misuse their power and many have been convicted for wrongful killing of endangered animals.

- Ans**
- ☒ A. Argument (I) weakens, while argument (II) strengthens the statement.
  - ☒ B. Argument (II) weakens, while argument (I) strengthens the statement.
  - ☒ C. Both arguments (I) and (II) weaken the statement.
  - ☒ D. Both arguments (I) and (II) strengthen the statement.

**Q.44** Three statements are given followed by two conclusions numbered I and II. You have to take the statements to be true, even if they seem to be at variance with commonly known facts and decide which of the conclusions logically follow(s) from the statements.

**Statements:**

Some Mice are Rabbits.  
All Rabbits are Carrots.  
Some Carrots are Oranges.

**Conclusions:**

- (I) Some Mice are Carrots.  
(II) All Rabbits are Oranges.

- Ans**
- ☒ A. Only conclusion (I) follows.
  - ☒ B. Only conclusion (II) follows.
  - ☒ C. Both conclusions (I) and (II) follow.
  - ☒ D. Neither conclusion (I) nor (II) follows.

**Q.45** In a certain code language, 'DFGLM' is written as 'EHJPR' and 'HBEKS' is written as 'IDHOX'. How will 'TECKO' be written in that language?

- Ans**
- ☒ A. UGEOS
  - ☒ B. UGFPT
  - ☒ C. UGFOT
  - ☒ D. UGDOS

**Q.46** Select the option that is related to the third term in the same way as the second term is related to the first term and the sixth term is related to the fifth term.

392 : 7 :: 1452 : ? :: 810 : 9

- Ans**
- ☒ A. 10
  - ☒ B. 15
  - ☒ C. 12
  - ☒ D. 11

**Q.47** In the word 'DECORATING', if each vowel is changed to the letter immediately following it and each consonant is changed to the letter immediately following it in the English alphabetical order, then how many vowels will be there in the group of letters thus formed?

- Ans**
- ☒ A. Three
  - ☒ B. Two
  - ☒ C. One
  - ☒ D. None

**Q.48** Which of the following terms will replace the question mark (?) in the given series to make it logically complete?

H 16, K 22, N 28, Q 34, T 40, ?

- Ans**
- ☒ A. V 46
  - ☒ B. W 44
  - ☒ C. V 44
  - ☒ D. W 46

**Q.49** A, B, C, D, E and F are sitting around a circular table facing the centre. A is sitting second to the left of C. F is sitting to the immediate right of C. D is an immediate neighbour of both A and E. Who is sitting third to the right of E ?

- Ans**
- ☒ A. B
  - ☒ B. D
  - ☒ C. A
  - ☒ D. C

**Q.50** Yash was facing towards the north and moves 10 m to his right from his home. After that, he turns left and moves 20 m. Then he turns left and move 20 m, and then turns left again and moves 10 m. After that, he again turns left and moves 10 m, and then turns right and moves 10 m. In which direction is he facing now? (All turns are 90 degree turns only)

- Ans**
- ☒ A. East
  - ☒ B. South
  - ☒ C. North
  - ☒ D. West

**Q.51** If '+' means '×', '-' means '+', '×' means '+', and '+' means '-', what will come in place of the question mark (?) in the following equation?

$$4 + 22 \times 2 + 4 - 9 = ?$$

- Ans**
- ☒ A. 59
  - ☒ B. 110
  - ☒ C. 99
  - ☒ D. 49

**Q.52** Which of the following numbers will replace the question mark (?) in the given series?

549, 508, 467, 426, 385, ?

- Ans**
- ☒ A. 289
  - ☒ B. 320
  - ☒ C. 276
  - ☒ D. 344

**Q.53** Rekha started walking from her office in the west direction. On traveling a distance of 5 m, she turns to the right and travels a distance of 2 m. She further turns to the right and travels a distance of 7.5 m. She then turns right at 135° and travels a distance of 15 m. In which direction is she facing now?

- Ans**
- ☒ A. North
  - ☒ B. South
  - ☒ C. North-West
  - ☒ D. South-West

**Q.54** Select the number from among the given options that can replace the question mark (?) in the following series.  
32, 57, 93, 142, 206, ?

- Ans**
- ☒ A. 216
  - ☒ B. 287
  - ☒ C. 26
  - ☒ D. 213

**Q.55** Three statements are given followed by two conclusions numbered I and II. You have to take the statements to be true, even if they seem to be at variance with commonly known facts and decide which of the conclusions logically follow(s) from the statements.

**Statements:**

Some Ponds are Fishes.  
Some Rivers are Fishes.  
All Fishes are Tanks.

**Conclusions:**

(I) Some Rivers are Tanks.  
(II) Some Ponds are Rivers.

- Ans**
- ☒ A. Only conclusion (I) follows.
  - ☒ B. Only conclusion (II) follows.
  - ☒ C. Both conclusions (I) and (II) follow.
  - ☒ D. Neither conclusion (I) nor (II) follows.

Section : General Science

**Q.56** The resistance of a conductor is directly proportional to its \_\_\_\_\_.

- Ans**
- ☒ A. area of cross section
  - ☒ B. length
  - ☒ C. temperature
  - ☒ D. volume

**Q.57** Why did Mendel study seven different characters?

- Ans**
- ☒ A. To uncover the universal principles of inheritance
  - ☒ B. To create many new varieties of pea plants
  - ☒ C. To find out which plants were the best
  - ☒ D. To produce enough peas for his monastery

**Q.58** A light ray passing through the \_\_\_\_\_ of a lens passes without any deviation.

- Ans**
- ☒ A. edges
  - ☒ B. 2F (twice of focal length)
  - ☒ C. Focus
  - ☒ D. optical centre

Q.59 Which of the following products is formed by the electrolytic decomposition of brine?

- Ans
- ☐ A. Calcium hydroxide
  - ☒ B. Sodium hydroxide
  - ☐ C. Bleaching powder
  - ☐ D. Potassium hydroxide

Q.60 Which among the following elements possesses greater tendency to gain electrons?

- Ans
- ☐ A. Carbon
  - ☐ B. Nitrogen
  - ☐ C. Oxygen
  - ☒ D. Fluorine

Q.61 Select the correct example of double displacement reaction.

- Ans
- ☐ A.  $\text{CaO} + \text{H}_2\text{O} \rightarrow \text{Ca(OH)}_2$
  - ☒ B.  $\text{CuSO}_4 + \text{H}_2\text{S} \rightarrow \text{CuS} + \text{H}_2\text{SO}_4$
  - ☐ C.  $2\text{AgBr} \rightarrow 2\text{Ag} + \text{Br}_2$
  - ☐ D.  $2\text{NaCl} \rightarrow 2\text{Na} + \text{Cl}_2$

Q.62 Which of the following components of blood promotes immunity and helps the body fight against germs?

- Ans
- ☐ A. Red blood cells
  - ☒ B. White blood cells
  - ☐ C. Blood platelets
  - ☐ D. Blood plasma

Q.63 Which of the following elements is more reactive than copper?

- Ans
- ☐ A. Gold
  - ☐ B. Platinum
  - ☐ C. Silver
  - ☒ D. Zinc

Q.64 In the human heart, the pulmonary vein is connected to the \_\_\_\_\_.

- Ans
- ☐ A. left ventricle
  - ☐ B. right ventricle
  - ☒ C. left auricle
  - ☐ D. right auricle

Q.65 What is the primary difference between domestic and industrial solid waste?

- Ans
- ☐ A. The former is smaller in quantity.
  - ☒ B. The former is heterogeneous in composition.
  - ☐ C. The latter is seasonal in nature.
  - ☐ D. The latter is a source of pollutants.

**Q.66** When Blue light and Red light are mixed in equal amounts, they will produce

light of colour:

- Ans**
- ☒ A. Cyan
  - ☒ B. Yellow
  - ☒ C. Magenta
  - ☒ D. White

**Q.67** Insects have a network of air tubes for gas exchange. These are called \_\_\_\_\_.

- Ans**
- ☒ A. arteries
  - ☒ B. capillaries
  - ☒ C. tracheae
  - ☒ D. spiracles

**Q.68** Which of the following is NOT a carbon compound?

- Ans**
- ☒ A.  $\text{CHCl}_3$
  - ☒ B.  $\text{CH}_4$
  - ☒ C.  $\text{C}_2\text{H}_6$
  - ☒ D.  $\text{Co}(\text{NO}_3)_2$

**Q.69** Bleaching powder is produced by the action of chlorine on:

- Ans**
- ☒ A.  $\text{Ca}(\text{OH})_2$
  - ☒ B.  $\text{NaOH}$
  - ☒ C.  $\text{CaCO}_3$
  - ☒ D.  $\text{CaO}$

**Q.70** If the length of a conductor is doubled and the area of cross section is halved, the resistance will be \_\_\_\_\_.

- Ans**
- ☒ A. four times of its original value
  - ☒ B. half of its original value
  - ☒ C. unaltered
  - ☒ D. eight times of its original value

**Q.71** The direction of the induced current when the conductor is moving in the region of magnetic field is given by:

- Ans**
- ☒ A. Fleming's right-hand rule
  - ☒ B. Fleming's left-hand rule
  - ☒ C. Right-hand thumb rule
  - ☒ D. Maxwell's corkscrew rule

**Q.72** The compass needle gets deflected when it is brought near to a bar magnet because it \_\_\_\_\_.

- Ans**
- ☒ A. carries current
  - ☒ B. is an iron rod
  - ☒ C. is a tiny magnet
  - ☒ D. is a conductor

**Q.73** Who among the following sacrificed her life along with 363 others for the protection of 'khejri' trees in Khejrali village near Jodhpur in Rajasthan?

- Ans**
- ☐ A. Medha Patkar
  - ☐ B. Vandana Shiva
  - ☐ C. Soumya Swaminadhan
  - ☒ D. Amrita Devi Bishnoi

**Q.74** The unit Watt can be expressed as \_\_\_\_\_.

- Ans**
- ☐ A. 1 Watt = 1 Volt/1 Ampere
  - ☒ B. 1 Watt = 1 Volt  $\times$  1 Ampere
  - ☐ C. 1 Watt = 1 Volt/1 Coulomb
  - ☐ D. 1 Watt = 1 Volt  $\times$  1 Coulomb

**Q.75** Which of the following chemical equations is INCORRECT?

- Ans**
- ☐ A.  $2 \text{Mg (s)} + \text{O}_2\text{(g)} \longrightarrow 2\text{MgO (g)}$
  - ☐ B.  $3\text{Fe (s)} + 4\text{H}_2\text{O (l)} \longrightarrow \text{Fe}_3\text{O}_4\text{ (s)} + 2\text{H}_2\text{ (l)}$
  - ☐ C.  $\text{CO (g)} + \text{H}_2\text{(g)} \longrightarrow \text{CH}_2\text{O (l)}$
  - ☐ D.  $\text{CO (g)} + 2\text{H}_2\text{(g)} \longrightarrow \text{CH}_3\text{OH (l)}$

**Note:** For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

**Q.76** If a 10.0-cm-tall object is kept at a distance 40.0 cm from a 20.0-cm-radius concave mirror, and all the distances are measured on the principal axis from the pole as origin, then the image position and image height, respectively, are:

- Ans**
- ☐ A. -13.3 cm and 0.33 cm
  - ☐ B. +13.3 cm and 0.33 cm
  - ☐ C. +26.6 cm and 0.66 cm
  - ☐ D. -26.6 cm and 0.66 cm

**Note:** For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

**Q.77** Use Mendeleev's periodic table to select the correct formula for the oxides of Ba and K.

- Ans**
- ☐ A. BaO and KO
  - ☐ B. BaO<sub>2</sub> and K<sub>2</sub>O
  - ☐ C. BaO and KO<sub>2</sub>
  - ☒ D. BaO and K<sub>2</sub>O

**Q.78** Identify the true statement.

- Ans**
- ☐ A. Sperms containing X chromosome have 23 chromosomes but sperms containing Y chromosome have 22 chromosomes.
  - ☐ B. Sperms containing X chromosome have 22 chromosomes but sperms containing Y chromosome have 23 chromosomes.
  - ☒ C. Sperms containing X chromosome have 23 chromosomes and sperms containing Y chromosome also have 23 chromosomes.
  - ☐ D. Sperms containing X chromosome have 22 chromosomes and sperms containing Y chromosome also have 22 chromosomes.

**Q.79** Breakdown of pyruvate using oxygen takes place in the:

- Ans**
- ☒ A. cytoplasm
  - ☒ B. mitochondria
  - ☒ C. nucleoplasm
  - ☒ D. chloroplast

**Q.80** In the following table, the direction of incident ray of light and the direction of reflected ray of light are given in two different columns: Choose the correct match of column I to column II.

| <u>Column I</u>                                                                               | <u>Column II</u>                                                                                               |
|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| <u>Direction of ray of light before reflection</u>                                            | <u>Direction of ray of light after reflection</u>                                                              |
| A) Incident ray passing through or directed on to the principal focus                         | P) Will pass through or appear to diverge from the principal focus                                             |
| B) Incident ray passing through or directed on to the center of curvature                     | Q) Reflected ray is on the other side of the principal axis making same angle with respect to the incident ray |
| C) Incident ray passing parallel to principal axis                                            | R) Reflected ray will propagate parallel to the principal axis                                                 |
| D) Incident ray directed on to the pole of the mirror making an angle with the principal axis | S) Reflected ray will retrace the path of incidence in the opposite direction                                  |

- Ans**
- ☒ A. A-P, B-S, C-Q, D-R
  - ☒ B. A-R, B-S, C-P, D-Q
  - ☒ C. A-R, B-S, C-Q, D-P
  - ☒ D. A-R, B-Q, C-P, D-S

Section : General Awareness and Current Affairs

**Q.81** The Development Fund for MFI's is managed by the \_\_\_\_\_.

- Ans**
- ☒ A. NABARD
  - ☒ B. Reserve Bank of India
  - ☒ C. State Bank of India
  - ☒ D. Ministry of Finance, Govt of India

**Q.82** The Ballari-Chitradurga-Chikkamagaluru-Tumakuru belt in Karnataka is famous for reserves of which mineral from following?

- Ans**
- ☒ A. Monazite
  - ☒ B. Lead and Zinc
  - ☒ C. Iron-ore
  - ☒ D. Copper

**Q.83** In India, which institution pioneered the first alternative to corneal transplantation?

- Ans**
- ☒ A. AIIMS
  - ☒ B. JIPMER
  - ☒ C. NIT Tiruchirappalli
  - ☒ D. IIT Hyderabad



**Q.84** The cost that a firm incurs to employ fixed inputs is called:

- Ans**
- ☒ A. total fixed cost
  - ☐ B. total variable cost
  - ☐ C. average variable cost
  - ☐ D. average fixed cost

**Q.85** Which of the following units is considered as the foundation of the Panchayat Raj System to perform functions and powers entrusted to it by the State Legislatures?

- Ans**
- ☐ A. Panchayat Samiti
  - ☒ B. Gram Sabha
  - ☐ C. Zila Parishad
  - ☐ D. Nagarpalika

**Q.86** The \_\_\_\_\_ is a strong, dusty, gusty, hot and dry summer wind from the west which blows over the western Indo-Gangetic Plain region of North India.

- Ans**
- ☐ A. Sameer
  - ☐ B. Uttrayan
  - ☒ C. Loo
  - ☐ D. Kaal Baisakhi

**Q.87** Brihadaranyaka, Mundaka and Taittiriya are some examples of which of the following categories of religious texts?

- Ans**
- ☐ A. Epics
  - ☒ B. Upanishads
  - ☐ C. Puranas
  - ☐ D. Jataka Stories

**Q.88** Which festival is known as Magh Bihu in Assam?

- Ans**
- ☐ A. Dussehra
  - ☒ B. Makar Sankranti
  - ☐ C. Holi
  - ☐ D. Raksha Bandhan

**Q.89** As of April 2022, what is the FDI limit in the insurance sector in India?

- Ans**
- ☐ A. up to 26%
  - ☐ B. up to 36%
  - ☐ C. up to 46%
  - ☒ D. up to 74%

**Q.90** In which year was the Protection of Children from Sexual Offences Act passed?

- Ans**
- ☐ A. 2013
  - ☒ B. 2012
  - ☐ C. 2011
  - ☐ D. 2014



**Q.91** In the year 2021, who among the following was one of the five coaches who received Dronacharya Award for life-time achievement?

- Ans**
- ☐ A. Sajjan Singh
  - ☐ B. Abhijeet Kunte
  - ☒ C. Sarkar Talwar
  - ☐ D. Davinder Singh Garcha

**Q.92** As of August 2022, who among the following is the Chairman of Tata Trusts?

- Ans**
- ☒ A. Ratan Tata
  - ☐ B. Noel Tata
  - ☐ C. Neville Tata
  - ☐ D. Leah Tata

**Q.93** Under one of the provisions of Article 89 of the Indian Constitution, who shall be the ex-officio Chairman of the Council of States?

- Ans**
- ☐ A. The President of India
  - ☒ B. The Vice-President of India
  - ☐ C. The senior most member of the Council of States
  - ☐ D. The Union Minister of Parliamentary Affairs

**Q.94** Which of the following Articles of the Constitution of India deals with the uniform civil code for the citizens?

- Ans**
- ☐ A. 42
  - ☐ B. 43
  - ☒ C. 44
  - ☐ D. 45

**Q.95** Which of the following states of India are related to the term 'Mango Showers'?

- Ans**
- ☒ A. Kerala and Karnataka
  - ☐ B. Punjab and Haryana
  - ☐ C. Gujarat and Madhya Pradesh
  - ☐ D. Meghalaya and Assam

**Q.96** In February 2022, Ministry of Social Justice and Empowerment launched the SMILE (Support for Marginalised Individuals for Livelihood and Enterprise) scheme in how many cities?

- Ans**
- ☐ A. 8
  - ☐ B. 9
  - ☒ C. 10
  - ☐ D. 11

**Q.97** In which of the following years was Wipro Ltd incorporated ?

- Ans**
- ☒ A. 1945
  - ☐ B. 1947
  - ☐ C. 1952
  - ☐ D. 1959

**Q.98** What is the revised timeline to apply online for cash award schemes for sportspersons from the last date of closing of the particular sports event?

- Ans**
- ☐ A. One year
  - ☐ B. One and a half year
  - ☒ C. Six months
  - ☐ D. Three months

**Q.99** Identify the name of the fellowship that is launched by the Department of Science and Technology (DST), Government of India, to recognise, encourage and support translational research by Indian nationals.

- Ans**
- ☐ A. Vikram Sarabhai Technology Innovation National Fellowship
  - ☐ B. CV Raman Technology Innovation National Fellowship
  - ☒ C. Abdul Kalam Technology Innovation National Fellowship
  - ☐ D. Dr. Homi Jahangir Bhabha Technology Innovation National Fellowship

**Q.100** Which of the following is NOT an example of a classical language in India as declared by the Government of India?

- Ans**
- ☐ A. Malayalam
  - ☒ B. Bengali
  - ☐ C. Odia
  - ☐ D. Kannada



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 06/10/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** If the surface area of a sphere is  $1144 \text{ cm}^2$ , then find its diameter (in cm).

(Use  $\pi = \frac{22}{7}$ )

- Ans**
- ☐ A.  $2\sqrt{95}$
  - ☐ B.  $\sqrt{91}$
  - ☒ C.  $2\sqrt{91}$
  - ☐ D. 19

**Q.2** The area of a triangle is  $81 \text{ cm}^2$  and its base is double the corresponding height. This height (in cm) of the triangle is:

- Ans**
- ☐ A. 18
  - ☒ B. 9
  - ☐ C. 81
  - ☐ D. 10

**Q.3** The lengths of two sides of a triangle are 24 cm and 26 cm. Which of the following can be the measure of the third side?

- Ans**
- ☐ A. 52 cm
  - ☒ B. 48 cm
  - ☐ C. 55 cm
  - ☐ D. 54 cm

**Q.4** The difference between the compound interest and the simple interest, compounded annually, on a certain sum of money for 4 years at 8% per annum is ₹20. Find the sum. [Give your answer correct to 2 decimal places.]

- Ans**
- ☐ A. ₹463.83
  - ☐ B. ₹473.83
  - ☐ C. ₹483.83
  - ☒ D. ₹493.96

**Q.5** The sum of the ages of 4 boys born at intervals of 5 years each is 42 years. What is the age of the youngest boy?

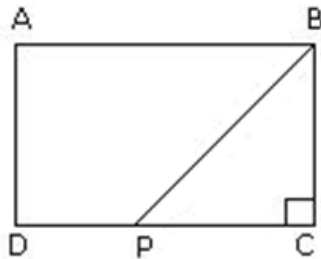
**Ans** ☒ A. 6 years

☒ B. 5 years

☒ C. 4 years

☒ D. 3 years

**Q.6** Find the area of ABPD if  $AB = DC = 4$  m,  $AD = BC = 2.5$  m, and  $PC = 1$  m.



**Ans** ☒ A.  $6.25 \text{ m}^2$

☒ B.  $8.75 \text{ m}^2$

☒ C.  $7.85 \text{ m}^2$

☒ D.  $9.00 \text{ m}^2$

**Q.7** A quadratic equation whose roots are m and n, is:

**Ans** ☒ A.  $x^2 - (m - n)x + mn = 0$

☒ B.  $x^2 - (m + n)x + mn = 0$

☒ C.  $x^2 - (m + n)x - mn = 0$

☒ D.  $x^2 + (m + n)x + mn = 0$

**Q.8** Raja is the father of Vikram. Raja is now 13 times as old as Vikram. After 10 years, Raja's then age will be 3 times the then age of Vikram. Find the present age (in years) of Vikram.

**Ans** ☒ A. 4

☒ B. 1

☒ C. 2

☒ D. 3

**Q.9** Find the value of  $(6 \times 16 - 9 \div 3) + 17 - 12$ .

**Ans** ☒ A. 89

☒ B. 98

☒ C. 76

☒ D. 67

**Q.10** The LCM and the HCF of two numbers,  $x$  and  $y$ , are 286 and 2, respectively. If the sum of these two numbers is 48, then the value of  $\frac{1}{x} + \frac{1}{y}$  is:

**Ans**

- ✓ A.  $\frac{12}{143}$   
✗ B.  $\frac{48}{571}$   
✗ C.  $\frac{24}{167}$   
✗ D.  $\frac{572}{48}$

**Q.11** A study centre has 5 classes with 50, 60, 25, 40 and 70 students. The pass percentage of these 5 classes are 20%, 25%, 20%, 10%, 30%, respectively. Find the average number of students per class in the centre who passed.

**Ans**

- ✓ A. 11  
✗ B. 12  
✗ C. 10  
✗ D. 55

**Q.12** Arun bought 38 kg of rice for ₹1,710. He sold it at a profit equal to the selling price of 8 kg of it. What is the selling price of 5 kg of rice?

**Ans**

- ✗ A. ₹280  
✓ B. ₹285  
✗ C. ₹290  
✗ D. ₹295

**Q.13** The value of  $\frac{505}{\cot^2 \theta} - \frac{505}{\cos^2 \theta} + \frac{15 \tan \theta \cos \theta}{\sin \theta}$  is

**Ans**

- ✗ A. 520  
✗ B. 490  
✗ C. -520  
✓ D. -490

**Q.14** 677 NCC cadets wanted to participate in a parade. To participate in the said parade the cadets had to be arranged in a rectangular pattern where the number of rows is equal to the number of columns. What is the minimum number of NCC cadets who wanted to participate in the parade but had to be left out of the same?

**Ans**

- ✓ A. 1  
✗ B. 2  
✗ C. 3  
✗ D. 4

**Q.15** If a milkman sells milk at ₹50 a litre, he loses ₹2,000. If he sells it at ₹60 a litre, he gains ₹1,500. The total quantity of milk (in litres) he sells is:

**Ans**

- ✓ A. 350  
✗ B. 150  
✗ C. 200  
✗ D. 400

**Q.16** Ravi travels from City A to City B. If Ravi drives his car at two fifth of his normal speed, then he reaches City B 30 minutes late. Find the time (in minutes) that Ravi would have taken to travel from City A to City B if he drove at his normal speed.

- Ans**
- ☒ A. 18
  - ☒ B. 15
  - ☒ C. 20
  - ☒ D. 22

**Q.17** Find the value of  $3 \times 6 + 5 - 6 \div 2 - 9 + 72 \div (3 \times 4) + 42$ .

- Ans**
- ☒ A. 59
  - ☒ B. 149
  - ☒ C. 72
  - ☒ D. 85

**Q.18** Express  $2.\overline{6}$  as an improper fraction.

- Ans**
- ☒ A.  $\frac{8}{3}$
  - ☒ B.  $\frac{7}{3}$
  - ☒ C.  $\frac{22}{9}$
  - ☒ D.  $\frac{20}{9}$

**Q.19** The sum of three distinct prime numbers is 40. What is the product of these prime numbers?

- Ans**
- ☒ A. 310
  - ☒ B. 434
  - ☒ C. 682
  - ☒ D. 722

**Q.20** What is the sum of  $7xy + 5yz - 3zx, 4yz + 9zx - 4y, -3xy + 5x - 2xy$ ?

- Ans**
- ☒ A.  $5x - 4y + 2xy + 9yz + 6zx$
  - ☒ B.  $5x - 4y + 6xy + 9yz - 6zx$
  - ☒ C.  $5x - 4y - 2xy - 9yz + 6zx$
  - ☒ D.  $5x - 4y + 6xy + 9yz + 6zx$

**Q.21** Simplify:

$$[65 + \{31 - (45 \text{ of } 3 \div 5)\} \times 4]$$

- Ans**
- ☒ A. 81
  - ☒ B. 80
  - ☒ C. 102
  - ☒ D. 79

**Q.22** In  $\triangle ABC$ ,  $\overline{DE}$  is parallel to  $\overline{BC}$ , where D is a point on  $\overline{AB}$  and E is a point on  $\overline{AC}$ , and  $m(\overline{AD}) : m(\overline{DB})$  is 2 : 5. If  $m(\overline{AC})$  is 8.4 cm, find  $m(\overline{AE})$ .

- Ans**
- ☐ A. 1.2 cm
  - ☐ B. 1.4 cm
  - ☒ C. 2.4 cm
  - ☐ D. 2.8 cm

**Q.23** If a number is divisible by 4, then which of the following statements is true?

- Ans**
- ☐ A. The sum of the digits in the number is divisible by 4.
  - ☐ B. The number will be divisible by 2 and 6.
  - ☒ C. The number formed by its last two digit is divisible by 4.
  - ☐ D. The unit place in the number is 0.

**Q.24** Kamal is now four times as old as his son now is. After 18 years his son will be half as old as Kamal would then be. Find the present age (in years) of the son.

- Ans**
- ☐ A. 10
  - ☐ B. 24
  - ☐ C. 36
  - ☒ D. 9

**Q.25** A man travelled a certain distance by bus at the rate of 40 km/h and returned walking at the rate of 5 km/h via the same route. If the two-way journey took him a total of 4 hours 30 minutes, the total distance covered by him in this 4.5 hour was:

- Ans**
- ☐ A. 25 km
  - ☐ B. 20 km
  - ☐ C. 30 km
  - ☒ D. 40 km

#### Section : General Intelligence and Reasoning

**Q.26** Riya walks 25 m towards north. Then she turns right and walks 30 m, then turns right and walks 40 m. She then turns left and walks 15 m. Finally, she turns left and walks 15 m. In which direction and at a distance of how many metres is she now from the starting point? (All turns are  $90^\circ$  turns only)

- Ans**
- ☐ A. 15 m, south
  - ☒ B. 45 m, east
  - ☐ C. 45 m, west
  - ☐ D. 15 m, north

**Q.27** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

1. Some animals are plants.
2. Some plants are birds.
3. No duck is an animal.

Conclusions:

- (I) Some ducks are birds
- (II) No bird is an animal.
- (III) Some animals are birds.

- Ans**
- ☒ A. Only conclusion III follows.
  - ☒ B. Only conclusion II follows.
  - ☒ C. Both conclusions I and III follow.
  - ☒ D. None of the conclusions follow.

**Q.28** Which of the following terms will replace the question mark (?) in the given series to make it logically complete?

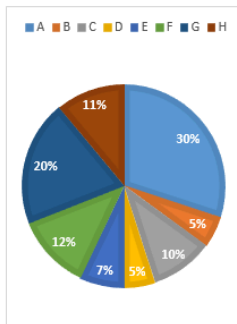
TRK52, AYR46, HFY40, OMF34, ?

- Ans**
- ☒ A. VTM28
  - ☒ B. UTN28
  - ☒ C. VTM30
  - ☒ D. UTN30

**Q.29** A, B, C, D, E and F live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it is numbered 2 and so on till the topmost floor is numbered 6. A lives on floor number 5. Only two people live between A and C. Neither D nor B lives on the topmost floor. E lives immediately below C. B does not live on an even-numbered floor. Who lives on floor number 3?

- Ans**
- ☒ A. A
  - ☒ B. C
  - ☒ C. B
  - ☒ D. D

**Q.30** The given pie chart shows the percentage of earnings in different families. Study the chart and answer the question.



What is the central angle for the total earnings of families A, C, D, F, G and H?

- Ans**
- ☒ A. 234.8°
  - ☒ B. 316.8°
  - ☒ C. 310.7°
  - ☒ D. 302.9°



**Q.31** In a certain code language, 'BOOTS' is written as '54%8#' and 'ULTRA' is written as '%38@9'. How will 'BLARE' be written in that language?

- Ans**
- ☒ A. 534#2
  - ☒ B. 593#2
  - ☒ C. 543@%
  - ☒ D. 539@2

**Q.32** Seven boxes M, N, O, P, Q, R and S are kept one over the other but not necessarily in the same order. Only three boxes are kept above P. Only two boxes are kept between P and M. Only R is kept between S and Q. Only N is kept between O and M. Neither Q nor M is at the top most position. Which box is kept between Q and O?

- Ans**
- ☒ A. S
  - ☒ B. N
  - ☒ C. R
  - ☒ D. P

**Q.33** Three statements are given followed by two conclusions numbered I and II. You have to take the statements to be true, even if they seem to be at variance with commonly known facts and decide which of the conclusions logically follow(s) from the statements.

**Statements:**

All Buildings are Cements.  
All Cements are Powders.  
All Powders are Detergents.

**Conclusions:**

(I) All Powders are Buildings.  
(II) Some Detergents are Cements.

- Ans**
- ☒ A. Only conclusion (I) follows.
  - ☒ B. Only conclusion (II) follows.
  - ☒ C. Both conclusions (I) and (II) follow.
  - ☒ D. Neither conclusion (I) nor (II) follows.

**Q.34** A, B, C, D, E and F live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it is numbered 2, and so on till the topmost floor is numbered 6.

B lives immediately below C. C lives on an even numbered floor but not on the topmost floor. Only three people live between B and D. A lives immediately above F. Who lives on floor number 4?

- Ans**
- ☒ A. F
  - ☒ B. C
  - ☒ C. B
  - ☒ D. A

**Q.35** What time will it be in 58 minutes from now, if the time is 1:20 p.m.?

- Ans**
- ☒ A. 2:15 p.m.
  - ☒ B. 2:00 p.m.
  - ☒ C. 2:18 p.m.
  - ☒ D. 2:10 p.m.

**Q.36** Study the given number, symbol series and answer the question that follows.

2 \$ 3 @ 4 \* 7 8 5 3 # 9 1 > 5 & 4 @ 3 \$ # 5 \* 6 ! 8 2 & 9 < 4 6 # 3 % 2 = 7 8 \* 4 > 7

How many such odd numbers are there which are immediately preceded by a prime number and immediately followed by a symbol?

- Ans**
- ☐ A. None
  - ☒ B. One
  - ☐ C. Two
  - ☐ D. Three

**Q.37** Archit starts from Point A and drives 6 km towards the east. He then takes a left turn, drives 24 km, turns right and drives 8 km. He then takes a right turn and drives 12 km. He takes a final right turn, drives 14 km and stops at Point B. How far and towards which direction should he drive in order to reach Point A from Point B? (All turns are 90 degree turns only)

- Ans**
- ☐ A. 14 km towards the east
  - ☐ B. 12 km towards the north
  - ☐ C. 16 km towards the south
  - ☒ D. 12 km towards the south

**Q.38** Refer to the following five 3-letter words and answer the question.

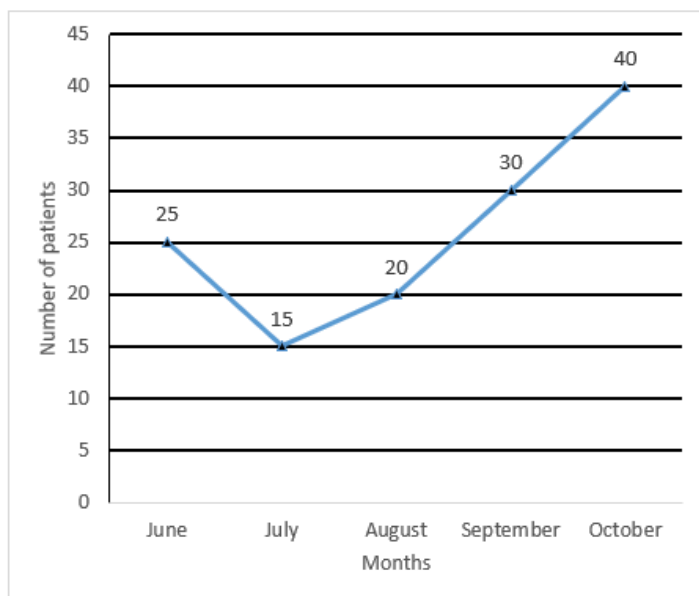
MAY JUG TEN FOR CAN

If in each of the words, each letter is changed to the immediate previous letter in the English alphabetical order, how many words thus formed will have at least one vowel? (Note – A is changed to Z)

- Ans**
- ☐ A. 4
  - ☐ B. 5
  - ☒ C. 2
  - ☐ D. 3

**Q.39** Study the given line graph and answer the following question.

The given line graph depicts the number of patients admitted in five months.



What is the total number of patients admitted in the given five months?

- Ans**
- ☒ A. 120
  - ☒ B. 135
  - ☒ C. 130
  - ☒ D. 140

**Q.40** Select the set in which the numbers are related in the same way as are the numbers of the following sets.  
(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding / subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

(75, 16, 67)  
(33, 14, 26)

- Ans**
- ☒ A. (28, 72, 64)
  - ☒ B. (40, 56, 96)
  - ☒ C. (88, 54, 76)
  - ☒ D. (29, 6, 26)

**Q.41** This question is based on the five three-digit numbers given below.

573 136 357 442 814

(Example- 697 – First digit = 6, second digit = 9 and third digit = 7)

If 2 is added to the second digit of every

number, in how many numbers thus formed will the second digit be exactly

divisible by the third digit?

- Ans**
- ☒ A. None
  - ☒ B. One
  - ☒ C. Two
  - ☒ D. Three

**Q.42** Select the triad that follows the same pattern as that followed by the two triads given below. Both triads follow the same pattern.

L J – HF – DB

WU – SQ – OM

**Ans** ✓ **A. US – QO – MK**

✗ **B. SV – XV – TR**

✗ **C. TR – QS – GI**

✗ **D. ZW – OR – FC**

**Q.43** Which of the following options is the closest approximate value which will come in place of question mark (?) in the following equation?

$$29.99 + 15.01 + 44.99 \times 15.01 = ?$$

**Ans** ✓ **A. 720**

✗ **B. 725**

✗ **C. 735**

✗ **D. 745**

**Q.44** If the numbers given below are arranged in descending order, then what is the difference between the number which is fifth from the right and the number which is fourth from the left?

Left 202, 323, 266, 182, 315, 285, 193, 217, 231, 186 Right

**Ans** ✗ **A. 29**

✗ **B. 37**

✓ **C. 49**

✗ **D. 27**

**Q.45** In a certain code language, 'MONKS' is written as 'LMMIR' and 'PRICE' is written as 'OPHAD'. How will 'FROCK' be written in that language?

**Ans** ✗ **A. ENPAJ**

✓ **B. EPNAJ**

✗ **C. EMPAK**

✗ **D. EMPAL**

**Q.46** Q, R, S, T, U and V are six family members sitting around a circular table, facing the centre in a restaurant. U is seated to the immediate left of S. V is seated third to the left of Q and is the immediate neighbour of U. R is seated second to the right of S. Who is seated second to the left of U?

**Ans** ✗ **A. Q**

✗ **B. R**

✓ **C. T**

✗ **D. V**

**Q.47** Three statements are given followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide

which of the conclusions logically follow(s) from the statements.

**Statements:**

All trees are plants.

All leaves are trees.

All greens are leaves.

**Conclusions:**

I. All plants are greens.

II. All trees are leaves.

III. Some plants are leaves.

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion III follows
  - ☒ C. Only conclusions I and II follow
  - ☒ D. Only conclusions II and III follow

**Q.48** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

7 : 40 :: 9 : 50 :: 12 : ?

- Ans**
- ☒ A. 70
  - ☒ B. 65
  - ☒ C. 105
  - ☒ D. 120

**Q.49** Seven people - A, C, G, K, M, R and V are sitting in a straight line facing North. As many people sit to the left of A as to the right of A. C sits second to the right of A. Only three people sit between C and G. K is not an immediate neighbour of G. M sits second to the right of K. R does not sit at any of the extreme ends of the line. How many people sit between V and R?

- Ans**
- ☒ A. More than three
  - ☒ B. Three
  - ☒ C. Two
  - ☒ D. One

**Q.50** Which of the following numbers will replace the question mark (?) in the given series?

1.6   2.5   3.6   ?   6.4   8.1

- Ans**
- ☒ A. 8.1
  - ☒ B. 4.8
  - ☒ C. 2.5
  - ☒ D. 4.9

**Q.51** Amongst six friends A, B, C, D, E and F, each has a different height. B is taller than F but shorter than E. Only one person is shorter than D. Only three people are taller than C. F is not the shortest. Who is the shortest among all the friends?

- Ans**
- ☒ A. D
  - ☒ B. A
  - ☒ C. C
  - ☒ D. B

**Q.52** Each of the digits in the number 56137428 is arranged in ascending order from left to right. The position of how many digits will remain unchanged as compared to that in the original number?

- Ans**
- ☒ A. None
  - ☒ B. One
  - ☒ C. Two
  - ☒ D. Three

**Q.53** Read the given statement and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statement.

Statement:

Restaurant X sold more pizzas than burgers in the last month.

Conclusion:

I. Pizzas are better than burgers

II. In Restaurant X, pizza seems to be more popular among buyers than burgers.

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Neither conclusion I nor II follows
  - ☒ D. Both conclusions I and II follow

**Q.54** Select the number that will replace the question mark (?) in the given series.

1    9    22    32    47    ?    76    90    109

- Ans**
- ☒ A. 64
  - ☒ B. 72
  - ☒ C. 69
  - ☒ D. 59

**Q.55** In an examination, Raman scored more marks than Prince. Robin scored less marks than Keshav and Deepak. Abhishek scored more marks than Deepak but less marks than Prince. Deepak scored more marks than Keshav. Who scored the third highest marks in the exam?

- Ans**
- ☒ A. Robin
  - ☒ B. Prince
  - ☒ C. Abhishek
  - ☒ D. Deepak

#### Section : General Science

**Q.56** Dihybrid cross between two traits in Mendel's experiments resulted in the ratio of:

- Ans**
- ☒ A. 1 : 3 : 9 : 3
  - ☒ B. 9 : 3 : 3 : 1
  - ☒ C. 9 : 1 : 3 : 3
  - ☒ D. 9 : 4 : 2 : 1

**Q.57** Which of the following represents material in the increasing order of their resistance?

- Ans**
- ☒ A. Conductors, alloys, insulators
  - ☒ B. Alloys, conductors, insulators
  - ☒ C. Insulator, alloys, conductors
  - ☒ D. Insulators, conductors, alloys

Q.58 Which of the following statements is FALSE with respect to CNG and LPG

- Ans
- ✓ A. CNG and LPG can be piped to homes.
  - ✗ B. CNG and LPG are labelled as 'clean fuels'.
  - ✗ C. CNG and LPG are both carbon-based fuels.
  - ✗ D. CNG and LPG do not contain carbon particles.

Q.59 Which of the following raw materials is used to make washing soda?

- Ans
- ✗ A. NaOH
  - ✗ B. NaHCO<sub>3</sub>
  - ✓ C. NaCl
  - ✗ D. MgCO<sub>3</sub>

Q.60 Which of the following two elements contain the same number of valence electrons?

- Ans
- ✗ A. N and C
  - ✓ B. F and Cl
  - ✗ C. H and He
  - ✗ D. B and Br

Q.61 Small carnivores or the secondary consumers come at \_\_\_\_\_ level.

- Ans
- ✗ A. first trophic
  - ✗ B. second trophic
  - ✓ C. third trophic
  - ✗ D. fourth trophic

Q.62 The filament of an electric bulb is made up of which of the given materials?

- Ans
- ✗ A. Copper
  - ✗ B. Gold
  - ✗ C. Nichrome
  - ✓ D. Tungsten

Q.63 Redox reaction is the reaction in which \_\_\_\_\_.

- Ans
- ✗ A. only oxidation occurs
  - ✗ B. only reduction occurs
  - ✓ C. oxidation and reduction occur simultaneously
  - ✗ D. neither oxidation nor reduction occur

Q.64 At what position of an object placed in front of a concave mirror is a diminished image formed?

- Ans
- ✓ A. Beyond centre of curvature
  - ✗ B. Between focus and centre of curvature
  - ✗ C. Between pole and focus
  - ✗ D. At focus

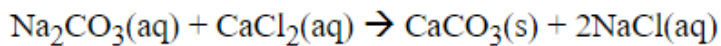
Q.65 The members of homologous series differ by \_\_\_\_\_ .

- Ans
- ✓ A.  $\text{CH}_2$  unit
  - ✗ B. CH unit
  - ✗ C.  $\text{C}_2\text{H}$  unit
  - ✗ D.  $\text{C}_2\text{H}_2$  unit

Q.66 A student got a stain on his shirt while doing an activity in the science laboratory. Which chemical should he use to remove the stain?

- Ans
- ✓ A. Sodium carbonate
  - ✗ B. Sodium hydrogencarbonate
  - ✗ C. Sodium hydroxide
  - ✗ D. Sodium chloride

Q.67 What is the given reaction an example of?



- Ans
- ✗ A. Combination and decomposition reaction
  - ✗ B. Displacement and combination reaction
  - ✓ C. Double displacement and precipitation reaction
  - ✗ D. Only displacement reaction

Q.68 The refractive index of a diamond is 2.42. Then the speed of light in the diamond is:

- Ans
- ✓ A.  $3 \times 10^8$  m/s
  - ✗ B.  $2.48 \times 10^8$  m/s
  - ✗ C.  $1.72 \times 10^8$  m/s
  - ✗ D.  $1.24 \times 10^8$  m/s

Q.69 Which element is NOT present in the VIII group and first series of the fourth period in Mendeleev's periodic table?

- Ans
- ✗ A. Fe
  - ✗ B. Co
  - ✗ C. Ni
  - ✓ D. Cu

Q.70 Bowman's capsule encloses \_\_\_\_\_.

- Ans
- ✗ A. nephrons
  - ✓ B. the glomerulus
  - ✗ C. neurons
  - ✗ D. platelets



**Q.71** The power of an electric fan is 10 Watt when it is connected to 20 V source. What is the current flowing through the fan?

- Ans**
- ✓ A. 0.5 amp
  - ✗ B. 200 amp
  - ✗ C. 2 amp
  - ✗ D. 0.005 amp

**Q.72** When carbon dioxide is dissolved in an aqueous solution of sodium hydroxide, the mixture reacts to give aqueous sodium carbonate and liquid water. The correct balanced equation for this reaction is:

- Ans**
- ✗ A.  $2\text{CO}_2(\text{aq}) + \text{NaOH}(\text{aq}) \rightarrow 2\text{Na}_2\text{CO}_3(\text{aq}) + \text{H}_2\text{O}(\text{l})$
  - ✗ B.  $\text{CO}_2(\text{aq}) + 2\text{NaOH}(\text{aq}) \rightarrow \text{NaCO}_3(\text{aq}) + \text{H}_2\text{O}(\text{l})$
  - ✗ C.  $2\text{CO}_2(\text{aq}) + \text{NaOH}(\text{aq}) \rightarrow 2\text{NaCO}_3(\text{aq}) + \text{H}_2\text{O}(\text{l})$
  - ✓ D.  $\text{CO}_2(\text{aq}) + 2\text{NaOH}(\text{aq}) \rightarrow \text{Na}_2\text{CO}_3(\text{aq}) + \text{H}_2\text{O}(\text{l})$

**Q.73** What happens when plants are kept in dark room for three days?

- Ans**
- ✗ A. Plants utilize protein reserves
  - ✓ B. Plants starch resources get used up
  - ✗ C. Plants oil reserves get used up
  - ✗ D. Plants hibernate for those 3 days

**Q.74** From the following, identify the correct properties of magnetic field lines.

- (a) Magnetic field lines are closed loops.
- (b) Magnetic field lines are from north pole of magnet to its south pole, outside the magnet.
- (c) Magnetic field lines intersect each other.
- (d) If magnetic field lines are crowded, the magnetic field strength in that region is high.
- (e) The number of magnetic field lines per unit area is called magnetic flux.

- Ans**
- ✓ A. (a), (b), (d)
  - ✗ B. (b), (c), (e)
  - ✗ C. (a), (c), (d)
  - ✗ D. (a), (b), (c) and (d)

**Q.75** Mendel did two experiments: (1) Pollen from tall plants was taken to fertilise ovules of short plants, and (2) pollen from short plants was taken to fertilise ovules of tall plants. If we compare the plants produced from these two experiments, we will see that \_\_\_\_\_.

- Ans**
- ✗ A. experiment 1 will produce tall plants and experiment 2 will produce short plants
  - ✗ B. experiment 1 will produce short plants and experiment 2 will produce tall plants
  - ✓ C. experiment 1 will produce tall plants and experiment 2 will also produce tall plants
  - ✗ D. experiment 1 will produce short plants and experiment 2 will also produce short plants

**Q.76** A convex lens has the radius of curvature as 40 cm. The power of the lens is:

- Ans**
- ☒ A. +2.5 D
  - ☒ B. -2.5 D
  - ☒ C. +5.0 D
  - ☒ D. -5.0 D

**Q.77** An adult human urine consists of:

- Ans**
- ☒ A. 95% water, 2.5% urea and 2.5% other waste products
  - ☒ B. 85% water, 2.5% urea and 2.5% ammonia
  - ☒ C. 85% water, 2.0% urea and 2.0% creatinine
  - ☒ D. 95% water, 2.0% urea and 2.0% ammonia

**Q.78** Magnetic field lines are \_\_\_\_\_.

- Ans**
- ☒ A. straight lines
  - ☒ B. open loops
  - ☒ C. closed curves
  - ☒ D. Dots

**Q.79** Suppose Raghu has kept an object in front of a concave mirror of focal length ( $f$ ) at various distances ( $u$ ) and he has measured the corresponding image distances ( $v$ ). From such an experiment, Raghu is able to plot a graph of  $u$  against  $1/\text{magnification}$ , i.e.  $u$  vs.  $1/m$ . Which of the following options is true?

- Ans**
- ☒ A. It is a straight line with slope  $+f$ , and x intercept  $-1$  and y intercept  $+f$
  - ☒ B. It is a straight line with slope  $+f$ , and x intercept  $+1$  and y intercept  $-f$
  - ☒ C. It is a straight line with slope  $1/f$ , and x intercept  $-1$  and y intercept  $+f$
  - ☒ D. It is a straight line with slope  $-1/f$ , and x intercept  $+1$  and y intercept  $-f$

**Q.80** Some fishes breathe by gulping water. These fish gulp water \_\_\_\_\_.

- Ans**
- ☒ A. more times per minute than an animal breathing air
  - ☒ B. less times per minute than an animal breathing air
  - ☒ C. more rapidly when they are near the surface of the water
  - ☒ D. less rapidly when they live in a turbulent river

#### Section : General Awareness and Current Affairs

**Q.81** Which of the following combinations of hills and the states in which they are located is correct?

- Ans**
- ☒ A. Mahadeo Hills – Kerala
  - ☒ B. Cardamom Hills – Odisha
  - ☒ C. Kaimur Hills – Bihar
  - ☒ D. Garhjat Hills – Madhya Pradesh

**Q.82** In March 2022, the Union Ministry for Road Transport and Highways, inaugurated the first of its kind pilot project for hydrogen based advanced Fuel Cell Electric Vehicle (FCEV), known as \_\_\_\_\_.

- Ans**
- ✓ **A. Toyota Mirai**
  - ✗ **B. Hyundai NEXO**
  - ✗ **C. Honda FCX Clarity**
  - ✗ **D. Honda Clarity Fuel Cell**

**Q.83** As on 4<sup>th</sup> February 2022 which one of the following scheme caters to primary needs of women in difficult circumstances – women and girls rendered homeless due to family discord, crime, violence, mental stress, social ostracism or are being forced into prostitution and are in moral danger?

- Ans**
- ✓ **A. Swadhar Greh Scheme**
  - ✗ **B. Ujjawala Scheme**
  - ✗ **C. One Stop Centres (OSCs)**
  - ✗ **D. National Social Assistance Programme (NSAP)**

**Q.84** India's first-ever mosque 'Cheraman Juma Masjid' was in the news due to its restoration after renovation in the year 2021. It is located in which of the following states?

- Ans**
- ✓ **A. Kerala**
  - ✗ **B. Uttar Pradesh**
  - ✗ **C. West Bengal**
  - ✗ **D. Rajasthan**

**Q.85** Which Indian football player broke legendary footballer Pele's record during a match against the Maldives in the 2021 SAFF Championship at Male in October 2021?

- Ans**
- ✗ **A. Bhaichung Bhutia**
  - ✗ **B. Sandesh Jhingan**
  - ✓ **C. Sunil Chhetri**
  - ✗ **D. Jeje Lalpekhlua**

**Q.86** Who was the most expensive player at the Indian Premier League (IPL) auction 2022?

- Ans**
- ✓ **A. Ishan Kishan**
  - ✗ **B. Deepak Chahar**
  - ✗ **C. Shreyas Iyer**
  - ✗ **D. Avesh Khan**

**Q.87** When was IFCI (Industrial Finance Corporation of India Ltd.) set up as a statutory corporation to provide medium and long-term finance to the industry?

- Ans**
- ✓ **A. 1948**
  - ✗ **B. 1954**
  - ✗ **C. 1969**
  - ✗ **D. 1975**

**Q.88** Which of the following is the major river that flows across the western part of Rajasthan?

- Ans**
- ✗ **A. Chambal**
  - ✓ **B. Luni**
  - ✗ **C. Banas**
  - ✗ **D. Ghaggar**

**Q.89** Which of the following financial institutions was set up by the Indian government to promote sustainable agriculture and rural development in the country?

- Ans**
- ☐ A. RBI
  - ☐ B. SIDBI
  - ☒ C. NABARD
  - ☐ D. PNB

**Q.90** Who among the following Prime Ministers constituted the Swaran Singh Committee, which recommended the incorporation of the Fundamental Duties in the Indian Constitution?

- Ans**
- ☐ A. Lal Bahadur Shastri
  - ☐ B. Morarji Desai
  - ☒ C. Indira Gandhi
  - ☐ D. Jawaharlal Nehru

**Q.91** What is significant about the Easter festival for the Christians?

- Ans**
- ☐ A. It is celebrated as a birthday of Jesus Christ.
  - ☒ B. It marks the resurrection of Jesus Christ from the dead.
  - ☐ C. It marks the new year of the Christians.
  - ☐ D. It is celebrated as an Autumn festival in Europe and North America.

**Q.92** Which of the following festivals is also known as 'peerla panduga'?

- Ans**
- ☐ A. Lailat al-Qadr
  - ☐ B. Bakrid
  - ☐ C. Ramadan
  - ☒ D. Muharam

**Q.93** Rashtriya Sanskrit Vidhyapeetha, Tirupati elevated to the status of a Central University in \_\_\_\_\_.

- Ans**
- ☐ A. 2018
  - ☒ B. 2020
  - ☐ C. 2021
  - ☐ D. 2022

**Q.94** The State Governor may be transferred from one state to another by the \_\_\_\_\_ of India.

- Ans**
- ☐ A. Prime Minister
  - ☐ B. Lok Sabha
  - ☐ C. Rajya Sabha
  - ☒ D. President

Q.95 Short Run Average Cost is equal to \_\_\_\_\_.

Ans ☒ A. Average Variable Cost – Average Fixed Cost

☒ B.  $\frac{\text{Average Variable Cost}}{\text{Average Fixed Cost}}$

☒ C. Average Variable Cost + Average Fixed Cost

☒ D. Average Variable Cost  $\times$  Average Fixed Cost

Q.96 In the Financial Year 2020-21, which state registered the highest coal production?

Ans ☒ A. Bihar

☒ B. Uttar Pradesh

☒ C. Chhattisgarh

☒ D. Madhya Pradesh

Q.97 Which telecom company became the first one in India to demonstrate the operation of the 5G network?

Ans ☒ A. Reliance Jio

☒ B. Airtel

☒ C. Vi

☒ D. BSNL

Q.98 Which of the following institutions/bodies is NOT included in the three-tier of the Panchayati Raj system?

Ans ☒ A. Tehsil Parishad

☒ B. Gram Panchayat

☒ C. Panchayat Samiti

☒ D. Zila Parishad

Q.99 Who formed the Swaraj Party in 1923?

Ans ☒ A. Motilal Nehru and Chittaranjan Das

☒ B. Jawaharlal Nehru and Mahatma Gandhi

☒ C. Subhash Chandra Bose and Bal Gangadhar Tilak

☒ D. Motilal Nehru and Maulana Azad

Q.100 Select the correct statement.

Ans ☒ A. The Second Five-Year Plan was based on the PC Mahalanobis model.

☒ B. The First Five-Year Plan was based on the PC Mahalanobis model.

☒ C. Jawaharlal Nehru was the first deputy chairman of the planning commission.

☒ D.

The Second Five-Year Plan was based on the Russian model introduced by Joseph Stalin.



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 07/10/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

Q.1  $\sec \theta + \tan \theta = p$ , then find  $4\sec \theta$ .

Ans

☐ A.  $\frac{(1+p^2)}{p}$

☒ B.  $\frac{2(1+p^2)}{p}$

☐ C.  $\frac{(1+p^2)}{2p}$

☐ D.  $\frac{2(1-p^2)}{p}$

Q.2 Factorise:  $y^3 - xy^2 - x^2y + x^3$

Ans

☐ A.  $(y - x)^2(y - x)$

☒ B.  $(y - x)^2(y + x)$

☐ C.  $(y - x)(y^2 + x^2)$

☐ D.  $(y + x)^2(y - x)$

Q.3  $(x + 2y - 3z)^2$  is equal to:

Ans

☐ A.  $x^2 + 4y^2 - 9z^2 + 4xy - 12yz - 6xz$

☒ B.  $x^2 + 4y^2 + 9z^2 + 4xy - 12yz - 6xz$

☐ C.  $x^2 + 4y^2 + 9z^2 + 4xy + 12yz - 6xz$

☐ D.  $x^2 + 4y^2 + 9z^2 + 4xy - 12yz + 6yz$

Q.4 The age of Raghu 8 years ago was thrice the then age of Mohan. Eight years hence, Raghu's age will be twice of Mohan's age. Find the ratio of the present ages of Mohan and Raghu, respectively.

Ans

☒ A. 3 : 7

☐ B. 4 : 5

☐ C. 6 : 7

☐ D. 3 : 5



**Q.5** Which of the options below represents a Pythagorean triplet?

- Ans**
- ☒ A. 15, 224, 223
  - ☒ B. 12, 143, 150
  - ☒ C. 20, 99, 101
  - ☒ D. 10, 99, 111

**Q.6** If  $ax^2 - 8x - 8$  is divided by  $(x + 2)$ , then the remainder is 24. Find the value of  $a$ .

- Ans**
- ☒ A. 1
  - ☒ B. 4
  - ☒ C. 3
  - ☒ D. 2

**Q.7** Straight lines  $l$  and  $m$  are parallel to each other. Points A and B lie on the line  $l$ , points C and D lie on the line  $m$ , and E is a point that lies between the straight lines  $l$  and  $m$ , all in such a manner that  $m\angle EAB = 50^\circ$  and  $m\angle ECD = 70^\circ$ . Find the measure of  $\angle AEC$  if points A and C lie on the same side of point E.

- Ans**
- ☒ A.  $100^\circ$
  - ☒ B.  $60^\circ$
  - ☒ C.  $70^\circ$
  - ☒ D.  $120^\circ$

**Q.8** There are three pipes A, B and C in a tank. The first pipe A can fill the empty tank in 8 hours, the second pipe B can fill the empty tank in 10 hours, and the third pipe C can empty the completely filled tank in 20 hours. If the three pipes are opened together when the tank is completely empty, then in how many hours will the tank be completely filled?

- Ans**
- ☒ A.  $\frac{30}{7}$  hours
  - ☒ B.  $\frac{40}{7}$  hours
  - ☒ C.  $\frac{20}{11}$  hours
  - ☒ D.  $\frac{25}{11}$  hours

**Q.9** If the mean and the mode of a data set are 5 and 8, respectively, then, using the relevant empirical relation, find the median of the same data set.

- Ans**
- ☒ A. 3.5
  - ☒ B. 7
  - ☒ C. 6
  - ☒ D. 14

**Q.10** The LCM of two numbers is 10 times their HCF and the sum of the LCM and the HCF is 451. If the sum of the numbers is 287, then one of the two numbers is:

- Ans**
- ☒ A. 41
  - ☒ B. 82
  - ☒ C. 123
  - ☒ D. 164

**Q.11** The median of the following data is 28.5. The total frequency is 60. The values of x and y, respectively, are:

| Age in years    | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | Total |
|-----------------|------|-------|-------|-------|-------|-------|-------|
| No. of patients | 5    | x     | 20    | 15    | y     | 5     | 60    |

**Ans** ✓ A.  $x = 8, y = 7$

✗ B.  $x = 7, y = 8$

✗ C.  $x = 9, y = 6$

✗ D.  $x = 6, y = 9$

**Q.12** The perimeter of a regular pentagon whose each side is  $2a$  cm long is:

**Ans** ✓ A.  $10a$  cm

✗ B.  $10a^2$  cm

✗ C.  $5a$  cm

✗ D.  $5a^5$  cm

**Q.13** The simple interest for 6 years, at a certain rate of interest per annum, is one-sixth of the principal. At the same rate of simple interest, what sum of money will amount to ₹6,000 total in 3 years?

[Give your answer correct to 2 decimal places.]

**Ans** ✓ A. ₹5,538.46

✗ B. ₹6,539.65

✗ C. ₹5,565.39

✗ D. ₹6,565.39

**Q.14** If the cost price of 63 articles is equal to the selling price of 54 articles, then what is the percentage gain or loss?

**Ans** ✗ A.  $16\frac{2}{3}\%$  loss

✓ B.  $16\frac{2}{3}\%$  gain

✗ C.  $15\frac{1}{3}\%$  loss

✗ D.  $15\frac{1}{3}\%$  gain

**Q.15** If 5 is subtracted from x, then the resulting number is exactly divisible by 18, 16, 24 and 32. The smallest value of x is:

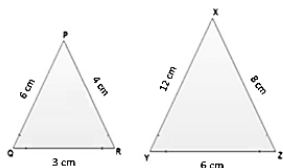
**Ans** ✓ A. 293

✗ B. 283

✗ C. 288

✗ D. 581

**Q.16** In the given figures (figures drawn are not to scale), by which of the following similarity criteria  $\triangle PQR$  is similar to  $\triangle XYZ$ , where S – side and A – Angle?



**Ans** ✓ A. SSS

✗ B. SAS

✗ C. AAA

✗ D. AAS



**Q.17** If 2 and 5 are the roots of a quadratic equation, then the quadratic equation is given by:

- Ans**
- ☐ A.  $x^2 + 7x + 10 = 0$
  - ☐ B.  $2x^2 + 7x + 10 = 0$
  - ☐ C.  $x^2 + 3x + 7 = 0$
  - ☒ D.  $x^2 - 7x + 10 = 0$

**Q.18** There are three pipes K, L and M. Pipe K can fill a tank in 45 minutes and pipe L can fill the same tank in one hour. Pipe M can empty the same tank, when filled, in 1 hour 45 minutes. If all three pipes are opened together when the tank is empty, then the tank will be filled in:

- Ans**
- ☐ A.  $24\frac{3}{37}$  minutes
  - ☒ B.  $34\frac{2}{37}$  minutes
  - ☐ C.  $44\frac{5}{37}$  minutes
  - ☐ D.  $54\frac{9}{37}$  minutes

**Q.19** Two sides of a triangular field are 41 m and 28 m. If its perimeter is 84 m, then what is the length of the smallest altitude of the triangle? [Give your answer correct to two places of decimal.]

- Ans**
- ☐ A. 7.15 m
  - ☐ B. 7.12 m
  - ☐ C. 6.12 m
  - ☒ D. 6.15 m

**Q.20** During a sale, a trader allows a 25% cash discount followed by a 10% trade discount. If the list price of an item is ₹800, then its selling price is:

- Ans**
- ☐ A. ₹280
  - ☒ B. ₹540
  - ☐ C. ₹275
  - ☐ D. ₹510

**Q.21** Find the smallest number from the options given below, by which 242 should be divided so as to make the quotient a perfect square.

- Ans**
- ☐ A. 1
  - ☐ B. 4
  - ☐ C. 3
  - ☒ D. 2

**Q.22** If the product of the ages of M and N is 486 years and the ratio of their ages is 3 : 2, what is the sum of their ages?

- Ans**
- ☒ A. 45 years
  - ☐ B. 60 years
  - ☐ C. 65 years
  - ☐ D. 70 years

**Q.23** Simplify the following.

$$(-2)^4 \div (-2)^6$$

**Ans** ☒ A. -4

☒ B.  $-\frac{1}{4}$

☒ C. 4

☒ D.  $\frac{1}{4}$

**Q.24** The sum of the numerator and the denominator of a fraction is 13. If 6 is added to both the numerator and the denominator, then the fraction becomes  $\frac{8}{17}$ . Find the absolute difference between the numerator and the denominator of the given fraction.

**Ans** ☒ A. 12

☒ B. 8

☒ C. 9

☒ D. 10

**Q.25** The ratio of the income of A to that of B is 3 : 5. The expenditure of A is  $\frac{7}{12}$  of his income, and the expenditure of B is  $\frac{8}{15}$  of his income. The positive difference between their expenditures is ₹14,300. Find A's income.

**Ans** ☒ A. ₹78,000

☒ B. ₹46,800

☒ C. ₹16,800

☒ D. ₹48,300

#### Section : General Intelligence and Reasoning

**Q.26** A statement is given followed by two possible conclusions numbered I and II. You have to assume everything in the statement to be true and on the basis of it, decide which of the conclusions logically follow(s).

**Statement:**

Playing with mud and butterflies in a garden is more beneficial for small children than watching academic videos on computers or mobile phones.

**Conclusions:**

I. Mobile phones and computers are harmful for small children.

II. Real experiences are more beneficial than virtual experiences for children's development.

**Ans** ☒ A. Only conclusion I follows

☒ B. Only conclusion II follows

☒ C. Both the conclusions follow

☒ D. Neither conclusion follows

**Q.27** In a certain code language, 'PROOF' is written as 'OPLKA' and 'BONES' is written as 'AMKAN'. How will 'MINKS' be written in that language?

**Ans** ☒ A. LGKGN

☒ B. LKGKN

☒ C. LHKHO

☒ D. LKHGO

**Q.28** Select the option that is related to the third term in the same way as the second term is related to the first term and the sixth term is related to the fifth term.

57 : 39 :: 82 : ? :: 89 : 71

- Ans**
- ✓ A. 64
  - ✗ B. 66
  - ✗ C. 62
  - ✗ D. 67

**Q.29** Seven friends are sitting in a row on a bench facing the north direction. Only Dan is between Leo and Ben. Leo is sitting at the extreme left end of the bench. Harry is third from the right end. Only Peter is sitting between Tim and Harry. Flint is sitting in the exact middle of the row. Who is sitting to the immediate left of Flint?

- Ans**
- ✗ A. Harry
  - ✗ B. Dan
  - ✓ C. Ben
  - ✗ D. Peter

**Q.30** Vimal starts from Point A and drives 6 km towards North. He then takes a right turn, drives 7 km, turns right and drives 19 km. He then takes a right turn and drives 7 km. He then takes a right turn and drives 8 km, turns right, drives 13 km. He then turns left, drives 5 km and stops at Point B. How far and towards which direction should he drive in order to reach Point A from Point B? (All turns are 90 degree turns only)

- Ans**
- ✗ A. 9 km towards South
  - ✓ B. 13 km towards West
  - ✗ C. 6 km towards East
  - ✗ D. 8 km towards South

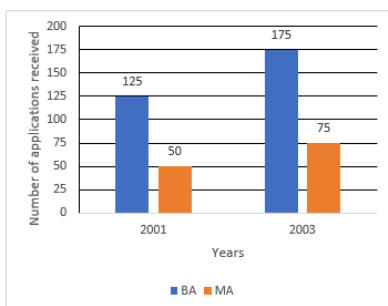
**Q.31** Which of the following numbers will replace the question mark (?) in the given number series?

176, 168, 160, 152, 144, ?

- Ans**
- ✗ A. 138
  - ✓ B. 136
  - ✗ C. 142
  - ✗ D. 132

**Q.32** Study the given bar-graph and answer the question that follows.

The bar-graph depicts the number of applications received for two courses (BA and MA) in 2001 and 2003.



The number of applications received for BA from females in 2001 and 2003 was 73 and 101, respectively. What was the total number of applications received for BA from males in 2001 and 2003 together?

- Ans**
- ✗ A. 124
  - ✗ B. 116
  - ✓ C. 126
  - ✗ D. 128

**Q.33** N, R, S, W, X and Z live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 6. N lives on floor number 2. No one lives between N and R. Only three people live between R and S. W lives immediately above X. On which floor number does Z live?

- Ans**
- ✓ A. 6
  - ✗ B. 5
  - ✗ C. 3
  - ✗ D. 1

**Q.34** Which two numbers from amongst the given options should be interchanged to make the given equation correct?

$$382 + 9 \div 4 - 39 \times 172 = 74$$

- Ans**
- ✓ A. 9 and 172
  - ✗ B. 382 and 39
  - ✗ C. 9 and 4
  - ✗ D. 4 and 172

**Q.35** Refer to the following number and symbol series and answer the question.

(Left) 8 # 7 \* 3 \$ 9 6 2 @ 7 & 9 % 4 3 7 % & 2 5 ^ 6 (Right)

How many such symbols are there in the series which are immediately preceded by an odd number and also immediately followed by an even number?

- Ans**
- ✓ A. Two
  - ✗ B. Three
  - ✗ C. Four
  - ✗ D. Five

**Q.36** A group of numbers/symbols is coded using letters as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Number/symbol | 1 | & | 2 | 9 | * | 7 | 3 | \$ | 8 | 5 | 6 | 4 | @ | # |
|---------------|---|---|---|---|---|---|---|----|---|---|---|---|---|---|
| Code          | B | F | I | K | A | V | S | U  | E | Q | C | P | X | T |

Conditions:

- (i) If the first element is a symbol and the second element is an even number, the first and the second elements are to be coded as €
- (ii) If both the first and the last elements are numbers, the codes for these two (the first and the last elements) are to be interchanged
- (iii) If last element is a symbol, the element is to be coded as β

5 @ & 2 7

- Ans**
- ✗ A. QXFIV
  - ✗ B. VFXIV
  - ✓ C. VXFIQ
  - ✗ D. FXIQV

**Q.37** Suresh starts from Point A and drives 7 km towards the east. He then takes a left turn, drives 4 km, turns right and drives 5 km. He then takes a right turn and drives 10 km, takes a right turn and drives 8 km. He then takes right turn and drives 13 km. He takes a final left turn, drives 4 km and stops at Point B. How far and towards which direction should he drive in order to reach Point A from Point B? (All turns are 90 degree turns only)

- Ans**
- ✗ A. 5 km towards the north
  - ✓ B. 7 km towards the south
  - ✗ C. 3 km towards the south
  - ✗ D. 7 km towards the west

**Q.38** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

(32, 166, 19)

(49, 230, 17)

**Ans** ☒ A. (37, 186, 21)

☒ B. (36, 186, 20)

☒ C. (36, 186, 21)

☒ D. (36, 187, 21)

**Q.39** A, B, C, D, E, F, G and H live on eight different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 8.

D lives on an even numbered floor but does not live on floor number 4 or 2. Only five persons live between D and A. C lives immediately above A. H lives on floor number 1. Only B lives between the floors of F and D. E does not live on an even numbered floor. How many people live above E's floor?

**Ans** ☒ A. 1

☒ B. 4

☒ C. 3

☒ D. 2

**Q.40** Six friends L, M, N, O, P and Q live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 6.

Only O lives on the floor between the floors of M and Q. Only N lives on the floor between the floors of L and P. Q lives on one of the floors above the floor of L. On which floor does O live?

**Ans** ☒ A. 3<sup>rd</sup>

☒ B. 2<sup>nd</sup>

☒ C. 5<sup>th</sup>

☒ D. 4<sup>th</sup>

**Q.41** Refer to the following letter series and answer the question.

Y A B U Y H I R J S B R X M P Q S D I R A Y E F G

How many such consonants are there each of which is immediately preceded by a vowel and also immediately followed by a vowel?

**Ans** ☒ A. 1

☒ B. 2

☒ C. 3

☒ D. 4

**Q.42** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

All lilies are daisies.

All roses are lilies.

All petunias are lilies.

Conclusions:

I. Some daisies are petunias.

II. Some roses are petunias.

**Ans** ✓ **A. Only conclusion I follows**

✗ **B. Only conclusion II follows**

✗ **C. Neither conclusion I nor II follows**

✗ **D. Both conclusions I and II follow**

**Q.43** Three statements are given followed by two conclusions numbered I and II. You have to take the statements to be true, even if they seem to be at variance with commonly known facts and decide which of the conclusions logically follow(s) from the statements.

Statements:

All Umbrellas are Raincoats.

All Raincoats are Frogs.

Some Raincoats are Water.

Conclusions:

(I) Some Frogs are Water.

(II) All Umbrellas are Frogs.

**Ans** ✗ **A. Only conclusion (I) follows.**

✗ **B. Only conclusion (II) follows.**

✓ **C. Both conclusions (I) and (II) follow.**

✗ **D. Neither conclusion (I) nor (II) follows.**

**Q.44** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

YRF : UNB

GLS : CHO

**Ans** ✗ **A. TDU : GWF**

✓ **B. MPL : ILH**

✗ **C. RJM : TSY**

✗ **D. OKA : LPZ**

**Q.45** In this question, the statement is followed by four conclusions. Find out which conclusion is NOT true based on the given statement.

Statement :  $L > D = W \geq K > Q < C \leq P$

**Ans** ✓ **A.  $D \leq Q$**

✗ **B.  $K \leq D$**

✗ **C.  $L > W$**

✗ **D.  $P > Q$**

**Q.46** Each vowel in the word INTERNAL is changed to the letter following it in the English alphabetical order and each consonant is changed to the letter preceding it in the English alphabetical order. If each letter thus formed is arranged in alphabetical order, which letter will be the fifth from the right?

- Ans** ☒ A. K  
☐ B. M  
☐ C. J  
☐ D. F

**Q.47** A statement is given followed by four conclusions as options. Select which conclusion is true based on the given statement.

Statement:  $R > M = N < Q < P = J$

- Ans** ☐ A.  $R < Q$   
☒ B.  $J > M$   
☐ C.  $M > P$   
☐ D.  $P < M$

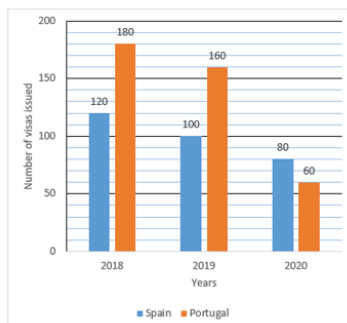
**Q.48** What will come in the place of '?' in the following equation, if '+' and '-' are interchanged and also '×' and '÷' are interchanged?

$$100 \times 25 - 10 \div 5 + 24 = ?$$

- Ans** ☐ A. 54  
☐ B. 40  
☒ C. 30  
☐ D. 24

**Q.49** Study the given bar graph and answer the following question.

The given bar graph depicts the number of visas issued for Spain and Portugal in 2018, 2019 and 2020



What is the respective ratio between the total number of visas issued for both the countries in 2018 and the number of visas issued for Portugal in 2020?

- Ans** ☐ A. 5 : 2  
☐ B. 3 : 2  
☐ C. 3 : 1  
☒ D. 5 : 1

**Q.50** If the numbers given below are arranged in ascending order, then which number is third from the right?

Left 11, 3, 2, 6, 14, 9, 7, 5, 2 Right

- Ans** ☐ A. 3  
☐ B. 7  
☐ C. 11  
☒ D. 9

- Q.51** D, E, H, K, M, R, S and W are sitting around a square table facing the centre of the table. Some of them are sitting at the corners while some are sitting at the exact centre of the sides.  
D sits at one of the corners of the table. E sits second to the left of D. Only three people sit between E and H. Only one person sits between H and M. S sits to the immediate left of M. W is not an immediate neighbour of D. K sits second to the right of R.

As per the given arrangement, \_\_\_ sits to the immediate left of R.

- Ans** ☒ A. E  
☐ B. D  
☐ C. H  
☐ D. M

- Q.52** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

1. Some roses are geraniums.
2. Some roses are daisies.
3. Some lilies are geraniums.

Conclusions:

- I-Some geraniums are daisies.  
II-Some lilies are roses.

- Ans** ☐ A. Only conclusion I follows.  
☐ B. Only conclusion II follows.  
☐ C. Both conclusions I and II follow.  
☒ D. Neither conclusion I nor II follows.

- Q.53** Select the option that represents the letters that, when placed from left to right in the same sequence in the blanks below, will complete the letter series.

K H U \_ H K \_ U S G K H U S \_ \_ H U S E

- Ans** ☐ A. H S K F  
☐ B. S S F K  
☒ C. S H F K  
☐ D. H F H K

- Q.54** Which of the following numbers will replace the question mark (?) in the given series?

11, 12, 14, 18, 26, ?

- Ans** ☐ A. 56  
☐ B. 34  
☒ C. 42  
☐ D. 48

- Q.55** Refer to the following letter, number, symbol series and answer the question.

(Left) S Q 8 J & L N 9 % \* K T # 6 2 V 4 @ 5 Z 7 (Right)

How many such symbols are there which are immediately preceded by a number and also immediately followed by a number?

- Ans** ☐ A. Four  
☐ B. Three  
☐ C. Two  
☒ D. One



**Q.56** The ratio of currents flowing through two electric circuits is 1: 4. If the ratio of resistances is 2: 1, what is the ratio of their powers?

- Ans**
- ☒ A. 8: 1
  - ☒ B. 1: 32
  - ☒ C. 1: 8
  - ☒ D. 32: 1

**Q.57** For a given concave mirror of focal length 0.5 m if the object distance is 0.6 m, then the magnification produced is:

- Ans**
- ☒ A. 0.5
  - ☒ B. -0.5
  - ☒ C. 5
  - ☒ D. -5

**Q.58** When two resistors are connected in series, their total effective resistance is 120  $\Omega$ . When the same two resistors are connected in parallel then their effective resistance is 30  $\Omega$ . The resistances of the two resistors are:

- Ans**
- ☒ A. 90 $\Omega$  and 30  $\Omega$
  - ☒ B. 60 $\Omega$  and 60 $\Omega$  each
  - ☒ C. 70 $\Omega$  and 50 $\Omega$
  - ☒ D. 80  $\Omega$  and 40  $\Omega$

**Q.59** The SI unit of electric power is \_\_\_\_\_.

- Ans**
- ☒ A. Joule
  - ☒ B. Calorie
  - ☒ C. Newton
  - ☒ D. Watt

**Q.60** The correct relation between refractive index ( $\mu$ ), speed of light in air ( $c$ ) and speed of light in the medium ( $v$ ) is:

- Ans**
- ☒ A.  $c = \frac{\mu}{v}$
  - ☒ B.  $v = \frac{\mu}{c}$
  - ☒ C.  $\mu = \frac{c}{v}$
  - ☒ D.  $\frac{1}{\mu} = \frac{c}{v}$

**Q.61** In an electric motor, the forces acting on the arms of the armature of the motor that are perpendicular to the direction of magnetic field are:

- Ans**
- ☒ A. equal in magnitude and opposite in direction
  - ☒ B. unequal in magnitude and along same direction
  - ☒ C. equal in magnitude and in the same direction
  - ☒ D. unequal in magnitude and in the opposite direction

Q.62 What is the basic difference in food intake by Amoeba and Paramoecium?

Ans ☒ A.

Amoeba takes up food through specific spot while paramoecium can take up from 2 spots

☒ B. Both of them can take up through the entire cell surface

☒ C.

Amoeba can take up through entire cell surface and paramoecium through 4 spots on its cells surface

☒ D. Amoeba can take up food from entire cell surface

Paramoecium only through specific spot

Q.63 Which of the following provides proteins for growth?

Ans ☒ A. Apple

☒ B. Leafy vegetables

☒ C. Cereals

☒ D. Pulses

Q.64 Which of the following compounds on treatment with chlorine produces bleaching powder?

Ans ☒ A. Slaked lime

☒ B. Quicklime

☒ C. Calcium carbonate

☒ D. Calcium bicarbonate

Q.65 Formation of carbon monoxide from carbon dioxide and oxygen is an example of \_\_\_\_.

Ans ☒ A. neutralisation reaction

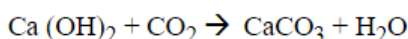
☒ B. decomposition reaction

☒ C. combination reaction

☒ D. displacement reaction

Note: For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

Q.66 How many atoms of oxygen are on the left side of the given chemical equation?



Ans ☒ A. 4

☒ B. 3

☒ C. 2

☒ D. 1

Q.67 The image produced by a concave mirror when an object is kept at the centre of the curvature of the mirror is:

Ans ☒ A. real and erect

☒ B. real and inverted

☒ C. virtual and erect

☒ D. virtual and inverted

Q.68 Match the columns.

| Group-I             | Group-II        |
|---------------------|-----------------|
| I. Solid waste      | A. Composting   |
| II. Organic waste   | B. Open dumping |
| III. Hospital waste | C. Incineration |

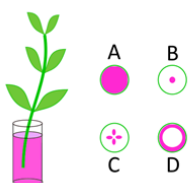
Ans ☒ A. I-C; II-A; III-B

☒ B. I-C; II-B; III-A

☒ C. I-B; II-C; III-A

☒ D. I-B; II-A; III-C

Q.69 A cut twig is placed in coloured water as shown in the diagram below. After a few hours, when the twig is cut, how will it look (where will we find the coloured tissue)?



Ans ☒ A. Like figure A

☒ B. Like figure B

☒ C. Like figure C

☒ D. Like figure D

Q.70 Which of the following organisms break down food material outside the body and then absorb the digested food?

Ans ☒ A. Mushroom

☒ B. Lice

☒ C. Amoeba

☒ D. Deer

Q.71 Which reaction occurs when a student adds a few drops of lemon in milk?

Ans ☒ A. Combination reaction

☒ B. Hydrolysis

☒ C. Precipitation reaction

☒ D. Displacement reaction

Q.72 The presence of a magnetic field can be determined by \_\_\_\_\_.

Ans ☒ A. an ammeter

☒ B. a voltmeter

☒ C. a galvanometer

☒ D. a magnetic needle

Q.73 Unsaturated hydrocarbons that contain one or more double bonds are known as \_\_\_\_\_.

- Ans
- ☒ A. ketones
  - ☒ B. alkenes
  - ☒ C. Alkanes
  - ☒ D. Acids

Q.74 How will you diagnose if a person is infected with HIV a year ago?

- Ans
- ☒ A. By low blood cell count
  - ☒ B. By loss of weight and fatigue
  - ☒ C. By anti-HIV antibodies in the blood
  - ☒ D. Persistent fever (over a month)

Q.75 Which of the following is used for removing permanent hardness of water?

- Ans
- ☒ A.  $\text{CaOCl}_2$
  - ☒ B.  $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$
  - ☒ C.  $\text{NaCl}$
  - ☒ D.  $\text{NaHCO}_3$

Q.76 What types of waste products are stored in Old Xylem?

- Ans
- ☒ A. Growth promoting substances
  - ☒ B. Ammonia, urea and amino acids
  - ☒ C. Resins and gums
  - ☒ D. Uric acid

Q.77 The phenomena of scattering of light by colloidal particles gives rise to \_\_\_\_\_.

- Ans
- ☒ A. refraction of light
  - ☒ B. Tyndall effect
  - ☒ C. dispersion
  - ☒ D. Total internal reflection

Q.78 What is the atomic number and valency of sulphur, respectively?

- Ans
- ☒ A. 16 and 2
  - ☒ B. 14 and 4
  - ☒ C. 15 and 3
  - ☒ D. 17 and 1

Q.79 Which of the following can lead to sustainable management of forest resources?

- Ans
- ☒ A. Making forests off-limits to human beings and their livestock
  - ☒ B. Using money from safari tourists to protect forests from logging
  - ☒ C. Adjusting the harvest of wood depending on the rate of growth of forests
  - ☒ D. Applying fertilisers and growth promoters to enhance the growth of trees

**Q.80** What is the position of zinc in the Modern Periodic Table?

- Ans**
- ☐ A. Group 11, Period 3
  - ☐ B. Group 12, Period 3
  - ☐ C. Group 11, Period 4
  - ☒ D. Group 12, Period 4

Section : General Awareness and Current Affairs

**Q.81** Which of the following best defines the Fiscal Deficit in Indian budget?

- Ans**
- ☐ A. Capital expenditure minus capital receipts
  - ☐ B. Revenue expenditure plus capital expenditure minus revenue receipts
  - ☒ C. Total expenditure minus total receipt other than borrowing
  - ☐ D. Total expenditure plus total receipt including borrowing

**Q.82** Which of the following Articles vests the executive powers of the State in the Governor?

- Ans**
- ☐ A. Article 146
  - ☒ B. Article 154
  - ☐ C. Article 176
  - ☐ D. Article 181

**Q.83** Which of the following is NOT a scheme or initiative run by Ministry of Youth Affairs and Sports?

- Ans**
- ☐ A. Khelo India Scheme
  - ☐ B. National Sports Awards
  - ☐ C. National Sports Development Fund
  - ☒ D. Shyama Prasad Mukherjee National Sports Welfare Fund

**Q.84** The Fundamental Duties in the Indian Constitution were added by which amendment to the Constitution?

- Ans**
- ☐ A. 40<sup>th</sup>
  - ☐ B. 41<sup>st</sup>
  - ☒ C. 42<sup>nd</sup>
  - ☐ D. 43<sup>rd</sup>

**Q.85** Which of the following statements about the Rann of Kutch is NOT correct?

- Ans**
- ☐ A. It is a salt marsh in the Thar Desert in the Kutch District of Gujarat.
  - ☐ B. This famous desert of white salt is visible after the monsoon season.
  - ☐ C. It is famous for the wild ass.
  - ☒ D. It is located in the Eastern Ghat in Odisha state.

**Q.86** Which of the following Acts of Constitution, seeks to provide a common framework for the structure and mandate of urban local bodies to enable them to function as effective democratic units of Local Self Government?

- Ans**
- ☐ A. 70<sup>th</sup> Amendment Act, 1990
  - ☒ B. 74<sup>th</sup> Amendment Act, 1992
  - ☐ C. 4<sup>th</sup> Amendment Act, 1956
  - ☐ D. 10<sup>th</sup> Amendment Act, 1966

**Q.87** The Indian Councils Act of 1909 is also termed as the \_\_\_\_\_.

- Ans**
- ☐ A. Quit India Movement
  - ☐ B. Simon Commission
  - ☒ C. Morley-Minto Reforms
  - ☐ D. Chauri Chaura incident

**Q.88** Amdavad Municipal Transport Service is India's largest Municipal Transport Service for local conveyance. R.T.A issued the permit to manage 29 routes for the bus-service to Municipality of Amdavad in January \_\_\_\_\_.

- Ans**
- ☐ A. 1941
  - ☒ B. 1947
  - ☐ C. 1950
  - ☐ D. 1952

**Q.89** A receipt that does NOT lead to a claim on the government is known as a \_\_\_\_\_.

- Ans**
- ☒ A. revenue receipt
  - ☐ B. capital receipt
  - ☐ C. redeemable receipt
  - ☐ D. claimed receipt

**Q.90** Centre for Excellence in Artificial Intelligence is an initiative by which organisation?

- Ans**
- ☐ A. INFLIBNET
  - ☐ B. Indian Space Research Organisation
  - ☒ C. National Informatics Centre
  - ☐ D. Indian Institute of Science

**Q.91** Which ministry launched a special campaign namely Kanya Shiksha Pravesh Utsav launched on 7th March, 2022 to re-enroll out of school adolescent girls (OoS AG) in the age group of 11-14 years?

- Ans**
- ☒ A. Ministry of Women and Child Development
  - ☐ B. Ministry of Education
  - ☐ C. Ministry of Home Affairs
  - ☐ D. Ministry of Health and family Welfare



**Q.92** Select the correct statement.

**Ans** ☒ A.

The amount collected by the government in the form of interest, fees, and dividends is known as tax revenue receipt.

☒ B.

An annual statement of the government's fiscal revenue and fiscal expenditure known as fiscal budget.

☒ C. Capital budget is not a part of government budget.

☒ D. A fiscal deficit is a shortfall in a government's income compared with its spending.

**Q.93** Who among the following was the First Vice Chancellor of Maulana Azad National Urdu University?

**Ans** ☒ A. Prof. Abdul Jaleelkhan M.Pathan

☒ B. Prof. Mohammad Miyan

☒ C. Prof. Mohammed Shamim Jairajpuri

☒ D. Dr. Mohammad Aslam Parvaiz

**Q.94** Padma Shri 2022 awardee para-javelin thrower Sumit Antil belongs to which of the following states?

**Ans** ☒ A. Rajasthan

☒ B. Uttarakhand

☒ C. Haryana

☒ D. Karnataka

**Q.95** The Basilica of Bom Jesus is a Roman Catholic basilica located in the state of \_\_\_\_\_ and is a UNESCO World Heritage Site.

**Ans** ☒ A. Andhra Pradesh

☒ B. Meghalaya

☒ C. Kerala

☒ D. Goa

**Q.96** On 1 March 2022, how many teachers across India were bestowed the National Information and Communication Technology (ICT) Awards 2022 by the Union Minister of State for Education Annpurna Devi?

**Ans** ☒ A. 49

☒ B. 59

☒ C. 69

☒ D. 79

**Q.97** Which of the following Articles of the Indian Constitution says that no child below the age of fourteen years shall be employed to work in any factory or mine or engaged in any other hazardous employment?

**Ans** ☒ A. Article 24

☒ B. Article 25

☒ C. Article 26

☒ D. Article 27

**Q.98** Which Indian state celebrates Rongali Bihu, a spring dramatic-cultural festival?

**Ans** ☒ A. Assam

☒ B. Meghalaya

☒ C. West Bengal

☒ D. Tripura

**Q.99** Nandadevi Biosphere Reserve is located in:

- Ans**
- ☐ A. Ladakh
  - ☐ B. Himachal Pradesh
  - ☐ C. Sikkim
  - ☒ D. Uttarakhand

**Q.100** The Narmada or Nerbudda is a river in central India that empties into the Arabian Sea in the state of \_\_\_\_\_.

- Ans**
- ☐ A. Rajasthan
  - ☐ B. Maharashtra
  - ☐ C. Karnataka
  - ☒ D. Gujarat





# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 07/10/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** Which of the following numbers is divisible by both 6 and 9?

- Ans**
- ☒ A. 4256
  - ☒ B. 2156
  - ☒ C. 5186
  - ☒ D. 3186

**Q.2** If  $x - y = 9$  and  $xy = 16$ , find the value of  $x^2 + y^2$ .

- Ans**
- ☒ A. 113
  - ☒ B. 49
  - ☒ C. 32
  - ☒ D. 115

**Q.3** The ages of K and M are in the ratio of 7 : 5 and the sum of their ages is 72 years. What will be the ratio of the ages of K and M, in the mentioned order, after 9 years?

- Ans**
- ☒ A. 9 : 8
  - ☒ B. 13 : 11
  - ☒ C. 12 : 9
  - ☒ D. 17 : 13

**Q.4** If  $u - v = 4$  and  $uv = 20$ , then the value of  $u^3 - v^3$  is:

- Ans**
- ☒ A. 64
  - ☒ B. 224
  - ☒ C. 304
  - ☒ D. 176

**Q.5** A and B together can complete a piece of work in 5 days. They started working together but after 3 days, B left. If the work is completed after 3 more days, B alone could do the entire work in:

- Ans**
- ☒ A. 6.5 days
  - ☒ B. 15 days
  - ☒ C. 13 days
  - ☒ D. 7.5 days

**Q.6** A and B have undertaken to do a piece of work for ₹800. A alone can do it in 6 days, while B alone can do it in 8 days. With the help of C, they can finish it in 3 days. What is the share (in ₹) of A in the total amount received for completing the work?

- Ans**
- ☒ A. 450
  - ☒ B. 350
  - ☒ C. 400
  - ☒ D. 300

**Q.7** The average temperature on Monday, Tuesday and Wednesday was 32°C, and the average temperature on Sunday, Monday and Tuesday was 36°C. If the temperature on Sunday was 39°C, then find the temperature on Wednesday.

- Ans**
- ☒ A. 34°C
  - ☒ B. 27°C
  - ☒ C. 26°C
  - ☒ D. 28°C

**Q.8** Which of the following statements is true?

- Ans**
- ☒ A. 1 is a prime number.
  - ☒ B. All prime numbers except the number 2 are odd numbers.
  - ☒ C. There are seven prime numbers between 1 and 20.
  - ☒ D. If number x is prime, then number x+1 is always prime.

**Q.9** Kamal has two children, Vishnu and Deeksha. At present, Kamal is 3 times as old as Vishnu. Deeksha is 3 years younger than Vishnu. 3 years ago, the sum of the then ages of all three of them was 63 years. Find the present age (in years) of Kamal.

- Ans**
- ☒ A. 20
  - ☒ B. 54
  - ☒ C. 46
  - ☒ D. 45

**Q.10** Find the value of  $7 \times 8 + 11 - (17 - 5)$ .

- Ans**
- ☒ A. 55
  - ☒ B. 45
  - ☒ C. 57
  - ☒ D. 47

**Q.11** The product of two consecutive odd numbers is 1155. Represent the situation in the form of a quadratic equation, if x is smaller of the two numbers.

- Ans**
- ☒ A.  $x^2 - 2x - 1155 = 0$
  - ☒ B.  $x^2 + 2x + 1155 = 0$
  - ☒ C.  $x^2 + 2x - 1155 = 0$
  - ☒ D.  $x^2 + x + 1155 = 0$

Q.12 If  $\cot\theta - \operatorname{cosec}\theta = -\frac{1}{3}$ , find  $\frac{(1+\cos\theta)}{\sin\theta}$ .

- Ans
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

Q.13 Let  $n$  be the least number which when divided by 15, 18, 20 and 27, the remainder in each case is 3 and  $n$  is divisible by 53. What is the sum of the digits of  $n$ ?

- Ans
- ☒ A. 9
  - ☒ B. 10
  - ☒ C. 12
  - ☒ D. 13

Q.14 Goods are sold such that when 5% discount is allowed, a profit of 33% is made. By what percentage is the list price more than the cost price?

- Ans
- ☒ A. 40%
  - ☒ B. 30%
  - ☒ C. 35%
  - ☒ D. 25%

Q.15 Two numbers, whose LCM is 416 and HCF is 2, are in the ratio 13 : 16. Find the greater of these two numbers.

- Ans
- ☒ A. 32
  - ☒ B. 42
  - ☒ C. 26
  - ☒ D. 34

Q.16 The discriminant of the quadratic equation  $bx^2 + cx + a = 0$ ;  $b \neq 0$ , is given by the expression:

- Ans
- ☒ A.  $b^2 - 4ac$
  - ☒ B.  $b^2 + 4ac$
  - ☒ C.  $a^2 - 4ab$
  - ☒ D.  $c^2 - 4ab$

Q.17 If the volume of a sphere is  $\frac{792}{7} \text{ cm}^3$ , then find the radius of the sphere.

(Use  $\pi = \frac{22}{7}$  for calculation)

- Ans
- ☒ A. 3 cm
  - ☒ B. 2 cm
  - ☒ C. 2.5 cm
  - ☒ D. 3.5 cm

Q.18 If  $x = 2$ , then the value of  $(-x)^2 \times (-x)^3$  is:

- Ans
- ☒ A. -32
  - ☒ B. 32
  - ☒ C.  $(-2)^1$
  - ☒ D.  $(-2)^6$

**Q.19** If the areas of two similar triangles are in the ratio 361:529. What would be the ratio of the corresponding sides?

- Ans**
- ☒ A. 23:19
  - ☒ B. 19:23
  - ☒ C. 361:529
  - ☒ D. 15:23

**Q.20** The perimeter of a right-angled triangle is 80 cm. If the length of its hypotenuse is 34 cm, find the lengths of its other two sides.

- Ans**
- ☒ A. 16 cm, 30 cm
  - ☒ B. 20 cm, 26 cm
  - ☒ C. 18 cm, 28 cm
  - ☒ D. 14 cm, 32 cm

**Q.21** Find the value of  $18 \div \{(7 \text{ of } 3 - 12)\} \times 9 \times (11 - 7)$ .

- Ans**
- ☒ A. 27
  - ☒ B. 58
  - ☒ C. 64
  - ☒ D. 72

**Q.22** Find the value of 'y' in the equation given below.

$$3\frac{1}{2} + 2\frac{5}{7} \times y - \frac{1}{2} \div 2 = 4\frac{1}{4}$$

- Ans**
- ☒ A.  $\frac{19}{7}$
  - ☒ B. 0
  - ☒ C.  $\frac{7}{19}$
  - ☒ D.  $\frac{7}{5}$

**Q.23** Find the volume of a sphere whose surface area is  $5544 \text{ cm}^2$ .

- Ans**
- ☒ A.  $9261 \text{ cm}^3$
  - ☒ B.  $10888 \text{ cm}^3$
  - ☒ C.  $38808 \text{ cm}^3$
  - ☒ D.  $96621 \text{ cm}^3$

**Q.24** A bank offers 7.5% compound interest per annum calculated on a half-yearly basis. A customer deposits ₹3,600 each on 1 January and 1 July of a year. At the end of the year, the amount he would have gained by way of interest is \_\_\_\_\_.  
[Give your answer correct to 2 decimal places.]

- Ans**
- ☒ A. ₹272.25
  - ☒ B. ₹405.06
  - ☒ C. ₹410.06
  - ☒ D. ₹415.06

**Q.25** The least value of  $x$  so that the number  $478265475x + 25481459x$  is divisible by 8, is given by:

- Ans**
- ☒ A.  $x = 1$
  - ☒ B.  $x = 3$
  - ☒ C.  $x = 4$
  - ☒ D.  $x = 2$

Section : General Intelligence and Reasoning

**Q.26** Seven people - N, O, P, S, W, X and Y are sitting in a straight line facing North. N sits fourth to the right of O. Neither N nor O sit at any of the extreme ends of the line. Only one person sits between N and P. S sits third to the right of P. W sits fourth to the right of X. Who sits to the immediate right of Y?

- Ans**
- ☒ A. O
  - ☒ B. P
  - ☒ C. X
  - ☒ D. N

**Q.27** Six children - 1, 2, 3, 4, 5 and 6 - are in a room, each child having a different height. Only three children are taller than 4. 1 is taller than 3 but shorter than 4. 5 is taller than 2 but not the tallest in the group. Who is the second tallest person among the six children?

- Ans**
- ☒ A. 6
  - ☒ B. 5
  - ☒ C. 2
  - ☒ D. 3

**Q.28** Refer to the following letter series and answer the question.

(Left) T S A B N U V T D Q S N M L A L E (Right)

How many such consonants are there, each of which is immediately preceded by a vowel and also immediately followed by a vowel?

- Ans**
- ☒ A. 3
  - ☒ B. 6
  - ☒ C. 4
  - ☒ D. 1

**Q.29** Which of the following numbers will replace the question mark (?) in the given series?

4    12    76    292    804    ?

- Ans**
- ☒ A. 1000
  - ☒ B. 1804
  - ☒ C. 2000
  - ☒ D. 2804

**Q.30** Amongst six friends P, Q, R, S, T and U, each has a different height. R is taller than only one friend. Q is taller than only three friends. T is taller than R but shorter than U. U is not the tallest. U is taller than S. Who is the second tallest among all the friends?

- Ans**
- ☒ A. R
  - ☒ B. T
  - ☒ C. Q
  - ☒ D. U

**Q.31** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

1. All sandals are shoes.
2. Some heels are boots.
3. Some sandals are boots.

Conclusions:

I-Some heels are sandals.

II-Some boots are shoes.

- Ans**
- ☒ A. Only conclusion I follows.
  - ☒ B. Only conclusion II follows.
  - ☒ C. Both conclusions I and II follow.
  - ☒ D. Neither conclusion I nor II follows.

**Q.32** P, Q, R, S, T and U live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it is numbered 2 and so on till the topmost floor is numbered 6. Only two people live between P and S. S lives immediately below T. P lives on an even-numbered floor but not on floor number 2. R lives on the topmost floor. Q lives immediately below R. Who lives on floor number 3?

- Ans**
- ☒ A. P
  - ☒ B. U
  - ☒ C. Q
  - ☒ D. T

**Q.33** In a certain code language, 'TEMPLE' is written as 'QHJSIH' and 'MOSQUE' is written as 'JRPTRH'. How will 'SUPREME' be written in the same code language?

- Ans**
- ☒ A. PRMOBJB
  - ☒ B. PRMUBPB
  - ☒ C. PXMUBPB
  - ☒ D. PRMOBJH

**Q.34** Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.

8 : 65 :: 12 : 145 :: 13 : ?

- Ans**
- ☒ A. 169
  - ☒ B. 170
  - ☒ C. 171
  - ☒ D. 133

**Q.35** Consider the given statement and decide which of the given assumptions is/are implicit in the statement.

Statement:

A new holiday-special train has been introduced from Chennai to Patna to cater to the increased demand from passengers during the festival season. This will run on all Wednesdays in the months of September and October.

Assumptions:

I. More people are expected to travel from Chennai to Patna in September and October.

II. The existing trains from Chennai to Patna have been cancelled.

- Ans**
- ✓ A. Only assumption I is implicit
  - ✗ B. Only assumption II is implicit
  - ✗ C. Neither assumption I nor II is implicit
  - ✗ D. Both assumptions I and II are implicit

**Q.36** Study the given arrangement of letters and answer the question that follows:

(LEFT) N C A H L M W U V G L I Q S P O Z (RIGHT)

How many consonants are there in this arrangement which are immediately preceded by a vowel?

- Ans**
- ✓ A. Four
  - ✗ B. Six
  - ✗ C. Two
  - ✗ D. Five

**Q.37** Which of the following numbers will replace the question mark (?) in the given series?

6, 9, 12, 16, 20, 25, ?

- Ans**
- ✓ A. 30
  - ✗ B. 35
  - ✗ C. 31
  - ✗ D. 29

**Q.38** If numbers 8452, 6327, 7524, 4598 and 5691 are arranged in descending order from left to right, then what will the product of third digit of the second number from the right end and second digit of the third number from the left end? (Example- 697 – First digit from left = 6, second digit from left = 9 and third digit from left = 7)

- Ans**
- ✗ A. 54
  - ✗ B. 48
  - ✓ C. 27
  - ✗ D. 26

**Q.39** If at 8:45 am, the minute hand of a clock is pointing towards the north, then in which direction will it point at 9:00 pm?

- Ans**
- ✗ A. North
  - ✗ B. South
  - ✓ C. East
  - ✗ D. West

**Q.40** A, B, C, D, E and F live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 6.

Only one person lives above E. D lives in an odd numbered floor. Only one person lives between E and C. C lives immediately above F. B does not live below A. Who lives on floor number 1 ?

- Ans**
- ☒ A. F
  - ☒ B. D
  - ☒ C. C
  - ☒ D. B

**Q.41** Select the option that is related to the third term in the same way as the second term is related to the first term and the sixth term is related to the fifth term.

77 : 28 :: 89 : ? :: 134 : 47

- Ans**
- ☒ A. 32
  - ☒ B. 34
  - ☒ C. 31
  - ☒ D. 35

**Q.42** Five friends live on five different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 5. Sanjay lives on the floor immediately above Namrata. Anshika lives on the third floor. Heena lives on the lowermost floor. Namrata lives on the floor immediately above Anshika. Manvir lives on the floor immediately above Heena. Who lives on the topmost floor?

- Ans**
- ☒ A. Heena
  - ☒ B. Manvir
  - ☒ C. Namrata
  - ☒ D. Sanjay

**Q.43** Which of the following options is the closest approximate value which will come in place of the question mark (?) in the following equation?

$15.32 \div 4.37 + 2.11 \times 14.47 = ?$

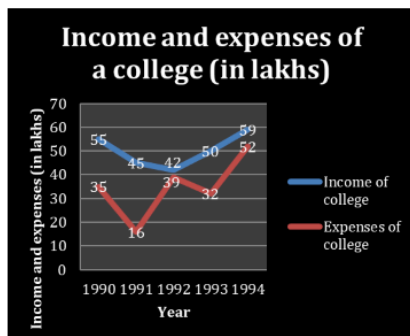
- Ans**
- ☒ A. 50
  - ☒ B. 16
  - ☒ C. 61
  - ☒ D. 32

**Q.44** In a certain code language, 'ISSUE' is coded as 'NPXRJ' and 'PAINT' is coded as 'UXNKY'. How will 'MEDIA' be coded in that language?

- Ans**
- ☒ A. PZGDD
  - ☒ B. PBGFD
  - ☒ C. RBIFF
  - ☒ D. RZIDF



- Q.45** The given line graph shows the income and expenses of a college for different years. Study the graph and answer the question that follows.



What is the percentage increase in income from 1992 to 1993?

- Ans** ☒ A. 19.04%  
☒ B. 23.82%  
☒ C. 14.03%  
☒ D. 38.52%

- Q.46** Read the given statement(s) and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statement(s).

Statements:

Some pens are scooters.

Some crowns are hats.

All balloons are globes.

Conclusions:

(I) All scooters are pens.

(II) Some crowns are globes.

(III) Some balloons are hats.

- Ans** ☒ A. Only conclusion I follows  
☒ B. Only conclusion II follows  
☒ C. Either conclusion I or conclusion III follow  
☒ D. None of the conclusions follow

- Q.47** If '+' means '-', '-' means '×', '×' means '÷', '÷' means '+', what will come in place of the question mark (?) in the following equation?

$$102 \div 15 \times 5 - 7 + 10 \times 2 = ?$$

- Ans** ☒ A. 116  
☒ B. 117  
☒ C. 118  
☒ D. 119

- Q.48** Refer to the following letter, number, symbol series and answer the question.

(Left) T M % A 8 ? 4 D & S R # Y 7 Z \* E 9 = 5 C (Right)

How many such symbols are there which are immediately preceded and immediately followed by a number?

- Ans** ☒ A. None  
☒ B. One  
☒ C. Two  
☒ D. Three

**Q.49** Which of the following terms will replace the question mark (?) in the given series to make it logically complete?

BGH 17, FKL 14, JOP 11, NST 8, ?

- Ans**
- ☐ A. QVW 5
  - ☐ B. RVW 7
  - ☒ C. RWX 5
  - ☐ D. SWX 9

**Q.50** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

GKV : IMX  
PLR : RNT

- Ans**
- ☐ A. UKM : TPJ
  - ☐ B. EMH : VXR
  - ☒ C. JWO : LYQ
  - ☐ D. WDZ : JAP

**Q.51** Three statements are given followed by two conclusions numbered I and II. You have to take the statements to be true, even if they seem to be at variance with commonly known facts and decide which of the conclusions logically follow(s) from the statements.

**Statements:**

Some Fairies are Angels.  
Some Fairies are Witches.  
All Witches are Brooms.

**Conclusions:**

(I) Some Brooms are Fairies.  
(II) Some Witches are Angels.

- Ans**
- ☒ A. Only conclusion (I) follows.
  - ☐ B. Only conclusion (II) follows.
  - ☐ C. Both conclusions (I) and (II) follow.
  - ☐ D. Neither conclusion (I) nor (II) follows.

**Q.52** How many such pairs of letters are there in the word HORIZON (in both forward and backward directions) which have as many letters between them as there are in the English alphabetical order?

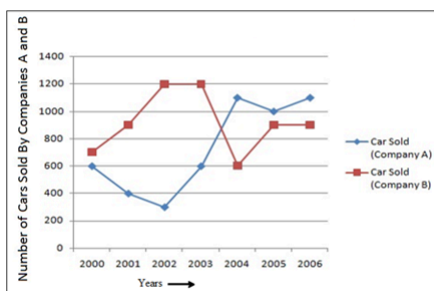
- Ans**
- ☐ A. One
  - ☐ B. Two
  - ☐ C. Three
  - ☒ D. Four

**Q.53** A, B, C, D, E, F, G and H are sitting around a square table facing the centre of the table. Some of them are sitting at the corners while some are sitting at the exact centre of the sides. A sits in the middle of one of the sides. B sits third to the right of A. Only three people sit between B and H. C sits second to the left of H. D sits to the immediate right of G. E is not an immediate neighbour of B.

Who sits second to the left of F?

- Ans**
- ☐ A. E
  - ☒ B. D
  - ☐ C. H
  - ☐ D. A

- Q.54** The following graph shows the number of cars sold by two companies A and B over the years. Study the graph and answer the question that follows.



During the year 2003-2004, the sales of cars of Company B declined drastically. Calculate the decrease in the number of cars sold by Company B in year 2004 as compared to the previous year.

- Ans**
- ☒ A. 400
  - ☒ B. 500
  - ☒ C. 600
  - ☒ D. 700

- Q.55** Sunny starts from Point A and drives 17 km towards the east. He then takes a right turn, drives 12 km, turns right and drives 8 km. He then takes a right turn and drives 7 km. He takes a final left turn, drives 9 km and stops at Point B. How far and towards which direction should he drive in order to reach Point A from Point B? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 5 km towards the north
  - ☒ B. 3 km towards the north
  - ☒ C. 5 km towards the south
  - ☒ D. 7 km towards the south

#### Section : General Science

- Q.56** Which of the following is a sexually transmitted viral disease?

- Ans**
- ☒ A. Jaundice
  - ☒ B. Gonorrhoea
  - ☒ C. Syphilis
  - ☒ D. AIDS

- Q.57** If one sees some marbles that are immersed in water, he/she will observe them as enlarged. This is because water acts as a:

- Ans**
- ☒ A. plano-concave lens
  - ☒ B. concave lens
  - ☒ C. convex lens
  - ☒ D. plane mirror

- Q.58** Sunil made a paste of rice flour and added a drop of iodine solution to the paste. What will he see?

- Ans**
- ☒ A. Formation of small bubbles (effervescence)
  - ☒ B. The paste turns sky blue
  - ☒ C. The rice flour emits brown fumes
  - ☒ D. The paste turns blue-black

Q.59 Which of the following reactions occurs, - when the exchange of two ions takes place?

- Ans
- ☐ A. Combination reaction
  - ☐ B. Decomposition reaction
  - ☐ C. Displacement reaction
  - ☒ D. Double displacement reaction

Q.60 Which of the following elements has three valence electrons?

- Ans
- ☒ A. Al
  - ☐ B. Mg
  - ☐ C. N
  - ☐ D. Ca

Q.61 How many double bonds are present in propanone?

- Ans
- ☐ A. 0
  - ☒ B. 1
  - ☐ C. 3
  - ☐ D. 2

Q.62 In a plant cell, the act of respiration to take in oxygen and release energy and carbon dioxide from food occurs in the \_\_\_\_\_.

- Ans
- ☐ A. peroxisomes
  - ☐ B. vacuoles
  - ☒ C. mitochondria
  - ☐ D. chloroplasts and mitochondria

Q.63 Which method of contraception can prevent the transmission of HIV?

- Ans
- ☐ A. Oral contraceptives
  - ☐ B. Copper T
  - ☐ C. Copper T and condoms
  - ☒ D. Barrier methods only

Q.64 Our body works within the pH range of:

- Ans
- ☒ A. 7 to 7.8
  - ☐ B. 7.8 to 8.0
  - ☐ C. 6 to 7
  - ☐ D. 8 to 8.7

Q.65 Which of the following compounds of carbon does NOT exist?

- Ans
- ☒ A.  $\text{CH}_6$
  - ☐ B.  $\text{CH}_4$
  - ☐ C.  $\text{C}_2\text{H}_6$
  - ☐ D.  $\text{C}_6\text{H}_6$

**Q.66** A football player got fractured while playing football. He went to the hospital. The doctor took 'X' substance and mixed it with water for supporting the fractured bones in the right position.

What is the name of substance 'X'?

- Ans**
- ☒ A. Gypsum
  - ☒ B. Plaster of Paris
  - ☒ C. Calcium sulphate
  - ☒ D. Sodium hydroxide

**Q.67** Which of the following is/are the correct conclusion(s) from Oersted's experiment?

- (a) A magnetic compass needle placed along the side of a current carrying conductor deflects
- (b) A current carrying conductor will produce magnetic field around it.
- (c) The direction of deflection of the compass needle placed along the side of a current carrying conductor does not change with reversal in the direction of current.

- Ans**
- ☒ A. Only (a) and (b) are correct
  - ☒ B. Only (b) and (c) are correct
  - ☒ C. Only (c) and (a) are correct
  - ☒ D. (a), (b) and (c) are correct

**Q.68** An electric lamp of  $40\ \Omega$ , a toaster of resistance  $200\ \Omega$  and a water filter of resistance  $400\ \Omega$  are connected in parallel to a  $220\ \text{V}$  source. Suppose an electric iron when connected to a  $220\ \text{V}$  source draws the same current as that of the three appliances in the above, then the resistance and current flowing through the iron are:

- Ans**
- ☒ A.  $30.77\ \Omega$  and  $7.15\ \text{A}$ , respectively
  - ☒ B.  $20.77\ \Omega$  and  $9.15\ \text{A}$ , respectively
  - ☒ C.  $40.77\ \Omega$  and  $5.15\ \text{A}$ , respectively
  - ☒ D.  $50.77\ \Omega$  and  $4.15\ \text{A}$ , respectively

**Q.69** Which of the following statements is true?

- Ans**
- ☒ A. The resistance of a material is directly proportional to its length.
  - ☒ B. The resistance of a material is directly proportional to the area of cross section.
  - ☒ C. The resistance of a material is directly proportional to the radius of the wire.
  - ☒ D. The resistance of a material is inversely proportional to the length of the wire.

**Q.70** The coal that we use now comes from plants that lived around \_\_\_\_\_ years ago

- Ans**
- ☒ A. 1,000
  - ☒ B. 10,000
  - ☒ C. 100,000
  - ☒ D. 10,000,000

**Q.71** Suppose a magic mirror is placed in front of a boy. As a result, the boy observes that the image of his head is of the same size, the middle portion of his body is smaller and that of his legs is bigger. Hence, from top to bottom, the magic mirror displays which of the following images?

- Ans**
- ☒ A. Plane, concave and convex
  - ☒ B. Plane, convex and concave
  - ☒ C. Concave, plane and convex
  - ☒ D. Convex, concave and plane

**Q.72** Newlands arranged the then known elements in the order of \_\_\_\_\_.

- Ans**
- ☒ A. increasing atomic masses
  - ☒ B. decreasing atomic masses
  - ☒ C. increasing atomic radius
  - ☒ D. decreasing atomic radius

**Q.73** A 12 V battery is connected across a resistor of resistance R. If a current of 2.4 mA flows through the circuit, then the value of R is \_\_\_\_\_ ohm.

- Ans**
- ☒ A.  $2 \times 10^{-4}$
  - ☒ B.  $2 \times 10^{-4}$  milli
  - ☒ C. 5000
  - ☒ D. 5000 milli

**Q.74** Identify the non-biodegradable substance that is generated in a kitchen.

- Ans**
- ☒ A. Paper bag
  - ☒ B. Milk bag
  - ☒ C. Vegetable peel
  - ☒ D. Tea leaves

**Q.75** The line joining the two foci of a lens is called \_\_\_\_\_.

- Ans**
- ☒ A. principal axis
  - ☒ B. Focal length
  - ☒ C. radius of curvature
  - ☒ D. paraxial ray

**Q.76** Normally, in a healthy adult, the initial filtrate in the kidneys is about \_\_\_\_\_ daily.

- Ans**
- ☒ A. 180 L
  - ☒ B. 150 L
  - ☒ C. 160 L
  - ☒ D. 130 L

**Q.77** Who among the following was the first to blend his knowledge of science and mathematics to keep count of individuals exhibiting a particular trait in each generation

- Ans**
- ☒ A. Gregor Johann Mendel
  - ☒ B. Charles Robert Darwin
  - ☒ C. JBS Haldane.
  - ☒ D. Stanley L Miller

**Q.78** The gas used to prevent the oxidation of chips is:

- Ans**
- ☒ A. nitrogen
  - ☐ B. hydrogen
  - ☐ C. oxygen
  - ☐ D. argon

**Q.79** The circumference of magnetic field lines \_\_\_\_\_ as we move away from a current carrying a straight conductor.

- Ans**
- ☒ A. increases
  - ☐ B. Decreases
  - ☐ C. become zero
  - ☐ D. remains the same

**Q.80** Suppose a doctor has prescribed a corrective lens of power +2.5 D. The focal length of the lens is:

- Ans**
- ☐ A. +30 cm
  - ☐ B. -30 cm
  - ☒ C. +40 cm
  - ☐ D. -40 cm

Section : General Awareness and Current Affairs

**Q.81** Who among the following sportspersons won two consecutive Olympic medals for India?

- Ans**
- ☐ A. Sania Mirza
  - ☒ B. PV Sindhu
  - ☐ C. Deepika Kumari
  - ☐ D. Babita Phogat

**Q.82** When the MP is positive but declining, it means \_\_\_\_\_

- Ans**
- ☐ A. TP increases at an increasing rate
  - ☐ B. TP increases at a constant rate
  - ☒ C. TP increases at a decreasing rate
  - ☐ D. TP is decreasing

**Q.83** \_\_\_\_\_ is the first of the 24 Tirthankaras of Jainism.

- Ans**
- ☐ A. Sumatinatha
  - ☒ B. Rishabhanatha
  - ☐ C. Sambhavanatha
  - ☐ D. Padmaprabha

**Q.84** The Indian player Sunil Chhetri, who received the Major Dhyan Chand Khel Ratna Award 2021, is associated with which of the following sports?

- Ans**
- ☐ A. Kabaddi
  - ☐ B. Hockey
  - ☒ C. Football
  - ☐ D. Cricket



**Q.85** The first language which was given the status of a classical language in India is:

- Ans**
- ☐ A. Telugu
  - ☐ B. Kannada
  - ☒ C. Tamil
  - ☐ D. Hindi

**Q.86** In July 2022, the Ministry of Women and Child Development implemented a scheme called \_\_\_\_\_ – formerly known as Child Protection Services (CPS) Scheme since 2009-10 – for the welfare and rehabilitation of children.

- Ans**
- ☐ A. Mission Bachpan
  - ☐ B. Mission Mamta
  - ☒ C. Mission Vatsalya
  - ☐ D. Mission Matritv

**Q.87** Who was the main proponent of the Young Bengal Movement whose followers cherished the ideals of the French Revolution (1789 AD) and the liberal thinking of Britain?

- Ans**
- ☒ A. Henry Louis Vivian Derozio
  - ☐ B. Annie Beasant
  - ☐ C. Swami Vivekananda
  - ☐ D. Ishwar Chandra Vidyasagar

**Q.88** Macroeconomics can be defined as:

- Ans**
- ☐ A. a branch of economics that studies the individuals mode of investments
  - ☐ B. a branch of economics that studies the methods of profits
  - ☐ C. a study of individuals, households and firms' behaviour in decision making and allocation of resources
  - ☒ D. a branch of economics that studies the behaviour and performance of an economy as a whole

**Q.89** Select the correct statement.

- Ans**
- ☐ A. Dhupgarh is the highest peak of the Eastern Ghat.
  - ☒ B. Dhupgarh is the highest peak of the Satpura Range.
  - ☐ C. Mahendragiri mountain is the highest peak of the Satpura Range.
  - ☐ D. Panchachuli peak is the highest peak in the Indian Himalayas.

**Q.90** Which of the following states is NOT located in the Indian Himalayan region?

- Ans**
- ☐ A. Uttarakhand
  - ☐ B. Sikkim
  - ☐ C. Mizoram
  - ☒ D. Bihar

**Q.91** In which year was the National Policy on Electronics and Software Products enacted, with the goal of propelling India's rise as a Software Product Nation and collaborating with the IT/ITES sector?

- Ans**
- ☒ A. 2019
  - ☐ B. 2020
  - ☐ C. 2021
  - ☐ D. 2022



**Q.92** The quantity of a commodity that a consumer is willing to buy and is able to afford, given prices of goods and consumers' tastes and preferences is called \_\_\_\_\_ for the commodity.

- Ans**
- ☐ A. utility
  - ☐ B. supply
  - ☐ C. value
  - ☒ D. demand

**Q.93** What was the main focus of the First Five-Year Plan?

- Ans**
- ☐ A. The establishment of higher education institution
  - ☐ B. Development of the service sector
  - ☐ C. Development of defence equipment
  - ☒ D. The agricultural development of the country

**Q.94** The first Finance Commission was established in:

- Ans**
- ☐ A. 1949
  - ☐ B. 1950
  - ☒ C. 1951
  - ☐ D. 1952

**Q.95** Select the correct order of Panchayat Institution titles according to the given sequence of their respective designation.

Chairperson of Gram Panchayat, Chairperson of Panchayat Samiti, Chairperson of Zila Parishad

- Ans**
- ☐ A. Mukhiya, Adhyaksha, Pramukh
  - ☐ B. Pramukh, Mukhiya, Adhyaksha
  - ☐ C. Adhyaksha, Mukhiya, Pramukh
  - ☒ D. Mukhiya, Pramukh, Adhyaksha

**Q.96** The Ram Navami festival in India is celebrated as a Hindu festival on the \_\_\_\_\_ which marks the birth of Lord Ram.

- Ans**
- ☒ A. ninth day of Chaitra Navratri
  - ☐ B. ninth day of Sharad Navratri
  - ☐ C. ninth day of Phalguna month of Vikram Sambat Calendar
  - ☐ D. ninth day of Sawan month of Vikram Sambat Calendar

**Q.97** In the cases of the Fundamental Rights violations, the Supreme Court of India can be directly petitioned under which of the following Articles of the Constitution of India?

- Ans**
- ☒ A. Article 32
  - ☐ B. Article 33
  - ☐ C. Article 34
  - ☐ D. Article 35

**Q.98** Which state has become India's first State Assembly to implement the National e-Vidhan Application (NeVA) programme to become paperless in March 2022?

- Ans**
- ☐ A. Maharashtra
  - ☐ B. Madhya Pradesh
  - ☒ C. Nagaland
  - ☐ D. Kerala

**Q.99** Which of the following is the largest mangrove forest in the world?

- Ans**
- ☐ A. Pichavaram mangrove forest
  - ☒ B. The Sundarbans reserve forest
  - ☐ C. Bhitarkanika mangroves
  - ☐ D. Godavari Krishna mangroves

**Q.100** Which company developed CoviSelf, a self-testing kit for the COVID-19 infection?

- Ans**
- ☐ A. SII
  - ☐ B. Johnson & Johnson
  - ☒ C. Mylab
  - ☐ D. Cipla



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 07/10/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** If the 13 - digit number 3458762341x98 is divisible by 11, then the value of x is \_\_\_\_\_.

**Ans** ☒ A. 1

☒ B. 4

☒ C. 2

☒ D. 7

**Q.2** The area of a trapezium is  $160 \text{ cm}^2$ . If the lengths of the parallel sides are 20 cm and 12 cm, respectively, then the perpendicular distance (in cm) between the parallel sides is:

**Ans** ☒ A. 10

☒ B. 11

☒ C. 12

☒ D. 8

**Q.3** The diagonals of rhombus are 12 cm and 16 cm. The length of the side of rhombus is:

**Ans** ☒ A. 10 cm

☒ B. 8 cm

☒ C. 16 cm

☒ D. 12 cm

**Q.4** Simplify the following.

$$-2 - [3 - \{3 - (4 - 5)\}]$$

**Ans** ☒ A. -2

☒ B. -1

☒ C. -3

☒ D. 1

**Q.5** If  $a$  and  $b$  are the roots of the quadratic equation  $(x - m)(x - n) = k$ , then the roots of the equation  $(x - a)(x - b) = -k$  are:

- Ans**
- ☒ A.  $a, n$
  - ☒ B.  $a + 1, b + 1$
  - ☒ C.  $m, n$
  - ☒ D.  $m, b$

**Q.6** 50 identical units are purchased at a total price of ₹550 and  $\frac{1}{5}$  of these units are sold at a loss of 10%. Find the per unit selling price of the remaining units to gain 20% on the whole transaction.

- Ans**
- ☒ A. ₹12.250
  - ☒ B. ₹13.650
  - ☒ C. ₹14.025
  - ☒ D. ₹15.175

**Q.7** Study the data set given below and find its mode, median and mean, in the order mentioned:

8, 9, 8, 5, 9, 8, 9, 7, 9

- Ans**
- ☒ A. 9, 9, 9
  - ☒ B. 9, 8, 8
  - ☒ C. 8, 9, 8
  - ☒ D. 8, 9, 9

**Q.8** How many integers lie between  $891^2$  and  $892^2$ ?

- Ans**
- ☒ A. 1782
  - ☒ B. 892
  - ☒ C. 1784
  - ☒ D. 900

**Q.9** Rajesh's daughter's age is  $\frac{1}{3}$  of Rajesh's wife's age. Rajesh's wife's age is  $\frac{2}{4}$  of Rajesh's age, and Rajesh's age is  $\frac{3}{5}$  of Rajesh's father's age. Find the age of Rajesh's daughter if Rajesh's father's age is 60 years.

- Ans**
- ☒ A. 7 years
  - ☒ B. 11 years
  - ☒ C. 9 years
  - ☒ D. 13 years

**Q.10** If  $\triangle ABC$  and  $\triangle DEF$  are similar and  $AB = 6$  cm,  $DE = 8$  cm,  $EF = 10$  cm and  $FD = 14$  cm, then the perimeter of  $\triangle ABC$  is:

- Ans**
- ☒ A. 24 cm
  - ☒ B. 20 cm
  - ☒ C. 16 cm
  - ☒ D. 14 cm

**Q.11** Simplify  $\sqrt{\frac{1 + \cos x}{1 - \cos x}}$ ,  $0^\circ < x < 90^\circ$ .

- Ans**
- ☒ A.  $\cot x + \operatorname{cosec} x$
  - ☒ B.  $\tan x + \operatorname{cosec} x$
  - ☒ C.  $\sec x + \tan x$
  - ☒ D.  $\cot x + \tan x$

**Q.12** What is the median of the data 8.1, 4.2, 6.8, 9.9, 7.5, 11.2, 10.8, 13.5?

- Ans**
- ☒ A. 8.7
  - ☒ B. 9
  - ☒ C. 8.1
  - ☒ D. 9.9

**Q.13** Pipe P can fill a tank in 28 minutes and pipe Q can fill it in 35 minutes. If pipes P and Q are opened simultaneously when the tank is empty and pipe P is closed after 12 minutes, then how much more time will it take pipe Q to fill the remaining tank by itself?

- Ans**
- ☒ A. 12 minutes
  - ☒ B. 16 minutes
  - ☒ C. 14 minutes
  - ☒ D. 8 minutes

**Q.14** In a two-digit number, the digit in the tens' place is twice the digit in the units' place. If the digits are interchanged, then the number thus formed is 9 less than the original number. Find the original number.

- Ans**
- ☒ A. 21
  - ☒ B. 42
  - ☒ C. 63
  - ☒ D. 12

**Q.15** The HCF of two numbers is 47. If the product of the two numbers is 6627, then the larger number among these two numbers is:

- Ans**
- ☒ A. 94
  - ☒ B. 235
  - ☒ C. 141
  - ☒ D. 188

**Q.16** A man took a loan from a bank at the rate of 14% per annum simple interest. After 5 years he had to pay ₹7,000 as interest. Find the principal amount of the loan.

- Ans**
- ☒ A. ₹7,500
  - ☒ B. ₹10,000
  - ☒ C. ₹12,500
  - ☒ D. ₹15,000

**Q.17** If  $8 : 9 :: 24 : y$ , then find the value of  $y$ .

- Ans**
- ☒ A. 6
  - ☒ B. 12
  - ☒ C. 18
  - ☒ D. 27

**Q.18** Simplify  $(x + 1)(x - 1)(x^2 + 1)$ .

- Ans**
- ☒ A.  $x^4 - 1$
  - ☒ B.  $x^4 + 1$
  - ☒ C.  $x^2 - 1$
  - ☒ D.  $x^4 + x^3 + x - 1$

**Q.19** Two successive discounts of 5% and 12% are offered on the sale of an article whose marked price is ₹1,500. The selling price of the article is:

- Ans**
- ☒ A. ₹1,234
  - ☒ B. ₹1,254
  - ☒ C. ₹1,253
  - ☒ D. ₹1,264

**Q.20** The perimeter of a rhombus is 146 cm and one of its diagonals is 55 cm. Find the area of the rhombus.

- Ans**
- ☒ A.  $2460 \text{ cm}^2$
  - ☒ B.  $2640 \text{ cm}^2$
  - ☒ C.  $1320 \text{ cm}^2$
  - ☒ D.  $1325 \text{ cm}^2$

**Q.21** Which of the following is a quadratic equation?

- Ans**
- ☒ A.  $(x + 1)^2 = (x - 1)^2$
  - ☒ B.  $(x + 1)^2 = (x - 1)^3$
  - ☒ C.  $(x + 1)^2 = 2(x - 1)$
  - ☒ D.  $3x^2 + 2x + 5 = 8x + 3 + 3x^2$

**Q.22** Simplify the following.

$$\left( \frac{(xy^2z)^{-3}}{y^{-3}} \right)^2$$

- Ans**
- ☒ A.  $\frac{1}{x^6y^6z^6}$
  - ☒ B.  $x^6y^6z^6$
  - ☒ C.  $x^6y^{18}z^6$
  - ☒ D.  $\frac{1}{x^6y^{18}z^6}$

**Q.23** The ratio of the numbers of ₹10 notes, ₹20 notes and ₹50 notes in a box is given as 3 : 5 : 7. The total amount of cash in the box is ₹3,360. Find the number of ₹20 notes in that box.

- Ans**
- ☒ A. 45
  - ☒ B. 35
  - ☒ C. 25
  - ☒ D. 15

**Q.24** Pipe K can fill a water tank in 10 hours. Pipe K is opened alone when the water tank is empty. When half of the water tank is filled by pipe K, then 4 more identical pipes are opened. What will be the total time taken to fill the water tank?

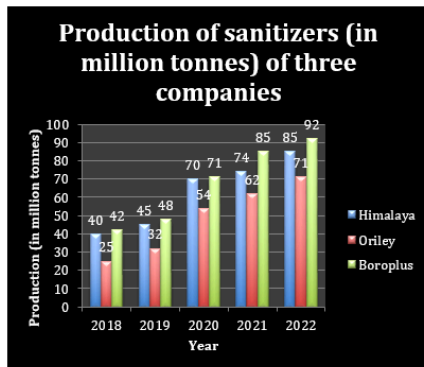
- Ans**
- ☒ A. 6 hours
  - ☒ B. 6 hours 45 minutes
  - ☒ C. 7 hours 15 minutes
  - ☒ D. 6 hours 15 minutes

Q.25 If  $u + v = -2$  and  $u^2 + v^2 = 16$ , then the value of  $(u - v)^2$  is:

- Ans
- ☐ A. 8
  - ☐ B. 16
  - ☐ C. 14
  - ☒ D. 28

Section : General Intelligence and Reasoning

Q.26 The given bar graph shows the production (in million tonnes) of three different companies making hand sanitizers (Himalaya, Oriley, Boroplus) for 5 years. Study the graph and answer the question that follows.



What is the percentage of increase in the production of sanitizers of company Himalaya from 2018 to 2020?

- Ans
- ☐ A. 70%
  - ☒ B. 75%
  - ☐ C. 80%
  - ☐ D. 95%

Q.27 Which of the following numbers will replace the question mark (?) in the given series?

12, 60, 65, 325, 330, ?

- Ans
- ☐ A. 1670
  - ☐ B. 1680
  - ☐ C. 1600
  - ☒ D. 1650

Q.28 Select the option that is related to the fifth letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster and the fourth letter-cluster is related to the third letter-cluster.

VIP : SFM :: TAC : QXZ :: GOD : ?

- Ans
- ☐ A. DJA
  - ☐ B. CLA
  - ☒ C. DLA
  - ☐ D. EJA

**Q.29** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

Some bats are parrots.

All crows are parrots.

All sparrows are parrots.

Conclusions:

I. Some sparrows are bats.

II. Some crows are sparrows.

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Neither conclusion I nor II follows
  - ☒ D. Both conclusions I and II follow

**Q.30** If counted from the left, How many letters in the word 'HYDROMAGNETIC' holds the same position in the word as its position in the English alphabetical order?

- Ans**
- ☒ A. One
  - ☒ B. Two
  - ☒ C. None
  - ☒ D. Three

**Q.31** Read the given statement and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statement.

Statement:

The girls team won 12 out of 17 matches in hockey, but lost 11 out of 19 matches in cricket.

Conclusions:

I. The girls team should play more cricket matches.

II. Girls like hockey more than cricket.

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Neither conclusion I nor II follows
  - ☒ D. Both conclusions I and II follow

**Q.32** A, B, C, D, E and F live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it is numbered 2, and so on till the topmost floor is numbered 6.

C lives immediately below F. C lives on one of the floors above floor number 3. Only two people live between C and B. Only one person lives between E and D. E lives on one of the floors above B. Who lives on floor number 5?

- Ans**
- ☒ A. A
  - ☒ B. C
  - ☒ C. F
  - ☒ D. E



**Q.33** Study the given series and answer the question that follows (all numbers are single digit numbers only).

5 8 2 7 4 5 9 1 6 3 7 5 6 2 3 9 8 6 1 4 8 1 3 6

How many such even digits are there each of which is immediately preceded by a perfect square and immediately followed by an even digit (NOTE: 1 is also a perfect square)?

- Ans**
- ☒ A. One
  - ☒ B. Two
  - ☒ C. Three
  - ☒ D. Four

**Q.34** Vikas starts from Point A and drives 8 km towards the south. He then takes a right turn, drives 3 km, turns right and drives 12 km. He then takes a right turn and drives 5 km. He takes a final right turn, drives 4 km and stops at Point P. What is the distance between Point A and Point P? (All turns are 90° turns only)

- Ans**
- ☒ A. 2 km
  - ☒ B. 3 km
  - ☒ C. 5 km
  - ☒ D. 4 km

**Q.35** A certain number of people are sitting in a row, facing north. Only two people sit between R and S. P sits to the immediate left of R. T sits second to the right of S. Q sits second to the left of P. U sits second to the right of T. If no other person is sitting in the row, what is the total number of persons seated?

- Ans**
- ☒ A. 12
  - ☒ B. 10
  - ☒ C. 11
  - ☒ D. 9

**Q.36** Six persons (Ram, Tom, Bob, Joy, Sam and Hob) are sitting around a circular table facing the centre. Ram is sitting third to the left of Sam. Joy is sitting third to the left of Tom. Bob is an immediate neighbour of Ram and Joy. Hob is an immediate neighbour of Sam and Tom. If Ram is sitting to the immediate left of Bob, who is sitting third to the right of Ram?

- Ans**
- ☒ A. Bob
  - ☒ B. Hob
  - ☒ C. Sam
  - ☒ D. Joy

**Q.37** Which of the following numbers will replace the question mark (?) in the given series?

56    66    59    69    62    ?

- Ans**
- ☒ A. 72
  - ☒ B. 82
  - ☒ C. 74
  - ☒ D. 55

**Q.38** If '+' means '+', '-' means '-', '×' means '×', '÷' means '÷', what will come in place of the question mark (?) in the following equation?

$$27 + 3 + 39 \times 5 - 29 = ?$$

- Ans**
- ☒ A. 131
  - ☒ B. 119
  - ☒ C. 141
  - ☒ D. 115

**Q.39** Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

(3, 261, 29)

(5, 360, 24)

**Ans** ☒ A. (8, 218, 13)

☒ B. (4, 218, 26)

☒ C. (3, 188, 28)

☒ D. (7, 231, 11)

**Q.40** In this question, the statement is followed by four conclusions. Find out which conclusion is NOT true based on the given statement.

Statement :  $H < U \leq W = P > Y > E \geq N$

**Ans** ☒ A.  $U \leq P$

☒ B.  $E < P$

☒ C.  $P > N$

☒ D.  $H \leq P$

**Q.41** One early morning, Mona and Shreya were talking while facing each other. Mona's shadow was directly falling on Shreya. In which direction was Shreya facing towards?

**Ans** ☒ A. North

☒ B. South

☒ C. East

☒ D. West

**Q.42** If '+' means '+', '-' means '-', '×' means '×', '÷' means '÷', what will come in place of the question mark (?) in the following equation?

$32 + 16 + 24 - 8 \times 180 = ?$

**Ans** ☒ A. 14

☒ B. 17

☒ C. 13

☒ D. 19

**Q.43** Refer to the following number, symbol series and answer the question.

(Left) 9 7 5 4 8 2 4 7 4 1 % 3 2 1 ^ 5 6 3 8 7 2 3 5 7 \* 2 4 5 9 3 (Right)

How many even numbers are there between the symbols ^ and \*, and what is their total if added together?

**Ans** ☒ A. 3, 16

☒ B. 2, 12

☒ C. 4, 10

☒ D. 2, 13

**Q.44** H, I, J, K, L, and M are six people sitting around a circular table facing the centre of the table for a group discussion. H is seated second to the right of J. L is seated third to the left of H. M is not the immediate neighbour of K. K is the immediate neighbour of L. Who is seated second to the right of L?

**Ans** ☒ A. I

☒ B. H

☒ C. M

☒ D. K

**Q.45** In a certain code language, 'LFDCN' is written as 'QJGEO' and 'OGRTV' is written as 'TKUVW'. How will 'DHLRW' be written in that language?

- Ans** ☒ A. **ILOTX**  
☒ B. **IMPTX**  
☒ C. **ILPTY**  
☒ D. **ILOTY**

**Q.46** Which of the following letter-number clusters will replace the question mark (?) in the given series to make it logically complete?

V37E, P27H, J19L, ?

- Ans** ☒ A. **D13Q**  
☒ B. **E15R**  
☒ C. **C11P**  
☒ D. **E11R**

**Q.47** Select the set in which the numbers are related in the same way as are the numbers of the following sets.  
(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding / subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

(9, 25, 49)  
(121, 169, 225)

- Ans** ☒ A. **(966, 104, 128)**  
☒ B. **(81, 121, 169)**  
☒ C. **(64, 88, 72)**  
☒ D. **(8, 27, 64)**

**Q.48** If 3 is added to each odd digit and 2 is subtracted from each even digit in the number 8456514, what will be the sum of the digits which are second from the left and third from the right?

- Ans** ☒ A. **8**  
☒ B. **10**  
☒ C. **9**  
☒ D. **11**

**Q.49** Refer to the following letter, number, symbol series and answer the question.

(Left) T # 6 2 V 4 @ Z 5 7 K \* % 9 N L & J 8 Q \$ (Right)

If all the symbols are dropped from the series, which of the following will be eleventh from the left?

- Ans** ☒ A. **N**  
☒ B. **9**  
☒ C. **L**  
☒ D. **J**

**Q.50** A statement is given followed by four conclusions. Find out which conclusion is NOT true based on the given statement.

Statement:  $A = B > C \geq D > E < F = G$

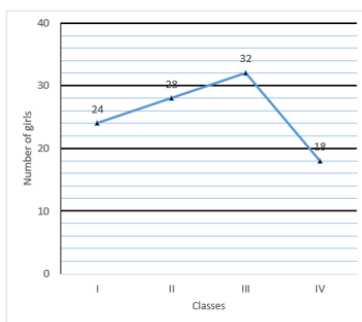
**Conclusions:**

- 1)  $A \geq F$
- 2)  $E < G$
- 3)  $B > E$
- 4)  $C > E$

**Ans** ☒ A. 1  
☒ B. 2  
☒ C. 3  
☒ D. 4

**Q.51** Study the given line graph and answer the following question.

The given line graph depicts the number of girls in four classes (I, II, III and IV).



If the total number of boys in classes I, II and IV is 27 more than the total number of girls in the same classes, what is the total number of boys in classes I, II and IV?

**Ans** ☒ A. 97  
☒ B. 87  
☒ C. 94  
☒ D. 85

**Q.52** A certain number of people are sitting in a row, facing north. T sits second to the right of Q. Exactly four people sit between T and A, towards the right of T. D is an immediate neighbour of A and E. If E is second to the right of A and no other person is sitting in the row, what is the total number of people seated in the row?

**Ans** ☒ A. 10  
☒ B. 11  
☒ C. 12  
☒ D. 9

**Q.53** Three statements are followed by three conclusions numbered I, II and III. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts. Decide which of the given conclusions logically follow(s) from the given statements.

**Statements:**

All cheetahs are monkeys.

All monkeys are bears.

All bears are jungles.

**Conclusions:**

(I) Some jungles are cheetahs

(II) All monkeys are cheetahs

(III) No monkey is a cheetah

- Ans**
- ✓ A. Only conclusion I follows
  - ✗ B. Only conclusion II follows
  - ✗ C. Either conclusion I or III follows
  - ✗ D. None of the conclusions follow

**Q.54** In a certain code language, 'ACQUIRE' is written as 'QCAUEIR'. How will 'DECLINE' be written in the same code language?

- Ans**
- ✓ A. CEDLEIN
  - ✗ B. CEDELIN
  - ✗ C. CDELEIN
  - ✗ D. CEDLENI

**Q.55** Three statements are given followed by two conclusions numbered I and II. You have to take the statements to be true, even if they seem to be at variance with commonly known facts and decide which of the conclusions logically follow(s) from the statements.

**Statements:**

Some Pens are Blues.

Some Blues are Plastics.

Some Plastics are Inks.

**Conclusions:**

(I) Some Plastics are Pens.

(II) Some Blues are Inks.

- Ans**
- ✗ A. Only conclusion (I) follows.
  - ✗ B. Only conclusion (II) follows.
  - ✗ C. Both conclusions (I) and (II) follow.
  - ✓ D. Neither conclusion (I) nor (II) follows.

Section : General Science

**Q.56** The induced emf developed in a conductor when it is moved in a direction parallel to the magnetic field is \_\_\_\_\_.

- Ans**
- ✗ A. Infinity
  - ✗ B. Maximum
  - ✗ C. Minimum
  - ✓ D. Zero

**Q.57** What will happen when an acid or base is mixed with water?

- i) Increase in the concentration of ions per unit volume.
- ii) Decrease in the concentration of ions per unit volume.
- iii) The solution will become diluted.
- iv) The solution will become more concentrated.

**Ans** ☒ A. Only (i)  
☒ B. Only (ii)  
☒ C. Only (i) and (iv)  
☒ D. Only (ii) and (iii)

**Q.58** Mendel's law of independent assortment was based on parent pea plants differing in how many traits?

**Ans** ☒ A. One  
☒ B. Two  
☒ C. Three  
☒ D. Four

**Q.59** Which of the following statements is correct with respect to displacement reaction?

**Ans** ☒ A. A chemical reaction in which a single compound is formed.  
☒ B. A more reactive metal displaces a less reactive metal from its aqueous solution.  
☒ C. A less electronegative non-metal displaces a less electronegative metal from its aqueous solution.  
☒ D. A less reactive metal displaces a more reactive metal from its aqueous solution.

**Q.60** Which of the following is a disadvantage of using contraceptive pills?

**Ans** ☒ A. Both partners in a couple must take pills.  
☒ B. The effect of the pills is irreversible.  
☒ C. They may produce hormonal imbalance.  
☒ D. They can cause menopause.

**Q.61** There are many methods adopted to prevent transmission of HIV/AIDS. Which of the stated ones is INCORRECT?

**Ans** ☒ A. Transmission by way of drug abuse specially through sharing of needles must be prevented  
☒ B. Adopting responsible sexual behaviour.  
☒ C. The instruments used for ear piercing, acupuncture, etc., must be sterilised before use.  
☒ D. Prevent HIV infected mosquito bite by using mosquito net.

Q.62 An example of a series circuit is \_\_\_\_\_.

- Ans
- ☐ A. car head lights
  - ☐ B. the wiring system at home
  - ☐ C. Street lights
  - ☒ D. decoration lights

Q.63 Carrots have a high content of vitamin A. How does eating carrots help a child?

- Ans
- ☒ A. It will strengthen the child's vision.
  - ☐ B. It will make the child's bones strong.
  - ☐ C. It will give the child a good amount of energy.
  - ☐ D. It will help the child resist many diseases.

Q.64 Select the correct order of Chlorine, Bromine and Iodine for Dobereiner's Law of Triads.

- Ans
- ☐ A. Iodine, Bromine, Chlorine
  - ☐ B. Bromine, Iodine, Chlorine
  - ☐ C. Chlorine, Iodine, Bromine
  - ☒ D. Chlorine, Bromine, Iodine

Q.65 The total energy consumed for 30 days by an air cooler rated 300 watt operating 12 hours per day is \_\_\_\_\_.

- Ans
- ☐ A. 108 Wh
  - ☒ B. 108 KWh
  - ☐ C. 108 joule
  - ☐ D. 108 joule-second

Q.66 The power of an electric bulb in which a current of 2 amp flows when it is connected to a 220 V generator is \_\_\_\_\_.

- Ans
- ☐ A. 120 joule
  - ☐ B. 120 watt
  - ☐ C. 440 joule
  - ☒ D. 440 watt

Q.67 Litmus is a natural acid–base indicator which is extracted from:

- Ans
- ☒ A. Lichen
  - ☐ B. turmeric
  - ☐ C. rose petals
  - ☐ D. lemon grass

Q.68 The number of covalent bonds involved in the formation of a nitrogen molecule is:

- Ans
- ☐ A. one
  - ☐ B. two
  - ☒ C. three
  - ☐ D. four



**Q.69** Which of the following are at the first trophic level?

- Ans**
- ☒ A. Secondary consumers
  - ☒ B. Producers
  - ☒ C. Primary consumers
  - ☒ D. Tertiary consumers

**Q.70** According to Mendeleev, the properties of elements are the periodic function of their:

- Ans**
- ☒ A. atomic masses
  - ☒ B. atomic number
  - ☒ C. atomic radius
  - ☒ D. reactivity of elements

**Q.71** We know that if rain water has a pH value less than 5.6 it is called 'Acid Rain'. What happens when this acidic water flows into rivers?

- Ans**
- ☒ A. The river water becomes more healthy to drink.
  - ☒ B. The water becomes slightly alkaline.
  - ☒ C. The pH of the river water lowers.
  - ☒ D. The number of fishes in the river water increases.

**Q.72** Which of the following is not a non-renewable source of energy:

- Ans**
- ☒ A. Petroleum
  - ☒ B. Coal
  - ☒ C. Natural gas
  - ☒ D. Wind

**Q.73** Which of the following is a famous Tiger Reserve in Assam?

- Ans**
- ☒ A. Kaziranga Tiger Reserve
  - ☒ B. Sonitpur Tiger Reserve
  - ☒ C. Dibrugarh Tiger reserve
  - ☒ D. Tinsukia Tiger reserve

**Q.74** The difference in molecular masses between the pair  $C_3H_8$  and  $C_5H_{12}$  is:

- Ans**
- ☒ A. 14
  - ☒ B. 28
  - ☒ C. 42
  - ☒ D. 56



**Q.75** For an electric generator, which of the following statement(s) are true:

- (i) Induced current can be increased by increasing the number of turns in the coil
- (ii) Induced current can be increased by increasing the speed of the coil
- (iii) Induced current can be increased by decreasing the applied magnetic field

**Ans** ☒ A. Only (i)

☒ B. Only (ii)

☒ C. Both (i) and (ii)

☒ D. Both (ii) and (iii)

**Q.76** Ram has a corrective lens of power  $-6.5$  D. The focal length of the lens is:

**Ans** ☒ A.  $-15.38$  cm

☒ B.  $15.38$  cm

☒ C.  $-13.76$  cm

☒ D.  $+13.76$  cm

**Q.77** As the object is moved from the pole towards the focus of a concave mirror, the corresponding image moves from \_\_\_\_\_ and the image is \_\_\_\_\_.

**Ans** ☒ A. pole to infinity, virtual and erect

☒ B. infinity to pole, real and inverted

☒ C. pole to Infinity, real and inverted

☒ D. infinity to pole, virtual and erect

**Q.78** What is the reason that the lungs have alveoli?

**Ans** ☒ A. To increase the surface area

☒ B. To provide pumping action for the lungs

☒ C. To increase the volume of the lungs

☒ D. To give mechanical support to the lungs

**Q.79** What makes the xylem vessels waterproof?

**Ans** ☒ A. Lignin

☒ B. Cutin

☒ C. Cellulose

☒ D. Suberin

**Q.80** Which of the following statements is/are true regarding the center of curvature of a spherical mirror?

(I) A ray of light passing through the center of curvature of a spherical mirror retraces its path in opposite direction.

(II) An image formed at the center of curvature of a spherical mirror is of the same size as that of the object.

(III) An image formed at the center of curvature of a spherical mirror is real and inverted.

**Ans** ☒ A. Only (I)

☒ B. Only (I) and (II)

☒ C. Only (I) and (III)

☒ D. (I), (II) and (III)

**Q.81** Which of the following indicates the borrowing needs of the Government?

- Ans**
- ✓ A. Fiscal deficit
  - ✗ B. Revenue deficit
  - ✗ C. Capital deficit
  - ✗ D. Current account deficit

**Q.82** The formation of 'Ward Committees' in the area of a municipality is required under the Indian Constitution. The population of such a municipality should be \_\_\_\_\_.

- Ans**
- ✗ A. one lakh or more
  - ✗ B. two lakhs or more
  - ✓ C. three lakhs or more
  - ✗ D. five lakhs or more

**Q.83** In January 2022, in which of the following countries was a pig's heart transplanted to a human?

- Ans**
- ✗ A. England
  - ✓ B. USA
  - ✗ C. Germany
  - ✗ D. China

**Q.84** Giving and receiving dowry in India is a criminal offence. As of August 2022, the criminal proceeding of enquiry and investigation by the police and magistrate for the offence is done under which Sections of the Code of Criminal Procedure, 1973?

- Ans**
- ✓ A. Sections 174 and 176
  - ✗ B. Sections 182 and 185
  - ✗ C. Sections 163 and 169
  - ✗ D. Sections 154 and 158

**Q.85** On which day do Christians commemorate Jesus Christ's crucifixion?

- Ans**
- ✗ A. Easter
  - ✓ B. Good Friday
  - ✗ C. Halloween
  - ✗ D. Christmas

**Q.86** On 10<sup>th</sup> February 2022, who was appointed as Chief Justice of Madras High Court?

- Ans**
- ✓ A. Justice Munishwar Nath Bhandari
  - ✗ B. Justice M Duraiswamy
  - ✗ C. Justice Gita Mittal
  - ✗ D. Justice T Raja

**Q.87** The \_\_\_\_\_ ARISE-ANIC program is a national initiative to promote research and innovation by the Department of Space (DoS), Government of India.

- Ans**
- ☒ A. Aatmanirbhar Bharat
  - ☐ B. Apna Bharat
  - ☐ C. Saksham Bharat
  - ☐ D. Samarth Bharat

**Q.88** By the provision of which of the following Acts was the East India Company liquidated and Indian territories of Britain were to be governed in the name of the British Queen?

- Ans**
- ☐ A. British Rule Act, 1905
  - ☒ B. The Government of India Act, 1858
  - ☐ C. The Government of India Act, 1890
  - ☐ D. British Rule Act Amendment, 1919

**Q.89** Government of India signed an agreement on 17th November, 1955, with Associated Electrical Industries (AEI), UK, for the establishment of a factory at \_\_\_\_\_ for the manufacture of heavy electrical equipment in India. The company was registered as Heavy Electricals (India) Limited (HE (I) L) in the Public Sector.

- Ans**
- ☐ A. Lucknow
  - ☒ B. Bhopal
  - ☐ C. Ahmedabad
  - ☐ D. Hyderabad

**Q.90** Which of the following options best describes the independence of Judiciary?

- Ans**
- ☐ A. The executive and legislative organs of the government must restrain the functioning of the judiciary.
  - ☐ B. The executive and legislature organs should interfere with the decision of the judiciary.
  - ☐ C. Absence of accountability in the judiciary system
  - ☒ D. Judges must be able to perform their functions without fear or favour.

**Q.91** Which of the following is an economic situation in which all-available labour resources are being used in the most efficient way possible?

- Ans**
- ☐ A. Over full employment
  - ☐ B. Under employment
  - ☒ C. Full employment
  - ☐ D. Null employment

**Q.92** India is bounded by the Hindukush mountain range in the \_\_\_\_\_.

- Ans**
- ☐ A. north
  - ☐ B. north-east
  - ☒ C. north-west
  - ☐ D. south

**Q.93** In which sporting event did Saurav Ghosal win Bronze in Commonwealth Games 2022?

- Ans**
- ☒ A. Squash
  - ☐ B. Badminton
  - ☐ C. Lawn Tennis
  - ☐ D. Table Tennis

**Q.94** How many official languages does India have as per the 8<sup>th</sup> Schedule of the Constitution as on 30<sup>th</sup> June 2022?

- Ans**
- ☐ A. 26
  - ☒ B. 22
  - ☐ C. 28
  - ☐ D. 30

**Q.95** Which of the following groups of major river systems formed the Northern Plains of India?

- Ans**
- ☐ A. Cauvery, Ganga and Tapi
  - ☐ B. Narmada, Ganga and Brahmaputra
  - ☐ C. Indus, Ganga and Godavari
  - ☒ D. Indus, Ganga and Brahmaputra

**Q.96** Which Indian state celebrates the Moatsu festival?

- Ans**
- ☐ A. Manipur
  - ☐ B. Mizoram
  - ☒ C. Nagaland
  - ☐ D. Arunachal Pradesh

**Q.97** Article 21 of Indian Constitution deals with:

- Ans**
- ☐ A. right to equality
  - ☐ B. cultural and educational rights
  - ☒ C. protection of life and personal liberty
  - ☐ D. right to constitutional remedies

**Q.98** Who among the following introduced the 'Anti-Doping Bill' on 17 December 2021 in Lok Sabha?

- Ans**
- ☒ A. Anurag Thakur
  - ☐ B. Nisith Pramanik
  - ☐ C. Kiren Rijiju
  - ☐ D. RS Rathore

**Q.99** The mandatory contributions levied on individuals or corporations by a government entity is known as:

- Ans**
- ☒ A. tax
  - ☐ B. expenditure
  - ☐ C. investment
  - ☐ D. debt

**Q.100** Madhya Pradesh does NOT share its boundaries with which of the following states?

- Ans**
- ☒ A. Uttar Pradesh
  - ☒ B. Chhattisgarh
  - ☒ C. Bihar
  - ☒ D. Maharashtra



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 11/10/2022         |
| Test Time | 9:00 AM - 10:30 AM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

**Q.1** A capsule is in the shape of a sphere of diameter 3.5 mm. Find the amount of medicine required to fill the capsule (in  $\text{mm}^3$ ). [Use  $\pi = \frac{22}{7}$ , and give your answer correct to 2 places of decimal.]

- Ans**
- ☒ A. 22.41
  - ☒ B. 22.46
  - ☒ C. 22.42
  - ☒ D. 22.43

**Q.2** A sum of ₹7,250 is lent under simple interest at the beginning of a year at a certain rate of interest per annum. After 6 months, a sum of ₹3,625 more is lent under simple interest but at a rate that is twice the former. At the end of the year, ₹335 is earned as interest from both the loans taken together. What was the rate of interest per annum at which the initial ₹7,250 was lent? [Give your answer correct to 2 decimal places.]

- Ans**
- ☒ A. 3.10%
  - ☒ B. 3.00%
  - ☒ C. 3.08%
  - ☒ D. 3.12%

**Q.3** Simplify the following.

$$(y^2x)^4 \times (y^2x)^{-4}, x \neq 0, y \neq 0.$$

- Ans**
- ☒ A.  $(y^2x)^8$
  - ☒ B. 1
  - ☒ C.  $(y^2x)^{-16}$
  - ☒ D. 0

**Q.4** Simplify the following.

$$1\frac{1}{2} \times 22 + 10 \div 5 - 2 \times 8$$

- Ans**
- ☒ A.  $-\frac{613}{44}$
  - ☒ B. 17
  - ☒ C. 19
  - ☒ D.  $-\frac{13}{2}$

**Q.5** The present age of Arun is  $\frac{1}{3}$  of his uncle's age. After 5 years, the sum of their ages will be 86 years. The present age of Arun is:

- Ans**
- ☒ A. 21 years
  - ☒ B. 23 years
  - ☒ C. 25 years
  - ☒ D. 19 years

**Q.6** If the sum of a number and its reciprocal is 7, then which of the options below can be such a number?

- Ans**
- ☒ A.  $\frac{3-7\sqrt{5}}{2}$
  - ☒ B.  $\frac{3+7\sqrt{5}}{2}$
  - ☒ C.  $\frac{7+3\sqrt{5}}{2}$
  - ☒ D.  $\frac{-7+3\sqrt{5}}{2}$

**Q.7** 10 women can do a piece of work in 8 days. 8 men can complete the same work in 12 days. What is the ratio of the amounts of work that can be done in a day by a man and a woman?

- Ans**
- ☒ A. 3 : 2
  - ☒ B. 4 : 3
  - ☒ C. 2 : 1
  - ☒ D. 5 : 6

**Q.8** During a sale, a TV shop owner offers four different types of successive discounts for any consumer to choose from. Which of the following options will give the best possible price to the shop owner as a percentage of the marked price of an item?

- Ans**
- ☒ A. 25% and 15%
  - ☒ B. 30% and 10%
  - ☒ C. 35% and 5%
  - ☒ D. 20% and 20%

**Q.9** Shyam and Sundar can do a piece of work in 16 days and 24 days, respectively. Shyam started the work alone and after 10 days Sundar joined him and the duo worked together till the completion of the work. What was the total time taken for the work to be completed?

- Ans**
- ☐ A.  $10\frac{3}{5}$  days
  - ☐ B.  $12\frac{3}{5}$  days
  - ☒ C.  $13\frac{3}{5}$  days
  - ☐ D.  $15\frac{3}{5}$  days

**Q.10** The mean of the first 7 prime numbers is:

- Ans**
- ☐ A.  $\frac{75}{7}$
  - ☒ B.  $\frac{58}{7}$
  - ☐ C.  $\frac{50}{7}$
  - ☐ D.  $\frac{63}{7}$

**Q.11** Ujwal has ₹5,250 in currency notes of denominations ₹50, ₹100 and ₹200. The number of notes of each denomination are equal. How many notes in total does Ujwal have?

- Ans**
- ☐ A. 15
  - ☐ B. 30
  - ☒ C. 45
  - ☐ D. 60

**Q.12** If A is an acute angle, then  $\frac{1 + \tan^2 A}{1 + \cot^2 A}$  is equal to:

- Ans**
- ☒ A.  $\tan^2 A$
  - ☐ B.  $\sec^2 A$
  - ☐ C.  $\sin^2 A$
  - ☐ D.  $\cos^2 A$

**Q.13** If the HCF of 408 and 1032 is expressed as  $516m - 252 \times 4$ , then m is:

- Ans**
- ☐ A. -2
  - ☒ B. 2
  - ☐ C. 6
  - ☐ D. -6

**Q.14** If the sum of two numbers is 25 and the product is 136, then the sum of their cubes is:

- Ans**
- ☐ A. 4525
  - ☐ B. 4524
  - ☐ C. 5524
  - ☒ D. 5425



Q.15 Simplify the following.

$$1 - 2 \times \{[-2(2 + 3) \times 20] \div 2\}$$

- Ans
- ✓ A. 201
  - ✗ B. -50
  - ✗ C.  $-\frac{1}{50}$
  - ✗ D. -200

Q.16 If  $144 : y :: y : 225$ , and  $y > 0$ , find the value of  $y$ .

- Ans
- ✗ A. 120
  - ✗ B. 130
  - ✓ C. 180
  - ✗ D. 210

Q.17 A dishonest merchant claims to sell his items at cost price, but gives 200 kg of an item instead of the 250 kg he charges for. What is his percentage of profit in this transaction?

- Ans
- ✗ A. 20%
  - ✗ B. 15%
  - ✓ C. 25%
  - ✗ D. 10%

Q.18 If  $x - \frac{1}{x} = 2$ , then find the value of  $x^4 + \frac{1}{x^4}$ .

- Ans
- ✗ A. 36
  - ✓ B. 34
  - ✗ C. 16
  - ✗ D. 24

Q.19 If  $y : 196 :: 196 : 784$ , then what is the value of  $y$ ?

- Ans
- ✗ A. 4
  - ✗ B. 7
  - ✓ C. 49
  - ✗ D. 16

Q.20 If a transversal cuts two parallel lines, then which of the options below is necessarily true?

- Ans
- ✗ A. the adjacent angles formed are equal
  - ✓ B. the interior alternate angles are equal
  - ✗ C. the interior opposite angles on the same side of the transversal are equal
  - ✗ D. the vertically opposite angles are supplementary

Q.21 The variable  $X$  takes values 3 and 7, with frequencies of  $K$  and  $K - 2$ , respectively. If the arithmetic mean of  $X$  is 4, then the value of  $K$  is:

- Ans
- ✓ A. 3
  - ✗ B. 5
  - ✗ C. 4
  - ✗ D. 6

**Q.22** 3 solid hemispheres of radius 2 unit each are melted and recast into a single sphere. Find the radius (in given units) of the newly cast single sphere.

- Ans**
- ☒ A.  $\sqrt[3]{15}$
  - ☒ B. 3
  - ☒ C.  $\sqrt[3]{10}$
  - ☒ D.  $\sqrt[3]{12}$

**Q.23** The length of a rectangle is 5 cm more than its width. If the area of the rectangle is  $215 \text{ cm}^2$ , then the equation to find the width (w) of the rectangle is:

- Ans**
- ☒ A.  $w^2 + 5w - 215 = 0$
  - ☒ B.  $w^2 - 5w - 215 = 0$
  - ☒ C.  $w^2 + 5w + 215 = 0$
  - ☒ D.  $2w^2 + 5w - 215 = 0$

**Q.24** If  $a$  and  $b$  are two co-prime numbers, then their LCM is:

- Ans**
- ☒ A.  $a \times b$
  - ☒ B.  $a + b$
  - ☒ C.  $a - b$
  - ☒ D.  $\frac{a - b}{a + b}$

**Q.25** The interior angles of an 8-sided polygon are in the ratio 1 : 3 : 4 : 6 : 7 : 11 : 13 : 15. Find the measure of the largest interior angle in this polygon.

- Ans**
- ☒ A.  $300^\circ$
  - ☒ B.  $288^\circ$
  - ☒ C.  $234^\circ$
  - ☒ D.  $270^\circ$

#### Section : General Intelligence and Reasoning

**Q.26** In a certain code language, 'BLAME' is written as '4%5@2' and 'MEDIA' is written as '@2Ω95'. How will 'DELTA' be written in that language?

- Ans**
- ☒ A. 92SΩ5
  - ☒ B. 2Ω%53
  - ☒ C. Ω2%35
  - ☒ D. 92%35

**Q.27** Select the combination of letters that when placed from left to right in the same sequence in the blanks of the given series will complete the series.

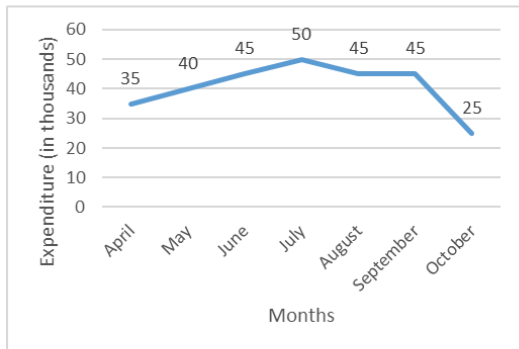
MN \_ LMM \_ PLM \_ NP MMNN \_ M

- Ans**
- ☒ A. NNNNMNLPL
  - ☒ B. NPNNMNLPL
  - ☒ C. NPNNMNLPP
  - ☒ D. MPNNMNLPL

**Q.28** Ram is to the south-west of Abhishek. Arjun is to the north of Ram as well as to the west of Abhishek. Pooja is to the west of Arjun. What is the position of Pooja with respect to Abhishek?

- Ans** ☒ **A. West**  
☐ **B. North-East**  
☐ **C. South-West**  
☐ **D. East**

**Q.29** The following graph shows the expenditure of a family over different months. Study the graph and answer the question.



What is the approximate average of the total expenditure in April, May, June, August, September and October (in thousands)?

- Ans** ☐ **A. 84**  
☐ **B. 16**  
☐ **C. 26**  
☒ **D. 39**

**Q.30** Select the set in which the numbers are related in the same way as are the numbers of the following sets.  
(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding / subtracting / multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

(2, 6, 22)  
(4, 13, 47)

- Ans** ☐ **A. (23, 41, 77)**  
☐ **B. (29, 35, 68)**  
☐ **C. (7, 4, 36)**  
☒ **D. (9, 5, 33)**

**Q.31** A certain number of people are sitting in a row, facing north. Only Q sits exactly between W and Z. G sits sixth to the right of W. Only three people sit to the right of G. Z sits at the extreme left end of the row.

If no other person is sitting in the row, what is the total number of people seated?

- Ans** ☐ **A. 10**  
☒ **B. 12**  
☐ **C. 13**  
☐ **D. 14**

**Q.32** Six students, Madhu, Anshul, Avani, Aarav, Priti, and Shikha, gave their presentations on different days in the month of March. The presentation was from 11<sup>th</sup> March to 16<sup>th</sup> March.

Anshul presented on 14<sup>th</sup> March and Shikha presented immediately before Anshul. Only one person presented between Shikha and Priti. Shikha presented after Priti but before Avani. Avani presented immediately before Madhu. Who presented on 15<sup>th</sup> March?

- Ans**
- ☒ A. Aarav
  - ☒ B. Madhu
  - ☒ C. Priti
  - ☒ D. Avani

**Q.33** In this question, the statement is followed by four conclusions. Find out which conclusion is NOT true based on the given statement.

Statement :  $Y < V = X \leq L < A > C \geq H$

- Ans**
- ☒ A.  $L \geq V$
  - ☒ B.  $A > H$
  - ☒ C.  $X > Y$
  - ☒ D.  $X > A$

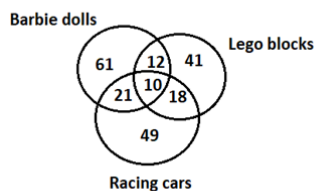
**Q.34** Refer to the following letter, number, symbol series and answer the question.

(Left) S = N 4 & % L A \* 6 T & C @ 4 B % 2 X L (Right)

How many such numbers are there which are immediately preceded by a letter and also immediately followed by a symbol?

- Ans**
- ☒ A. 4
  - ☒ B. 3
  - ☒ C. 6
  - ☒ D. 1

**Q.35** Study the given Venn diagram carefully and answer the question that follows. The numbers in different sections indicate the number of children who play with a particular toy at a day care.



How many such children are there, who play neither with barbie dolls nor with racing cars?

- Ans**
- ☒ A. 41
  - ☒ B. 53
  - ☒ C. 67
  - ☒ D. 82

- Q.36** In this question, a group of letters is coded using numbers/symbols as per the table given below and the conditions which follow. The correct combination of codes following the conditions is your answer.

| Letters         | E | O | L | Y | A | W | N | S  |
|-----------------|---|---|---|---|---|---|---|----|
| Numbers/Symbols | 5 | % | 7 | # | 1 | 4 | @ | \$ |

Conditions:

- (i) If a word has a vowel at the end, the vowel present at the end will be coded as 6.
- (ii) If a word has more than 2 vowels, all the vowels will be coded as 8.
- (iii) If a letter is present exactly twice in a word, it will be coded as 2 in both such places

What will be the correct code for YELLOW?

- Ans**
- ☒ A. #577%4
  - ☒ B. #577%6
  - ☒ C. #522%4
  - ☒ D. #82284

- Q.37** Which of the following options is the closest approximate value which will come in place of the question mark (?) in the following equation?

$$8.99 + 17.99 - 3.99 \times 2.99 = ?$$

- Ans**
- ☒ A. 24
  - ☒ B. 9
  - ☒ C. 32
  - ☒ D. 15

- Q.38** Three statements are followed by three conclusions numbered I, II and III. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts. Decide which of the given conclusions logically follow(s) from the given statements.

**Statements:**

Few oxen are peacocks  
All peacocks are cheetahs  
All cheetahs are horses

**Conclusions:**

- (I) Some horses are peacocks
- (II) Some cheetahs are peacocks
- (III) All peacocks are horses

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Either conclusion I or III follows
  - ☒ D. All conclusions I, II and III follow

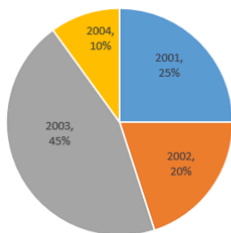
- Q.39** Which of the following numbers will replace the question mark (?) in the given series?

9.6   8.4   7.2   6   ?

- Ans**
- ☒ A. 4.8
  - ☒ B. 3.6
  - ☒ C. 5.4
  - ☒ D. 4.2

**Q.40** Study the given pie-chart and answer the following question.

The given pie chart depicts the number of complaints received in four years. The total number of complaints received in the four years together is 200.



What is the difference between the total number of complaints received in 2001 and 2003 together and the number of complaints received in 2002?

- Ans**
- ☒ A. 110
  - ☒ B. 100
  - ☒ C. 120
  - ☒ D. 90

**Q.41** Six friends are sitting around a circular table facing the centre. Gabriel is sitting second to the right of Suchita. Ritesh is sitting second to the right of Trinabh. Sourav is an immediate neighbour of both Gabriel and Dhruv. Who is an immediate neighbour of both Ritesh and Trinabh?

- Ans**
- ☒ A. Dhruv
  - ☒ B. Gabriel
  - ☒ C. Sourav
  - ☒ D. Suchita

**Q.42** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

WQN : VPM  
JRE : IQD

- Ans**
- ☒ A. TGI : SFH
  - ☒ B. PKM : UGI
  - ☒ C. GKV : OSN
  - ☒ D. FCH : TBY

**Q.43** The position of how many letters will remain unchanged if each of the letters in the word BRIGHT is arranged in alphabetical order?

- Ans**
- ☒ A. Two
  - ☒ B. None
  - ☒ C. One
  - ☒ D. Three

**Q.44** A statement is given followed by four conclusions. Find out which conclusion is true based on the given statement.

Statement:  $L \leq H = P > O > D \geq S = U$

**Conclusions:**

- 1)  $L \leq P$
- 2)  $U \geq D$
- 3)  $L > D$
- 4)  $L > O$

**Ans** ☒ A. 1  
☐ B. 2  
☐ C. 3  
☐ D. 4

**Q.45** If each even digit is divided by 2 and 2 is added to each odd digit in the number 4723361, what will be the sum of the largest and the smallest digits thus formed?

**Ans** ☐ A. 9  
☒ B. 10  
☐ C. 11  
☐ D. 12

**Q.46** Which of the following numbers will replace the question mark (?) in the given series?

1331 729 343 125 ?

**Ans** ☒ A. 27  
☐ B. 1  
☐ C. 64  
☐ D. 8

**Q.47** Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

- 1. Some flowers are leaves.
- 2. Some flowers are stems.
- 3. Some fruits are flowers.

Conclusions:

I-Some stems are flowers.

II-Some fruits are leaves.

**Ans** ☒ A. Only conclusion I follows.  
☐ B. Only conclusion II follows.  
☐ C. Both conclusions I and II follow.  
☐ D. Neither conclusion I nor II follows.

**Q.48** Refer to the following letter series and answer the question.

(Left) B Z C T B Z T E S B C Z T W A Z T F Z T U K R B Z T V (Right)

How many Z are there in the series which are immediately followed by T but not immediately preceded by B?

**Ans** ☐ A. Four  
☒ B. Three  
☐ C. Two  
☐ D. Five

**Q.49** A, B, C, D, E and F live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 6. C lives immediately above F, on an even numbered floor but not on the 6th floor. Only three people live between F and E. If B lives two floors below E, and A is not on the topmost floor, then how many people live exactly between D and C?

- Ans**
- ☐ A. 1
  - ☐ B. 2
  - ☐ C. 4
  - ☒ D. 3

**Q.50** If '+' means '×', '-' means '+', '×' means '-', and '÷' means '+', what will come in place of the question mark (?) in the following equation?

$$9 + 7 \div 8 - 4 \times 2 = ?$$

- Ans**
- ☐ A. 60
  - ☐ B. 74
  - ☒ C. 63
  - ☐ D. 68

**Q.51** Town C is south of the mid-point of the straight line joining town A and B. Town B is to the East of Town A. Town D is west of town C. Town M is north-east of town B. What is the position of town D with respect to M?

- Ans**
- ☐ A. South-east
  - ☐ B. West
  - ☐ C. South
  - ☒ D. South-west

**Q.52** Select the set in which the numbers are related in the same way as are the numbers of the following sets.  
(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(15, 405, 9)  
(13, 273, 7)

- Ans**
- ☐ A. (12, 360, 5)
  - ☒ B. (11, 165, 5)
  - ☐ C. (9, 405, 9)
  - ☐ D. (14, 490, 7)

**Q.53** Six girls with the initials V, M, S, E, N and C are sitting around a circular table, facing the centre and at equal distance from each other, not necessarily in the same order.

E sits second to the left of C. S sits second to the right of V. C sits at the immediate left of V. N sits second to the left of E. Who sits at the immediate left of C?

- Ans**
- ☐ A. N
  - ☐ B. V
  - ☐ C. S
  - ☒ D. M



**Q.54** A statement is given followed by two assumptions numbered I and II. You have to assume everything in the statement to be true and decide which of the assumptions is/are implicit in the statement.

Statement:

The Union Road Transport and Highways Ministry is gearing up to build a super expressway to connect Delhi and Mumbai, which would allow commuters to finish the 1,400 km long journey within 12 hours.

Assumptions:

- I. The road between the two cities is in very bad shape.
- II. Currently there are no roads to connect these two cities of India.

- Ans**
- ☒ A. Only assumption I is implicit
  - ☒ B. Only assumption II is implicit
  - ☒ C. Neither assumption I nor II is implicit
  - ☒ D. Both assumptions I and II are implicit

**Q.55** If each of the letters in the word 'CAUTIONED' is arranged in the English alphabetical order, which letter will be in the exact middle position after such arrangement?

- Ans**
- ☒ A. N
  - ☒ B. O
  - ☒ C. E
  - ☒ D. I

Section : General Science

**Q.56** Effective resistance of the parallel combination of two resistors with  $2\Omega$  and  $3\Omega$  resistance, respectively, is:

- Ans**
- ☒ A.  $5\Omega$
  - ☒ B.  $1.2\Omega$
  - ☒ C.  $0.83\Omega$
  - ☒ D.  $8.3\Omega$

**Q.57** Which method of contraception changes the hormonal balance of the body?

- Ans**
- ☒ A. Use of condoms
  - ☒ B. Intake of pills
  - ☒ C. Insertion of Copper-T
  - ☒ D. Surgical blockage of the fallopian tubes

**Q.58** Which of the following reactions is an example of a displacement reaction?

- Ans**
- ☒ A.  $2\text{FeSO}_4(\text{s}) \longrightarrow \text{Fe}_2\text{O}_3(\text{s}) + \text{SO}_2(\text{g}) + \text{SO}_3(\text{g})$
  - ☒ B.  $3\text{Fe}(\text{s}) + 4\text{H}_2\text{O}(\text{l}) \longrightarrow \text{Fe}_3\text{O}_4(\text{s}) + 2\text{H}_2(\text{l})$
  - ☒ C.  $\text{CaO}(\text{s}) + \text{H}_2\text{O}(\text{l}) \longrightarrow \text{Ca}(\text{OH})_2(\text{aq}) + \text{Heat}$
  - ☒ D.  $\text{Zn}(\text{s}) + \text{CuSO}_4(\text{aq}) \longrightarrow \text{ZnSO}_4(\text{aq}) + \text{Cu}(\text{s})$

**Q.59** Complete the given step of anaerobic respiration:

Glucose ( $C_6H_{12}O_6$ )  $\rightarrow$  \_\_\_\_\_ + Carbon Dioxide ( $CO_2$ ) + Energy (ATP)

**Ans** ☒ A. Ethanol ( $C_2H_5OH$ )

☐ B. Water

☐ C. Lactic Acid

☐ D. Pyruvate

**Q.60** The process of using electricity to decompose water into oxygen and hydrogen gas is called \_\_\_\_\_.

**Ans** ☐ A. hydrolysis of water

☒ B. electrolysis of water

☐ C. ionisation of water

☐ D. atomisation of water

**Q.61** If an object is placed at a distance of 5 cm from the pole of a given concave mirror of focal length 2.5 cm, then the magnification produced is:

**Ans** ☐ A. -2

☐ B. 2

☐ C. 1

☒ D. -1

**Q.62** In electric circuits, losses take place in the form of \_\_\_\_\_ due to flow of electric current.

**Ans** ☐ A. light

☐ B. sound

☒ C. heat

☐ D. Magnetic losses

**Q.63** The effective diameter of the circular outline of a spherical lens is called \_\_\_\_\_.

**Ans** ☐ A. radius of curvature

☐ B. focus

☐ C. centre of curvature

☒ D. aperture

**Q.64** Consider a horse shoe magnet with its north pole towards west and south pole towards east. A conducting rod is loosely connected to a galvanometer. If this rod is now moved between the poles of the magnet vertically downwards, the direction of the induced current in it will be \_\_\_\_\_.

**Ans** ☐ A. south to north direction

☒ B. north to south direction

☐ C. east to west direction

☐ D. west to east direction

**Q.65** By which process do we get washing soda?

**Ans** ☐ A. By heating of  $NaHCO_3$

☐ B. By mixing  $NaHCO_3$  with an edible acid

☒ C. By recrystallisation of  $Na_2CO_3$

☐ D. By reaction between  $NaCl(aq)$ ,  $NH_3$  and  $CO_2$

**Q.66** Ratio of  $\sin i$  and  $\sin r$  is known as:

- Ans**
- ☐ A. magnification
  - ☐ B. dispersion
  - ☐ C. refraction
  - ☒ D. refractive index

**Q.67** In the Modern Periodic Table elements present in one group have the same number of \_\_\_\_\_.

- Ans**
- ☐ A. electrons
  - ☒ B. valence electrons
  - ☐ C. shells
  - ☐ D. protons

**Q.68** Generally, plants have low energy needs when compared to animals. The main reason for this is the:

- (A) presence of large proportion of dead cells in the tissues
- (B) absence of mobility
- (C) plants synthesise their own food
- (D) plants release  $O_2$  during respiration

- Ans**
- ☒ A. A and B
  - ☐ B. A and C
  - ☐ C. A and D
  - ☐ D. B and C

**Q.69** During heavy exercise when the demand for energy is high, but the supply of oxygen to produce the energy is limited, the muscle cells show \_\_\_\_\_.

- Ans**
- ☐ A. loss of water
  - ☐ B. accumulation of pyruvate
  - ☐ C. synthesis of ethanol
  - ☒ D. formation of lactic acid

**Q.70** Which of the following is required for the formation of human blood?

- Ans**
- ☐ A. Copper
  - ☐ B. Cobalt
  - ☒ C. Iron
  - ☐ D. Nickel

**Q.71** In which group and period is carbon present?

- Ans**
- ☐ A. Group 1 and period 2
  - ☐ B. Group 5 and period 5
  - ☒ C. Group 14 and period 2
  - ☐ D. Group 13 and period 4

**Q.72** The process by which a changing magnetic field in a conductor induces a potential difference that sets up an induced electric current is called \_\_\_\_\_.

- Ans**
- ☐ A. magnetic induction
  - ☐ B. electric induction
  - ☐ C. thermal induction
  - ☒ D. electromagnetic induction

**Q.73** During which period did the amount of ozone in the atmosphere begin to drop sharply?

- Ans**
- ☒ A. In the 1980s
  - ☐ B. In the 1970s
  - ☐ C. In the 1960s
  - ☐ D. In the 1990s

**Q.74** An atom of element with electronic configuration of 2,8,8. To which group does it belong?

- Ans**
- ☐ A. 4<sup>th</sup> group
  - ☐ B. 10<sup>th</sup> group
  - ☒ C. 18<sup>th</sup> group
  - ☐ D. 6<sup>th</sup> group

**Q.75** Which of the following is a correct pair for homologous series?

- Ans**
- ☐ A. CH<sub>3</sub>OH and CH<sub>4</sub>
  - ☒ B. CH<sub>3</sub>OH and C<sub>2</sub>H<sub>5</sub>OH
  - ☐ C. CH<sub>3</sub>OH and C<sub>3</sub>H<sub>7</sub>OH
  - ☐ D. C<sub>3</sub>H<sub>7</sub>OH and CH<sub>3</sub>OH

**Q.76** For a spherical mirror, when a ray is passed through the centre of curvature C, the angle formed between the reflected ray and incident ray will be:

- Ans**
- ☒ A. 0°
  - ☐ B. 90°
  - ☐ C. 180°
  - ☐ D. 270°

**Q.77** The fuse used for domestic purpose is rated in the range of \_\_\_\_\_.

- Ans**
- ☒ A. 1 Ampere – 10 Ampere
  - ☐ B. 100 Ampere – 200 Ampere
  - ☐ C. 500 Ampere – 1000 Ampere
  - ☐ D. 1000 Ampere – 2000 Ampere

**Q.78** What kind of diet does an adolescent require to develop a healthy reproductive system?

- Ans**
- ☐ A. Rich in proteins
  - ☐ B. Fortified with iron
  - ☐ C. Low in saturated fats
  - ☒ D. Nutritionally well-balanced

**Q.79** What is the scientific name of baking soda?

- Ans**
- ☐ A. Sodium carbonate ( $\text{NaCO}_3$ )
  - ☒ B. Sodium bicarbonate ( $\text{NaHCO}_3$ )
  - ☐ C. Sodium chloride ( $\text{NaCl}$ )
  - ☐ D. Sodium sulphate ( $\text{Na}_2\text{SO}_4$ )

**Q.80** In Rajasthan, \_\_\_\_\_ is a nature loving community that conserves forest and wildlife.

- Ans**
- ☒ A. Bishnoi
  - ☐ B. Banjara
  - ☐ C. Bhil
  - ☐ D. Chhipa

Section : **General Awareness and Current Affairs**

**Q.81** Which of the following is a premier national research funding agency with the mission to raise the quality and footprint of Indian science and engineering to the highest global levels in an accelerated mode, through calibrated, competitive support of research and development?

- Ans**
- ☐ A. Department of Space
  - ☐ B. Department of Science & Industrial Research
  - ☐ C. Department of Scientific Research
  - ☒ D. Science and Engineering Research Board (SERB)

**Q.82** Which of the following is responsible for bringing western disturbances from the Mediterranean region into the Indian subcontinent?

- Ans**
- ☒ A. Jet stream
  - ☐ B. Mango shower
  - ☐ C. Relief rain
  - ☐ D. Anabatic winds

**Q.83** Nowruz is popularly known as the new year of which religious group/community?

- Ans**
- ☐ A. Buddhism
  - ☐ B. Muslim
  - ☐ C. Sikhism
  - ☒ D. Parsi

**Q.84** Which of the following cities is NOT situated on banks of the Ganga?

- Ans**
- ☐ A. Haridwar
  - ☐ B. Kanpur
  - ☐ C. Patna
  - ☒ D. Lucknow

**Q.85** At Devprayag (Uttarakhand), which of the following two rivers confluence and form river Ganga?

- Ans**
- ☐ A. Alaknanda and Yamuna
  - ☒ B. Alaknanda and Bhagirathi
  - ☐ C. Bhagirathi and Yamuna
  - ☐ D. Yamuna and Gomti

**Q.86** The Chairman of the Block Panchayat Samiti is elected by the:

- Ans**
- ☒ A. members of the samiti
  - ☐ B. village Pradhan
  - ☐ C. members of the State Legislative
  - ☐ D. members of the Zila Panchayat

**Q.87**

On 5<sup>th</sup> August 2021 which one of the following state launched 'Makkalai Thedi Maruthuvam' Scheme that helps the poor, sick who can't visit hospitals and the chronically ill, by providing medical facilities at their doorstep?

- Ans**
- ☐ A. Karnataka
  - ☒ B. Tamil Nadu
  - ☐ C. Kerala
  - ☐ D. Telangana

**Q.88** Who founded the Indian Statistical Institute and is considered the Father of Modern Statistics in India?

- Ans**
- ☐ A. Debabrata Basu
  - ☐ B. Raghu Raj Bahadur
  - ☒ C. Prasanta Chandra Mahalanobis
  - ☐ D. Anil Kumar Bhattacharya

**Q.89** Centre for Excellence of Classical Tamil was shifted from Mysore to Chennai in \_\_\_\_\_.

- Ans**
- ☐ A. 2004
  - ☐ B. 2006
  - ☒ C. 2008
  - ☐ D. 2010

**Q.90** Select the option that does NOT support the role of the Indian Parliament.

- Ans**
- ☐ A. To select the national government
  - ☒ B. To settle disputes and makes judgments between different level of governments
  - ☐ C. To control, guide and inform the government
  - ☐ D. The function of law making



**Q.91** Who among the following was a well-known revolutionary activist and leader of the *Hindustan Socialist Republican Association (HSRA)*?

- Ans**
- ☒ A. Chandra Shekhar Azad
  - ☐ B. Chhokravarti Rajagopalachari
  - ☐ C. Bhulabhai Desai
  - ☐ D. Behramji M Malabari

**Q.92** Which of the following statements about real wage rate is correct?

- Ans**
- ☐ A. Real wage rate is more than the Marginal Productivity of Labour.
  - ☐ B. Real wage rate is equal to the Marginal Productivity of Labour.
  - ☐ C. Real wage rate is less than the Marginal Productivity of Labour.
  - ☐ D. Real wage rate has no relation to Marginal Productivity of Labour.

**Note:** For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

**Q.93** How many people have received the Shanti Swaroop Bhatnagar Award in 2021 ?

- Ans**
- ☐ A. 9
  - ☒ B. 11
  - ☐ C. 10
  - ☐ D. 12

**Q.94** Which law states that 'as the quantity of one factor is increased, keeping the other factors fixed, the marginal product of that factor will eventually decline'?

- Ans**
- ☒ A. The law of variable proportions
  - ☐ B. The law of constant proportions
  - ☐ C. The law of money savings
  - ☐ D. The law of unstable economy

**Q.95** India has a \_\_\_\_\_ form of government.

- Ans**
- ☐ A. oligarchy
  - ☐ B. communalism
  - ☐ C. monarchy
  - ☒ D. parliamentary

**Q.96** Which of the following State Governments launched the 'Ghar Ghar Ration Yojna' in March 2022?

- Ans**
- ☒ A. Punjab
  - ☐ B. Rajasthan
  - ☐ C. Bihar
  - ☐ D. Odisha

**Q.97** According to the Census of India 2011, \_\_\_\_\_ has the largest number of Christians among the states.

- Ans**
- ☒ A. Kerala
  - ☐ B. Goa
  - ☐ C. Mizoram
  - ☐ D. Nagaland

**Q.98** system of ad hoc treasury bills to finance the budget deficit was discontinued in India with effect from April 1, \_\_\_\_\_.

- Ans**
- ☒ A. 1994
  - ☒ B. 1997
  - ☒ C. 2004
  - ☒ D. 2007

**Q.99** Which is the first country to play 1000 One-Day International matches?

- Ans**
- ☒ A. Australia
  - ☒ B. Pakistan
  - ☒ C. India
  - ☒ D. Sri Lanka

**Q.100** Which female tennis player has won the most Grand Slam tournament titles as of February 2021?

- Ans**
- ☒ A. Serena Williams
  - ☒ B. Steffi Grafa
  - ☒ C. Martina Navratilova
  - ☒ D. Chris Evert





# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                    |
|-----------|--------------------|
| Test Date | 11/10/2022         |
| Test Time | 12:45 PM - 2:15 PM |
| Subject   | Level 1            |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

Section : Mathematics

Q.1 Simplify the given expression.

$$\frac{z(x^3 - y^3)}{x^2 + xy + y^2} + \frac{x(y^3 - z^3)}{y^2 + yz + z^2} + \frac{y(z^3 - x^3)}{z^2 + zx + x^2}$$

Ans ☒ A.  $x + y + z$

☒ B.  $x^2 + y^2 + z^2$

☒ C.  $x - y - z$

☒ D. 0

Q.2 The average weight of 4 persons increases by 3 kg when a person of 53 kg is replaced by a new person. The weight (in kg) of the new person is:

Ans ☒ A. 62

☒ B. 65

☒ C. 67

☒ D. 68

Q.3 Two trains of equal length are running on parallel lines in the same direction at speeds of 46 km/h and 36 km/h. The faster train passes the slower train in 36 seconds. The relative speed of these two trains (in m/s) is:

Ans ☒ A.  $\frac{25}{9}$

☒ B.  $\frac{25}{18}$

☒ C.  $\frac{25}{8}$

☒ D.  $\frac{25}{7}$

**Q.4** If  $1.345 + 13.45 + 0.1354 + 0.0596 = 11.453 - 0.543 + k$ , then what is the value of  $k$ ?

- Ans**
- ☐ A. 3.06
  - ☐ B. 3.28
  - ☒ C. 4.08
  - ☐ D. 4.48

**Q.5** The marked price of an article is ₹1,820 and its selling price is ₹1,420. Find the discount percentage. (Round the answer to the nearest whole number.)

- Ans**
- ☒ A. 22%
  - ☐ B. 25%
  - ☐ C. 28%
  - ☐ D. 26%

**Q.6** A trader owes a merchant ₹9,000 due in one year. However, the trader wants to settle the amount after 4 months. If the rate of interest is 6% per annum, then, how much money should he pay? (Give your answer correct to the nearest whole number value.)

- Ans**
- ☐ A. ₹8,686
  - ☐ B. ₹8,688
  - ☒ C. ₹8,654
  - ☐ D. ₹8,645

**Q.7** In  $\triangle ABC$ ,  $AD \perp BC$  at  $D$ ,  $BE \perp AC$  at  $E$  and  $AD$  and  $BE$  intersect at a point  $F$  (in the interior of the triangle). If  $BF = AC$ , then which of the following is correct?

- Ans**
- ☐ A.  $\triangle CAD \cong \triangle DBF$
  - ☒ B.  $\triangle CAD \cong \triangle FBD$
  - ☐ C.  $\triangle CAD \cong \triangle BFD$
  - ☐ D.  $\triangle CAD \cong \triangle DFB$

**Q.8** Find area of a triangle whose base measures 126.4 cm and height 54.8 cm.

- Ans**
- ☐ A.  $3343.36 \text{ cm}^2$
  - ☒ B.  $3463.36 \text{ cm}^2$
  - ☐ C.  $6926.72 \text{ cm}^2$
  - ☐ D.  $9267.72 \text{ cm}^2$

**Q.9**  $\{40 \div (2^5 \div 4) \times 125\}$  equals:

- Ans**
- ☐ A. 1000
  - ☐ B. 2000
  - ☒ C. 625
  - ☐ D. 225

**Q.10** A and B invest in a business in the ratio of 7 : 8 for same time. If 7% of the total profit goes to charity and A's share in profit is ₹12,600, then what is the total amount of profit earned? [Give your answer correct to 2 decimal places.]

- Ans**
- ☒ A. ₹29,032.26
  - ☐ B. ₹28,032.25
  - ☐ C. ₹29,025.32
  - ☐ D. ₹28,025.32

Q.11 Simplify the given expression.

$$\frac{x^2 + 3x - 10}{x^2 - 25} \times \frac{x^2 + 3x + 2}{x^2 - 4} \times \frac{x(x + 2)}{(x + 1)^2 + (x + 1)}$$

Ans

☒ A.  $\frac{x + 5}{x}$

☒ B.  $\frac{x}{x + 5}$

☒ C.  $\frac{x - 5}{x}$

☒ D.  $\frac{x}{x - 5}$

Q.12 Find the smallest number, which when tripled, will leave the remainder as zero on being divided by 5, 15 and 35.

Ans

☒ A. 100

☒ B. 150

☒ C. 35

☒ D. 70

Q.13  $\cot\theta \left( \frac{1}{\operatorname{cosec}\theta - 1} + \frac{1}{\operatorname{cosec}\theta + 1} \right) \times (\sin\theta - \operatorname{cosec}\theta)(\cos\theta - \sec\theta)$ ,  $0^\circ < \theta < 90^\circ$ , is equal to:

Ans

☒ A.  $\operatorname{cosec}\theta$

☒ B.  $\sec\theta$

☒ C.  $2 \sin\theta$

☒ D.  $2 \cos\theta$

Q.14 3 men can complete a piece of work in 6 days while 6 women can do it in 5 days. In how many days can 5 women and 3 men complete it?

Ans

☒ A. 3 days

☒ B. 4 days

☒ C. 5 days

☒ D. 6 days

Q.15 Which of the following equations does NOT have real roots?

Ans

☒ A.  $3x^2 - 5x + 2 = 0$

☒ B.  $x^2 - 4x - 3 = 0$

☒ C.  $x^2 - 7x + 5 = 0$

☒ D.  $6x^2 - 14x + 9 = 0$

Q.16 A sum of ₹5,000 is divided into two parts. One part is deposited in bank A at simple interest at 5% per annum, and the other part is deposited in bank B at simple interest at 10% per annum. If the total annual interest received is ₹325, then the money deposited in bank A was:

Ans

☒ A. ₹1,500

☒ B. ₹5,000

☒ C. ₹3,500

☒ D. ₹4,000

Q.17

Simplify the given expression.

$$2(x^2 + y^2)^2 - 3xy(x^2 + y^2) - 2x^2y^2$$

Ans

✓ A.  $(2x^2 + 2y^2 + xy)(x^2 + y^2 - 2xy)$

✗ B.  $(2x^2 + 2y^2 - xy)(x^2 + y^2 - 2xy)$

✗ C.  $(x^2 + y^2 - xy)(2x^2 + 2y^2 - xy)$

✗ D.  $(x^2 + y^2 + xy)(2x^2 + 2y^2 + xy)$

Q.18

If  $12600 = p^3 \times q^2 \times r^2 \times s^1$ , where p, q, r and s are consecutive prime numbers in ascending order, then what is the value of  $(3p + 2q - r + s)$ ?

Ans

✗ A. 12

✗ B. 13

✓ C. 14

✗ D. 17

Q.19

The area of a triangle whose sides measures 10 cm, 12 cm and 14 cm is:

Ans

✗ A.  $32\sqrt{3} \text{ cm}^2$

✓ B.  $24\sqrt{6} \text{ cm}^2$

✗ C.  $30\sqrt{2} \text{ cm}^2$

✗ D.  $25\sqrt{5} \text{ cm}^2$

Q.20

If  $12 : 3 :: 8 : x$ , then find the value of x.

Ans

✗ A. 4

✓ B. 2

✗ C. 6

✗ D. 1

Q.21

A class consisting of 30 students took a competitive exam. 18 of these students got an average of 90 marks and the remaining students of this class got an average of 80 marks. What is the average score of the class as a whole?

Ans

✗ A. 76

✓ B. 86

✗ C. 92

✗ D. 82

Q.22

If a and b are the roots of the equation  $x^2 + 5x + 4 = 0$ , then the value of  $\frac{a^2 + b^2}{a^2 + b^2 - 4}$  is:

Ans

✗ A. -4

✓ B. -5

✗ C. -6

✗ D. -7

**Q.23** If the ratio of two exterior angles on the same side of a transversal line intersecting the two parallel lines is 7 : 5, then how much more is the larger of these two exterior angles than the smaller one?

- Ans** ☒ A.  $30^\circ$   
☐ B.  $45^\circ$   
☐ C.  $60^\circ$   
☐ D.  $75^\circ$

**Q.24** A tailor has 22 metres of cloth and he has to cut each metre of cloth into 5 pieces. How many pieces can he get from the 22 metres of cloth he has?

- Ans** ☐ A. 11  
☐ B. 55  
☒ C. 110  
☐ D. 1110

**Q.25** The sum of two consecutive multiples of 8 is 56. The greater of these two multiples is:

- Ans** ☐ A. 24  
☐ B. 42  
☒ C. 32  
☐ D. 23

#### Section : General Intelligence and Reasoning

**Q.26** Refer to the following letter series and answer the question that follows.

PLMOKIJNBHUYGAVECFT

How many such consonants are there in the above series, each of which is immediately preceded by a vowel and immediately followed by a vowel?

- Ans** ☐ A. Zero  
☐ B. One  
☒ C. Two  
☐ D. Three

**Q.27** Three statements are followed by three conclusions numbered I, II and III. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts. Decide which of the given conclusions logically follow(s) from the given statements.

**Statements:**

Few spiders are caterpillars  
No caterpillar is a grasshopper  
All grasshoppers are bedbugs

**Conclusions:**

- (I) Some bedbugs are not caterpillars  
(II) All caterpillars are spiders  
(III) All bedbugs are grasshoppers

- Ans** ☒ A. Only conclusion I follows  
☐ B. Only conclusion II follows  
☐ C. Either conclusion I or III follows  
☐ D. None of the conclusions follow

**Q.28** Select the option that is related to the third term in the same way as the second term is related to the first term and the sixth term is related to the fifth term.

6 : 27 :: 8 : ? :: 12 : 54

- Ans**
- ☒ A. 35
  - ☒ B. 32
  - ☒ C. 36
  - ☒ D. 34

**Q.29** Which of the following options is the closest approximate value which will come in place of the question mark (?) in the following equation?

20.01% of 320.002 + 121.99 = ?

- Ans**
- ☒ A. 154
  - ☒ B. 162
  - ☒ C. 174
  - ☒ D. 186

**Q.30** Which of the following numbers will replace the question mark (?) in the given number series?

590, 605, 588, 607, 586, ?

- Ans**
- ☒ A. 609
  - ☒ B. 605
  - ☒ C. 611
  - ☒ D. 613

**Q.31** Three statements are given followed by two conclusions numbered I and II. You have to take the statements to be true, even if they seem to be at variance with commonly known facts and decide which of the conclusions logically follow(s) from the statements.

**Statements:**

All Bats are Mammals.  
Some Bats are Viruses.  
All Viruses are Diseases.

**Conclusions:**

(I) Some Bats are Diseases.  
(II) Some Mammals are Viruses.

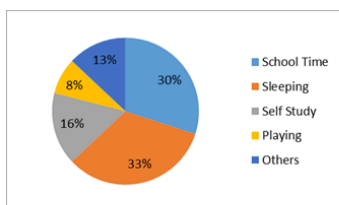
- Ans**
- ☒ A. Only conclusion (I) follows.
  - ☒ B. Only conclusion (II) follows.
  - ☒ C. Both conclusions (I) and (II) follow.
  - ☒ D. Neither conclusion (I) nor (II) follows.

**Q.32** If '+' means '÷', '-' means '+', '×' means '-' and '÷' means '×', what will be the value of the following expression?

$\{[(16 \times 6) - (2 \div 3)] + (4 - 4)\} \div 2$

- Ans**
- ☒ A. 4
  - ☒ B. 2
  - ☒ C. 8
  - ☒ D. 6

- Q.33** The given pie chart shows use of time in a full day (24 hours) by a student. Study the pie chart and answer the question that follows.



What is the approximate difference between the number of hours used for self study and school time?

- Ans**
- ☒ A. 2 hours
  - ☒ B. 4.5 hours
  - ☒ C. 4 hours
  - ☒ D. 3.5 hours

- Q.34** Refer to the given number, symbol series and answer the question that follows.

(Left) % Ω 8 3 1 \$ 2 4 @ 6 7 @ 1 & & \$ 5 # 2 8 @ 3 % & \$ 3 (Right)

How many such symbols are there (from left to right) which are immediately followed by an even number and also immediately preceded by an odd number?

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

- Q.35** Which of the following numbers will replace the question mark (?) in the given series?

1.1 1.2 1.4 1.8 2.5 ?

- Ans**
- ☒ A. 3.6
  - ☒ B. 3.5
  - ☒ C. 3.2
  - ☒ D. 3.7

- Q.36** Rahman goes 20 km towards north from a fixed-point F, then after turning to his right and he goes 15 km. After this he goes 20 km after turning to his right. How far and in what direction is he now with respect to the starting point F?

(All turns are 90° turns only)

- Ans**
- ☒ A. 15 km towards east
  - ☒ B. 15 km towards west
  - ☒ C. 15 km towards north
  - ☒ D. 15 km towards south

- Q.37** All 20 students of a class are sitting in a straight row facing east. Ram is 8<sup>th</sup> from the right end and Sita is 16<sup>th</sup> from the left end. How many students are sitting between Ram and Sita?

- Ans**
- ☒ A. 2
  - ☒ B. 4
  - ☒ C. 8
  - ☒ D. 3

**Q.38** Seven boxes S, T, U, V, W, X and Y are kept one over the other but not necessarily in the same order. X is kept immediately below V. Only two boxes are kept above U. T is kept immediately above S. U is kept immediately above V. Only two boxes are kept below X. How many boxes are below V?

- Ans** ☒ A. Three  
☐ B. Two  
☐ C. One  
☐ D. Four

**Q.39** Six friends are sitting around a round table facing the centre with equal distances between two neighbours. Sarah is sitting to the immediate left of Laura. Ron is sitting second to the right of Tyler. Sarah is sitting third to the left of Adam. Laura is sitting to the immediate left of Tyler. Tessa is sitting to the immediate right of Ron. Who is sitting to the immediate left of Sarah?

- Ans** ☒ A. Tessa  
☐ B. Laura  
☐ C. Ron  
☐ D. Tyler

**Q.40** U, V, W, X, Y and Z are six students sitting around a circular table, facing the centre of the table for a school assignment. X is the immediate neighbour of W. V is seated third to the left of W. U is seated to the immediate right of Y. V is seated second to the right of X. Who is seated third to the left of Z?

- Ans** ☒ A. U  
☐ B. Y  
☐ C. W  
☐ D. V

**Q.41** All 28 students of a class are standing in a straight row facing north. Jay is 14<sup>th</sup> from the right end, while Bela is 12<sup>th</sup> from the left end. How many students stand between Jay and Bela?

- Ans** ☒ A. 2  
☐ B. 3  
☐ C. 4  
☐ D. 1

**Q.42** Select the option that represents the letters that, when placed from left to right in the same sequence in the blanks below, will complete the letter series.

J J L \_ K K J J \_ K K K J \_ L K K K J J

- Ans** ☐ A. KJL  
☒ B. KLJ  
☐ C. JKL  
☐ D. KLK

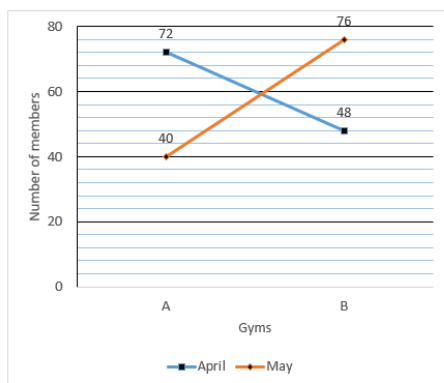
**Q.43** Which of the following is NOT a leap year?

- Ans** ☒ A. 2600  
☐ B. 4800  
☐ C. 6800  
☐ D. 8800



**Q.44** Study the given line graph and answer the following question.

The given line graph depicts the number of members in two gyms A and B, in the months of April and May.



The number of members in Gym B in April is what percentage more than the number of members in Gym A in May?

- Ans**
- ☒ A. 12%
  - ☒ B. 10%
  - ☒ C. 20%
  - ☒ D. 40%

**Q.45** In this question, a statement is followed by two conclusions numbered I and II. You have to assume everything in the statement to be true and decide which of them logically follows beyond a reasonable doubt from the information given in the statement.

**Statement:**

Providing LPG connections to BPL (Below Poverty Level) households will ensure universal coverage of cooking gas in country X.

**Conclusions:**

- I. Usage of traditional cooking fuels such as firewood, coal, etc., is a common practice in rural parts of country X.
- II. No other mode of cooking is as effective as using LPG.

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Neither conclusion I nor II follows
  - ☒ D. Both conclusions I and II follow

**Q.46** In a certain alpha-numeric code, 'PLATE' is written as 45 and 'BLEAK' is written as 13. How will 'PASTE' be written in the same code?

- Ans**
- ☒ A. 16
  - ☒ B. 54
  - ☒ C. 21
  - ☒ D. 12

**Q.47** Three statements are given followed by two conclusions numbered I and II. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide

which of the conclusions logically follow(s) from the statements.

**Statements:**

All books are papers.

All trees are papers.

All papers are recyclable.

**Conclusions:**

I. Some books are trees.

II. All trees are recyclable.

- Ans** ☒ A. Only conclusion II follows  
☐ B. Only conclusion I follows  
☐ C. Both conclusions I and II follow  
☐ D. Neither conclusion I nor II follows

**Q.48** Select the option that is related to the fifth number in the same way as the second number is related to the first number, the fourth number is related to the third number.

23 : 14 :: 11 : 8 :: 7 : ?

- Ans** ☐ A. 5  
☒ B. 6  
☐ C. 4  
☐ D. 8

**Q.49** Each of the digits in the number 46734 is arranged in ascending order from left to right. The position of how many digits will change as compared to that in the original number?

- Ans** ☒ A. 5  
☐ B. 4  
☐ C. 3  
☐ D. 2

**Q.50** In a certain code language, 'MATCH' is written as 'NDYJQ' and 'SKULL' is written as 'TNZSU'. How will 'CHAMP' be written in that language?

- Ans** ☒ A. DKFTY  
☐ B. ELFTY  
☐ C. DJFTZ  
☐ D. EJFTZ

**Q.51** Ashutosh walks 90 m towards north from his house, then he turns left and walks 110 m. He again turns left and walks 150 m. He then turns left again, and covers a distance of 130 m. In which direction is Ashutosh now, with respect to the starting point? (All turns are 90° turns only)

- Ans** ☒ A. South-east  
☐ B. North-east  
☐ C. North-west  
☐ D. South-west

**Q.52** Amongst six friends A, B, C, D, E and F, each has a different height. B is taller than D but shorter than A. D is not the shortest. Only one person is shorter than C. Only two people are shorter than E. Who is the shortest among all the friends?

- Ans**
- ✓ A. F
  - ✗ B. B
  - ✗ C. C
  - ✗ D. D

**Q.53** A statement is given below, followed by four conclusions given in the options. Find out which conclusion is true based on the given statement.

Statement:  $A > S \geq D > F \leq G < H$

- Ans**
- ✗ A.  $D > G$
  - ✓ B.  $S > F$
  - ✗ C.  $S = H$
  - ✗ D.  $A \geq G$

**Q.54** In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.

ACR : BDS  
GUX : HVY

- Ans**
- ✗ A. OIF : NHE
  - ✓ B. MQF : NRG
  - ✗ C. HJL : SQO
  - ✗ D. SIO : KQP

**Q.55** Refer to the following letter-symbol series and answer the question that follows.

(Left)  $S R \wedge * F S V \# Y @ Z Y T G B Y S \& Z R S V @ \wedge C Y N$  (Right)

From left how many such letters are there that are immediately preceded by a symbol and immediately followed by a letter?

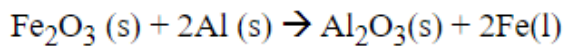
- Ans**
- ✓ A. 3
  - ✗ B. 4
  - ✗ C. 5
  - ✗ D. 7

#### Section : General Science

**Q.56** When Mendel crossed tall pea plants with short pea plants, the progeny was all tall plants. When he crossed plants bearing round seeds with plants bearing wrinkled seeds, the progeny was all round seeds. If he crossed tall plants bearing wrinkled seeds with short plants bearing round seeds, what would the progeny plants look like?

- Ans**
- ✗ A. Tall plants with wrinkled seeds
  - ✓ B. Tall plants with round seeds
  - ✗ C. Short plants with wrinkled seeds
  - ✗ D. Short plants with round seeds

Q.57 In the given reaction, reduction of which substance takes place?



- Ans
- ☒ A. Ferric oxide
  - ☐ B. Aluminium
  - ☐ C. Aluminium oxide
  - ☐ D. Iron

Q.58 Mining causes pollution because of the large amount of:

- Ans
- ☐ A. slurry
  - ☒ B. slag
  - ☐ C. sludge
  - ☐ D. ore

Q.59 What was the main reason behind Mendel's success in deriving the laws of inheritance?

- Ans
- ☐ A. He chose parents that were identical.
  - ☒ B. He studied only one character at a time in his crosses.
  - ☐ C. He counted the individuals exhibiting a particular trait in each generation.
  - ☐ D. He selected the pea plant.

Q.60 The splitting of light of the sun into various colours of the rainbow is called \_\_\_\_\_.

- Ans
- ☐ A. scattering of light
  - ☐ B. Reflection of light
  - ☐ C. Total internal reflection
  - ☒ D. Dispersion of light

Q.61 Which of the following properties is required for a material to be used in filament of an electric bulb?

- Ans
- ☐ A. Low temperature
  - ☐ B. Low melting point
  - ☒ C. High resistivity
  - ☐ D. High conductivity

Q.62 The melting and boiling points of ionic compounds are very high because \_\_\_\_\_.

- Ans
- ☐ A. a small amount of energy is required to break the strong inter-ionic attraction
  - ☒ B. a large amount of energy is required to break the strong inter-ionic attraction
  - ☐ C. a large amount of energy is required to break the weak inter-ionic attraction
  - ☐ D. a small amount of energy is required to break the weak inter-ionic attraction

**Q.63** Select the correct Dobereiner's triads from the given sets.

- Ans**
- ☒ A. Li, Na, Ba
  - ☒ B. F, Cl, Br
  - ☒ C. Ca, Sr, I
  - ☒ D. Ca, Sr, Ba

**Q.64** Consider the following reaction.



This reaction is an example of:

- Ans**
- ☒ A. precipitation reaction
  - ☒ B. decomposition reaction
  - ☒ C. displacement reaction
  - ☒ D. combination reaction

**Q.65** An electric circuit consumes energy at a rate of 540 W per minute when heated. If the voltage across the circuit is 270 V, what is the resistance of the circuit?

- Ans**
- ☒ A. 65 ohm
  - ☒ B. 135 ohm
  - ☒ C. 270 ohm
  - ☒ D. 540 ohm

**Q.66** A device employed to produce large currents for use in homes and industry is \_\_\_\_\_.

- Ans**
- ☒ A. electric motor
  - ☒ B. electric kettle
  - ☒ C. electric generator
  - ☒ D. electric toaster

**Q.67** A copper wire has radius 0.5 mm and length 100 m. If the resistivity of the material is  $2.5 \times 10^{-8}$  ohm-m, then the resistance of the wire is \_\_\_\_\_.

- Ans**
- ☒ A.  $1000 / \pi$  ohm
  - ☒ B.  $10 \pi$  ohm
  - ☒ C.  $1000 \pi$  ohm
  - ☒ D.  $10 / \pi$  ohm

**Q.68** In plants, resins and gums are stored especially in \_\_\_\_\_.

- Ans**
- ☒ A. old phloem
  - ☒ B. old xylem
  - ☒ C. old pith
  - ☒ D. old cortex

**Q.69** The respiratory pigment, haemoglobin is present in:

- Ans**
- ☒ A. red blood corpuscles
  - ☐ B. white blood corpuscles
  - ☐ C. blood plasma
  - ☐ D. blood platelets

**Q.70** The conversion of ethanol to acetic acid is an example of:

- Ans**
- ☐ A. addition reaction
  - ☒ B. oxidation reaction
  - ☐ C. reduction reaction
  - ☐ D. substitution reaction

**Q.71** Carbon makes strong bonds with other elements.

Which of the following is the correct explanation for the given statement?

- Ans**
- ☒ A. A carbon nucleus holds the shared pairs of electrons strongly due to its small size.
  - ☐ B. A carbon nucleus holds the shared pairs of electrons weakly due to its small size.
  - ☐ C. A carbon nucleus holds the shared pairs of electrons strongly due to its large size.
  - ☐ D. A carbon nucleus holds the shared pairs of electrons weakly due to its large size.

**Q.72** When we consider biodegradable substances, we see that the common property is that \_\_\_\_\_.

- Ans**
- ☐ A. they are all plant products
  - ☐ B. they are not toxic
  - ☐ C. they are all water-soluble
  - ☒ D. they are all biological in origin

**Q.73** Suppose an object of height 5 cm is placed in front of a concave mirror and a real and inverted image of the same size is formed at a distance of 20.0 cm. Then the centre of curvature of the mirror is at:

- Ans**
- ☐ A. 5 cm
  - ☐ B. 10 cm
  - ☐ C. 15 cm
  - ☒ D. 20 cm

**Q.74** In an electric motor, the \_\_\_\_\_ act(s) as a contact between the commutator and the terminals of the battery.

- Ans**
- ☐ A. split ring
  - ☒ B. carbon brushes
  - ☐ C. magnetic poles
  - ☐ D. plug key

**Q.75** Identify the FALSE statement in the context of digestion.

- Ans**
- ☐ A. Digestion comes before egestion but after ingestion.
  - ☐ B. Absorption comes before assimilation but after digestion.
  - ☒ C. Assimilation comes before ingestion but after absorption.
  - ☐ D. Assimilation and absorption both occur before egestion.

**Q.76** Which of the following properties remain same while moving down the group in the periodic table?

- Ans**
- ☒ A. Valency
  - ☐ B. Atomic size
  - ☐ C. Metallic character
  - ☐ D. Non-metallic character

**Q.77** Clouds can be seen as white because the small water droplets of the cloud \_\_\_\_\_.

- Ans**
- ☐ A. do not scatter any one of the wavelengths of visible light
  - ☐ B. scatter very less amount of red and blue wavelength of visible light
  - ☒ C. scatter all the wavelengths of the visible light with almost equal intensity
  - ☐ D. scatter very high amount of red and blue wavelength of visible light

**Q.78** Focal length of the concave mirror which can produce magnification of  $-2$  and real image at a distance  $1.5$  m from the pole is:

- Ans**
- ☐ A.  $0.5$  m
  - ☐ B.  $5$  m
  - ☒ C.  $1.5$  m
  - ☐ D.  $2$  m

**Q.79** The substance which doctors use as plaster for supporting fractured bones in the right position is:

- Ans**
- ☒ A.  $\text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$
  - ☐ B.  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$
  - ☐ C.  $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$
  - ☐ D.  $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$

**Q.80** Which of the following is a balanced food in itself?

- Ans**
- ☒ A. Milk
  - ☐ B. Honey
  - ☐ C. Meat
  - ☐ D. Pulses

Section : General Awareness and Current Affairs

**Q.81** Pawl Kut is the greatest of all the festivals celebrated in the state of \_\_\_\_\_.

- Ans**
- ☒ A. Mizoram
  - ☐ B. Meghalaya
  - ☐ C. Kerala
  - ☐ D. Goa

**Q.82** What does the cost of self-owned inputs used in the production process refer to?

- Ans**
- ☐ A. Total cost
  - ☐ B. Total variable cost
  - ☐ C. Marginal cost
  - ☒ D. Implicit cost



**Q.83** The production function of a firm is a relationship between inputs used and \_\_\_\_\_.

- Ans**
- ☒ A. price of inputs used by the firm
  - ☒ B. quantity of inputs used by the firm
  - ☒ C. output produced by the firm
  - ☒ D. quality of inputs used by the firm

**Q.84** When a Tirthankara leaves a mortal body, it is known as \_\_\_\_\_.

- Ans**
- ☒ A. Siddhashila
  - ☒ B. Tapa Kalyana
  - ☒ C. Janma Kalyana
  - ☒ D. Nirvana

**Q.85** In March 2022, \_\_\_\_\_ has been elected as the superior general of the Missionaries of Charity, becoming the fourth occupant of the top post of the global organisation founded by Saint Teresa of Kolkata.

- Ans**
- ☒ A. Sister Mary Prema Pierick
  - ☒ B. Sister Mary Joseph
  - ☒ C. Sisters Marguerite
  - ☒ D. Sister Anselm

**Q.86** Which of the following schemes is aimed at better administration of Waqf properties and safeguarding and preventing the encroachment of these properties?

- Ans**
- ☒ A. Molana Waqf Board Taraqqiati Scheme (MWBTs)
  - ☒ B. Islamic Waqf Board Taraqqiati Scheme (IWBTS)
  - ☒ C. Awami Waqf Board Taraqqiati Scheme (AWBTS)
  - ☒ D. Qaumi Waqf Board Taraqqiati Scheme (QWBTS)

**Q.87** Which Articles of the Constitution of India deals with the provision of Attorney General of India?

- Ans**
- ☒ A. Article 66
  - ☒ B. Article 76
  - ☒ C. Article 56
  - ☒ D. Article 46

**Q.88** Which of the following states has started the 'Kudumbashree' programme which plays a vital role in enhancing the financial status of the less privileged women in the State through its thrift and credit programme?

- Ans**
- ☒ A. Kerala
  - ☒ B. Assam
  - ☒ C. West Bengal
  - ☒ D. Odisha

**Q.89** Which Indian golfer was the runner-up at the Players Championship 2022 at Florida?

- Ans**
- ☒ A. Shiv Kapur
  - ☒ B. Anirban Lahiri
  - ☒ C. Gaurav Ghei
  - ☒ D. Arjun Atwal



**Q.90** The 'Northern Circars' is the name of a \_\_\_\_\_ in India.

- Ans**
- ☒ A. mountain
  - ☒ B. coastal plain
  - ☒ C. river valley
  - ☒ D. waterfall

**Q.91** Ao is a prominent language spoken in the state of \_\_\_\_\_.

- Ans**
- ☒ A. Nagaland
  - ☒ B. Tripura
  - ☒ C. Chhattisgarh
  - ☒ D. Odisha

**Q.92** Dibru-Saikhowa National Park is located in which of the following states?

- Ans**
- ☒ A. Assam
  - ☒ B. Nagaland
  - ☒ C. Meghalaya
  - ☒ D. Mizoram

**Q.93** Under which amendment in The Constitutional Act 1992 did the Panchayati Raj Institutions receive their constitutional status?

- Ans**
- ☒ A. 65th Amendment
  - ☒ B. 75th Amendment
  - ☒ C. 70th Amendment
  - ☒ D. 73rd Amendment

**Q.94** Who won a bronze medal at the U23 Asian Wrestling Championships in 2022?

- Ans**
- ☒ A. Deepak Punia
  - ☒ B. Ravi K Dahiya
  - ☒ C. Anshu Malik
  - ☒ D. Sushil Kumar

**Q.95** A \_\_\_\_\_ is a retail establishment that combines a department store and a grocery supermarket.

- Ans**
- ☒ A. hypermarket
  - ☒ B. minimart
  - ☒ C. hitmart
  - ☒ D. supermarket

**Q.96** Which of the following is India's first AI-based job platform for persons with disabilities?

- Ans**
- ☒ A. Bhartability
  - ☒ B. Ujalaability
  - ☒ C. Jeevanability
  - ☒ D. Swarajability

**Q.97** In the year 2021, who among the following became the first Indian Chairperson of the United Nations Advisory Committee of the Human Rights Council (HRC)?

- Ans**
- ☐ A. Barakat Ahmad
  - ☐ B. Syed Akbaruddin
  - ☒ C. Ajai Malhotra
  - ☐ D. Nirupama Rao

**Q.98** Which of the following ports is located along the east coast of India?

- Ans**
- ☐ A. Kandla
  - ☐ B. Mazagaon
  - ☒ C. Paradip
  - ☐ D. JLN port Nhava Sheva

**Q.99** In which year was the 11<sup>th</sup> Fundamental Duty added to the list of Fundamental Duties in the Indian Constitution?

- Ans**
- ☐ A. 1999
  - ☐ B. 2000
  - ☒ C. 2002
  - ☐ D. 2004

**Q.100** India's first amputee clinic was launched in which place?

- Ans**
- ☐ A. Bhopal
  - ☐ B. Bengaluru
  - ☐ C. Kanpur
  - ☒ D. Chandigarh



# रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन आर आर सी - ०१/२०१९ - CEN RRC - 01/2019



|           |                   |
|-----------|-------------------|
| Test Date | 11/10/2022        |
| Test Time | 5:00 PM - 6:30 PM |
| Subject   | Level 1           |

**\* Note**

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

**Section : Mathematics**

**Q.1** The area of a triangle is  $85 \text{ cm}^2$  and its base is 5 cm. Find the height of the triangle corresponding to this given base.

**Ans** ☒ A. 34 cm

☐ B. 24 cm

☐ C. 17 cm

☐ D. 51 cm

**Q.2** A sum was invested at a certain rate of simple interest per annum for 8 years. Had it been invested at a rate of simple interest per annum that is 8% higher than the rate at which the sum had been actually invested, it would have fetched ₹4,000 more as interest at the end of the 8-year period. What was the sum invested?

**Ans** ☒ A. ₹6,250

☐ B. ₹6,500

☐ C. ₹6,750

☐ D. ₹6,925

**Q.3** The roots of the quadratic equation  $x^2 - 6x + 5 = 0$  are:

**Ans** ☐ A. -5, -1

☐ B. 3, 2

☒ C. 5, 1

☐ D. -3, -2

**Q.4** The average age of Yamuna and her daughter, Sathvika, is 21 years. The ratio of their ages is 5 : 2 . Find the age of Sathvika.

**Ans** ☐ A. 10 years

☐ B. 15 years

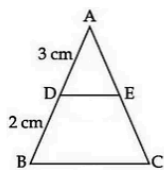
☐ C. 17 years

☒ D. 12 years

Q.5 The HCF of 16, 20 and 24 is:

- Ans
- ☐ A. 2
  - ☐ B. 6
  - ☐ C. 8
  - ☒ D. 4

Q.6



In the given figure, triangle ABC is similar to triangle ADE. If the area of triangle ADE =  $18 \text{ cm}^2$ , then the area of triangle ABC is:

- Ans
- ☐ A.  $45 \text{ cm}^2$
  - ☐ B.  $90 \text{ cm}^2$
  - ☒ C.  $50 \text{ cm}^2$
  - ☐ D.  $55 \text{ cm}^2$

Q.7 Observe the given pattern and the find the missing number.

$$22^2 = 484$$

$$202^2 = 40804$$

$$2002^2 = 4008004$$

$$20002^2 = \dots\dots\dots$$

- Ans
- ☐ A. 4840000
  - ☐ B. 400800400
  - ☒ C. 400080004
  - ☐ D. 2000220002

Q.8 If  $K + \frac{1}{K} = -2$ , then the value of  $K^3 + \frac{1}{K^3}$  is:

- Ans
- ☐ A. -1
  - ☒ B. -2
  - ☐ C. -3
  - ☐ D. -4

Q.9 There is a 20% discount on a dozen pairs of identical shoes marked at a combined price of ₹7,200. How many such pairs of shoes can be bought for ₹1,440?

- Ans
- ☐ A. 5
  - ☐ B. 4
  - ☒ C. 3
  - ☐ D. 2

**Q.10** Avinash's age is 5 times his son Aravind's age. Four years hence, the age of Avinash will be four times Aravind's age. Find the average of their present ages.

- Ans**
- ✓ **A.** 36 years
  - ✗ **B.** 30 years
  - ✗ **C.** 24 years
  - ✗ **D.** 28 years

**Q.11** Simplify the following.

$$\frac{(3x^2)^5}{(6x^{-2})^2}$$

- Ans**
- ✗ **A.**  $\frac{81x^{14}}{36}$
  - ✗ **B.**  $\frac{27x^6}{36}$
  - ✓ **C.**  $\frac{27x^{14}}{4}$
  - ✗ **D.**  $\frac{81x^6}{36}$

**Q.12** Mohan, Meena and Madhav enter into a partnership investing ₹3,000, ₹2,000 and ₹5,000 respectively. Find their respective shares in the annual profit of ₹5,600 in the given order of the names mentioned here.

- Ans**
- ✗ **A.** ₹1,480, ₹1,320, ₹2,800
  - ✗ **B.** ₹1,680, ₹1,240, ₹2,680
  - ✗ **C.** ₹1,752, ₹1,168, ₹2,680
  - ✓ **D.** ₹1,680, ₹1,120, ₹2,800

**Q.13** While packing birthday caps for a party in packs of 8 or 10, one cap was always left out. How many caps were there if there were more than 250 but less than 300 caps in the lot?

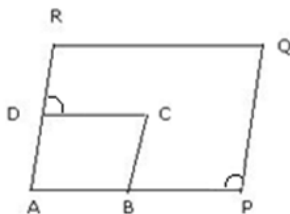
- Ans**
- ✗ **A.** 268
  - ✗ **B.** 275
  - ✓ **C.** 281
  - ✗ **D.** 261

**Q.14** In order to make the simplification problem given below correct, which of the pairs of signs given in the options needs to be interchanged?

$$25 \div 5 - 2 \times 30 + 3 = 10$$

- Ans**
- ✗ **A.**  $\div$  and  $-$
  - ✗ **B.**  $\times$  and  $-$
  - ✗ **C.**  $\times$  and  $+$
  - ✓ **D.**  $\div$  and  $+$

**Q.15** In the given figure, ABCD and APQR are two parallelograms. If  $\angle APQ = 100^\circ$ , find  $\angle CDR$ .

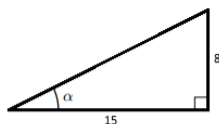


- Ans**
- ☒ A.  $80^\circ$
  - ☐ B.  $40^\circ$
  - ☐ C.  $100^\circ$
  - ☐ D.  $36^\circ$

**Q.16** 3 kg of apples and 4 kg of oranges cost ₹210, and 5 kg of apples and 2 kg of oranges cost ₹175. Find the cost of 1 kg of apples.

- Ans**
- ☐ A. ₹37.5
  - ☐ B. ₹35.7
  - ☒ C. ₹20
  - ☐ D. ₹25

**Q.17**



In the given right-angled triangle, where the lengths of the sides given are in cm, find the value of  $\cos \alpha + \cot \alpha$

- Ans**
- ☐ A.  $\frac{15}{17}$
  - ☐ B.  $\frac{19}{8}$
  - ☐ C.  $\frac{333}{136}$
  - ☒ D.  $\frac{375}{136}$

**Q.18** If  $i = \frac{7}{3}j$  and  $j = \frac{4}{5}k$ , then the ratio of  $i : j : k$  is:

- Ans**
- ☐ A. 28 : 4 : 15
  - ☐ B. 7 : 12 : 5
  - ☒ C. 28 : 12 : 15
  - ☐ D. 21 : 12 : 20

**Q.19** A pipe can fill an empty tank in 15 hours, but due to a leakage at the bottom, it is filled in 20 hours. If the tank is full, how long will the leakage take to empty it if no other entry or exit point in the tank is open?

- Ans**
- ☒ A. 60 hours
  - ☐ B. 40 hours
  - ☐ C. 50 hours
  - ☐ D. 30 hours

**Q.20** What is the discount percentage in the scheme of 'buy 5 get 3 free'?

- Ans**
- ☒ A. 60%
  - ☒ B. 37.5%
  - ☒ C. 39.25%
  - ☒ D. 36.5%

**Q.21** Find the mode for the following data of student ages:

16, 17, 15, 17, 16, 15, 14, 14, 13, 17, 13, 12, 12, 16, 10, 14, 17, 10, 11.

- Ans**
- ☒ A. 11
  - ☒ B. 16
  - ☒ C. 17
  - ☒ D. 15

**Q.22** If  $K$  is the mean of 2, 3, 4,  $K$ , then the mode is:

- Ans**
- ☒ A. 1
  - ☒ B. 2
  - ☒ C. 3
  - ☒ D. 4

**Q.23** The base of the right-angled triangle is 3 m greater than its height. If its hypotenuse is 15 m, then find its area.

- Ans**
- ☒ A.  $54 \text{ m}^2$
  - ☒ B.  $64 \text{ m}^2$
  - ☒ C.  $72 \text{ m}^2$
  - ☒ D.  $84 \text{ m}^2$

**Q.24** A and B can do a piece of work in 28 days and 35 days, respectively. They work on alternate days starting with A till the work gets completed. How long (in days) would it take A and B to complete the work?

- Ans**
- ☒ A. 31
  - ☒ B.  $31\frac{1}{9}$
  - ☒ C.  $31\frac{1}{5}$
  - ☒ D.  $31\frac{1}{2}$

**Q.25** If the length  $l$  of a room is reduced by 10% and breadth  $b$  is increased by 10%, then find the positive change in its perimeter.

- Ans**
- ☒ A.  $\frac{2}{5}(l - b)$
  - ☒ B.  $\frac{2}{5}(l + b)$
  - ☒ C.  $\frac{l+b}{5}$
  - ☒ D.  $\frac{l-b}{5}$

## Section : General Intelligence and Reasoning

- Q.26** Seven people - B, D, F, K, M, Q and W are sitting in a straight line facing North. D sits second from one of the extreme ends of the line. Only two people sit between D and F. M sits fourth to the right of F. Q sits second to the right of W. K is not an immediate neighbour of W. How many people sit to the left of B?

**Ans** ☒ A. One  
☒ B. Three  
☒ C. None  
☒ D. Two

- Q.27** If '+' means '-', '-' means '+', '×' means '+', and '÷' means '×', what will come in place of the question mark (?) in the following equation?

$$15 - 8 + 7 \div 6 \times 3 = ?$$

**Ans** ☒ A. 6  
☒ B. 10  
☒ C. 9  
☒ D. 12

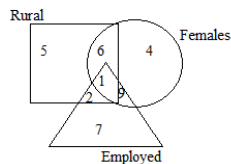
- Q.28** Refer to the given letter-cluster series and answer the question that follows.

AKMG, RTDC, WQCT, PILE, VTXF, HRXW

If in each of the letter-clusters, each letter is changed to the next letter in the English alphabetical order, how many letter-clusters thus formed will have exactly two vowels?

**Ans** ☒ A. 0  
☒ B. 1  
☒ C. 2  
☒ D. 3

- Q.29** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



How many rural females are there who are NOT employed?

**Ans** ☒ A. 3  
☒ B. 7  
☒ C. 1  
☒ D. 6

- Q.30** Select the option that represents the letters that, when placed from left to right in the same sequence in the blanks below, will complete the letter series.

M N O \_ M N \_ M N \_ P \_ \_ O P

**Ans** ☒ A. POPOMN  
☒ B. POPOMM  
☒ C. MNPOPP  
☒ D. NMPONM



**Q.31** If '+' means '-', '-' means '+', '×' means '+', and '÷' means '×', what will be the value of the following expression?

$$[[(6 \times 9) + (3 \div 2)] - (7 + 4)] \div 2$$

- Ans**
- ☒ A. 2
  - ☒ B. 4
  - ☒ C. 6
  - ☒ D. 8

**Q.32** In a certain code language, 'FRAME' is written as 'HPCKG', and 'PEACH' is written as 'RCCAJ'. How will 'BROOM' be written in that language?

- Ans**
- ☒ A. DPQMO
  - ☒ B. DTQQO
  - ☒ C. APQNO
  - ☒ D. CPPMO

**Q.33** In this question, the statement is followed by four conclusions. Find out which conclusion is true based on the given statement:

Statement:  $N > W = E \geq D < Y = P \leq K$

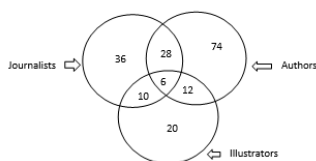
- Ans**
- ☒ A.  $N < E$
  - ☒ B.  $D > N$
  - ☒ C.  $W \geq D$
  - ☒ D.  $K \leq Y$

**Q.34** Select the option that is related to the third term in the same way as the second term is related to the first term and the sixth term is related to the fifth term.

32 : 56 :: 52 : ? :: 42 : 66

- Ans**
- ☒ A. 71
  - ☒ B. 75
  - ☒ C. 76
  - ☒ D. 73

**Q.35** Study the given diagram carefully and answer the question. The numbers in different sections indicate the number of persons.



How many such authors are there who are also illustrators but are NOT journalists?

- Ans**
- ☒ A. 18
  - ☒ B. 28
  - ☒ C. 12
  - ☒ D. 54

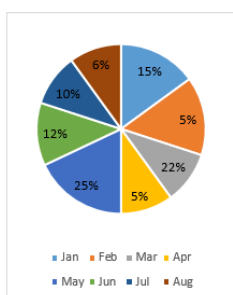
**Q.36** Study the given table and answer the following question.

|        | Number of words translated |         |           |
|--------|----------------------------|---------|-----------|
|        | Monday                     | Tuesday | Wednesday |
| Puneet | 548                        | 581     | 628       |
| Mohit  | 696                        | 684     | 692       |

If ₹2 was paid for the translation of one word, what was the total amount received by Puneet and Mohit on Monday?

- Ans**
- ✓ **A. ₹2,488**
- ✗ **B. ₹2,966**
- ✗ **C. ₹2,312**
- ✗ **D. ₹2,916**

**Q.37** The given pie chart shows the percentage of expenditure on electricity by a family in different months. Study the chart and answer the question.



What is the central angle for the total expenditure on electricity in all the months together, EXCEPT May and August?

- Ans**
- ✗ **A. 234.8°**
- ✗ **B. 216.8°**
- ✗ **C. 210.7°**
- ✓ **D. 248.4°**

**Q.38** This question consists of a statement followed by two arguments I and II. Read the statement and the arguments carefully and select the appropriate answer from the given options.

Statement:

Eating frozen foods is advantageous.

Arguments:

- I. Frozen foods sometimes may have more vitamins and minerals compared to fresh food, because fresh foods lose vitamins and minerals over time while freezing preserves nutrients.
- II. Sodium present in frozen foods can lead to increased blood pressure level.

- Ans**
- ✗ **A. I weakens while II strengthens the statement**
- ✓ **B. II weakens while I strengthens the statement**
- ✗ **C. Both I and II weaken the statement**
- ✗ **D. Both I and II strengthen the statement**

**Q.39** Mangal walks 30 m north from his house, then he takes a right turn and walks 20 m. He then takes a right turn and walks 30 m, then turns left and walks 20 m, then he turns right and walks 10 m. Finally, he takes a right turn and walks 40 m. In which direction and how many metres is Mangal now from his house? (All turns are 90° turns only)

- Ans**
- ☒ A. 20 m, east
  - ☒ B. 10 m, west
  - ☒ C. 20 m, north
  - ☒ D. 10 m, south

**Q.40** A statement is given below, followed by four conclusions given in the options. Find out which conclusion is true based on the given statement.

Statement:  $S < T \leq G < M < K > P \geq O$

- Ans**
- ☒ A.  $K > G > S$
  - ☒ B.  $M \geq P \geq O$
  - ☒ C.  $O = S = T$
  - ☒ D.  $K > O > S$

**Q.41** Refer to the following number series and answer the question that follows.

4 3 9 1 5 3 9 2 4 3 5 9 5 7 9 2 6 8 7

How many such odd digits are there, each of which is immediately preceded by an even digit and also immediately followed by an odd digit?

- Ans**
- ☒ A. One
  - ☒ B. Two
  - ☒ C. Three
  - ☒ D. Four

**Q.42** Which of the following numbers will replace the question mark (?) in the given series?

3    13    21    27    31    ?

- Ans**
- ☒ A. 36
  - ☒ B. 34
  - ☒ C. 35
  - ☒ D. 33

**Q.43** Select the option that is related to the third term in the same way as the second term is related to the first term and the sixth term is related to the fifth term.

15 : 4913 :: 8 : ? :: 11 : 2197

- Ans**
- ☒ A. 1000
  - ☒ B. 1001
  - ☒ C. 1003
  - ☒ D. 1002

**Q.44** What is the sum of the digits placed at the even places when counted from left to right in the number 479812356?

- Ans**
- ☒ A. 26
  - ☒ B. 22
  - ☒ C. 32
  - ☒ D. 18

**Q.45** G, K, M, P, S and V live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 6. G lives on floor number 3. Only one person lives between G and M. As many people live below K as above M. P lives immediately below S. How many people live above P?

- Ans**
- ☒ A. One
  - ☒ B. Two
  - ☒ C. Three
  - ☒ D. Four

**Q.46** Ravi starts from Point A and drives 8 km towards the west. He then takes a left turn, drives 5 km, turns left and drives 19 km. He then takes a right turn and drives 2 km. He takes a final right turn, drives 11 km and stops at Point B. How far and towards which direction should he drive in order to reach Point A from Point B? (All turns are 90 degree turns only)

- Ans**
- ☒ A. 7 km towards the north
  - ☒ B. 2 km towards the north
  - ☒ C. 3 km towards the south
  - ☒ D. 5 km towards the south

**Q.47** Select the option that is related to the fifth term in the same way as the fourth term is related to the third term and the second term is related to the first term.

STUDENT : HGFVWMG :: TEACHER : GVZXSVI :: SCHOOL : ?

- Ans**
- ☒ A. XSHLLO
  - ☒ B. HXSLLO
  - ☒ C. SLOLXH
  - ☒ D. HXSOLL

**Q.48** Refer to the following letter, number, symbol series and answer the question.

(Left) E 7 8 # K 2 L ? = R 3 @ W \* X 5 C H D 4 (Right) .

If all numbers are dropped from the series, which of the following will be seventh from the left?

- Ans**
- ☒ A. W
  - ☒ B. =
  - ☒ C. R
  - ☒ D. \*

**Q.49** Seven people A, B, D, E, G, H and K are sitting in a straight line facing the north. E is sitting at an extreme end of the line. B is an immediate neighbour of E. Only three people are sitting between A and E. A is sitting second to the right of G. H is neither an immediate neighbour of A nor B. K is sitting second to the right of D. How many people are sitting to the right of K?

- Ans**
- ☒ A. Three
  - ☒ B. Two
  - ☒ C. One
  - ☒ D. Zero

**Q.50** Three statements are followed by three conclusions numbered I, II and III. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts. Decide which of the given conclusions logically follow(s) from the given statements.

**Statements:**

Some eggs are wheats  
Some fruits are guavas  
All guavas are lemons

**Conclusions:**

(I) Some fruits are wheats  
(II) Some lemons are fruits  
(III) Some eggs are guavas

- Ans**
- ☒ A. Only conclusion I follows
  - ☒ B. Only conclusion II follows
  - ☒ C. Either conclusion I or III follows
  - ☒ D. None of the conclusions follow

**Q.51** Five boxes containing different items, namely scales, pens, tapes, erasers and pencils, are kept one above the other, not necessarily in the same order. The box with pens is on the topmost position. The box with erasers is the only box between the boxes with pencils and scales. There is only one box below the box with scales and that is the box with tapes. Which box is immediately below the box containing pencils?

- Ans**
- ☒ A. Scales
  - ☒ B. Tapes
  - ☒ C. Erasers
  - ☒ D. Pens

**Q.52** Which of the following numbers will replace the question mark (?) in the given series?

6, 6, 8, 24, 28, ?

- Ans**
- ☒ A. 32
  - ☒ B. 140
  - ☒ C. 112
  - ☒ D. 130

**Q.53** In a certain code language, 'WORSE' is written as 'K#2&6' and 'STEAK' is written as '&@689'. How will 'THORN' be written in that language?

- Ans**
- ☒ A. @5#86
  - ☒ B. @5#27
  - ☒ C. #5@27
  - ☒ D. #5@86

**Q.54** A total of 50 students are in a row. Ankit is at the 19<sup>th</sup> position from the start of the row. What is the position of Ankit from the end of the row?

- Ans**
- ☒ A. 30<sup>th</sup>
  - ☒ B. 31<sup>st</sup>
  - ☒ C. 32<sup>nd</sup>
  - ☒ D. 33<sup>rd</sup>

**Q.55** If yesterday was Monday, then which day of the week it will be after 89 days from today?

- Ans**
- ✓ A. Sunday
  - ✗ B. Monday
  - ✗ C. Tuesday
  - ✗ D. Saturday

Section : General Science

**Q.56** The power of an electric bulb of resistance 18 ohm if no voltage is applied across it is \_\_\_\_\_.

- Ans**
- ✓ A. 0 W
  - ✗ B. 18 W
  - ✗ C. 9 W
  - ✗ D. infinity

**Q.57** Which of the following vessels carries blood away from the heart to various organs of the body, except the lungs?

- Ans**
- ✗ A. Vena cava
  - ✗ B. Pulmonary artery
  - ✗ C. Pulmonary vein
  - ✓ D. Aorta

**Q.58** One of the following is NOT a bacterial disease?

- Ans**
- ✗ A. Gonorrhoea
  - ✓ B. AIDS
  - ✗ C. Syphilis
  - ✗ D. Tuberculosis

**Q.59** Which statement regarding molecular movement (living character) of viruses is correct?

- Ans**
- ✗ A. A virus does not grow in an artificial medium.
  - ✗ B. Metabolism is absent in viruses.
  - ✓ C. Inactive until they infect some cell.
  - ✗ D. Viruses do not respire.

**Q.60** The SI unit of power of a lens is:

- Ans**
- ✗ A. newton
  - ✗ B. joule
  - ✓ C. dioptre
  - ✗ D. metre

**Q.61** Burning of natural gas is:

- Ans**
- ✓ A. an exothermic reaction
  - ✗ B. an endothermic reaction
  - ✗ C. a decomposition reaction
  - ✗ D. a substitution reaction

**Q.62** When a magnet is moved into a coil connected to a galvanometer, the current is induced in the coil. The induced current does not depend on which of the following factor?

- Ans**
- ☒ A. The pole strength of the magnet
  - ☒ B. Speed of movement of the magnet
  - ☒ C. Resistance of the galvanometer connected in the coil
  - ☒ D. Number of turns of the coil

**Q.63** A galvanometer when connected in a circuit, detects the presence of :

- Ans**
- ☒ A. Current
  - ☒ B. Potential difference
  - ☒ C. Resistance
  - ☒ D. Frequency

**Q.64** Which of the following statements is/are true in case of an incandescent filament bulb?

- (a) Filament can be made of tungsten or nichrome.
- (b) The glass envelope covering the filament is filled with inactive gases such as nitrogen or argon.
- (c) Since the filament used is thin, its resistivity is very low.
- (d) The resistivity of the filament is low to allow more current.
- (e) The filament material used should have high melting point.

- Ans**
- ☒ A. (a), (c), (d)
  - ☒ B. (b), (c), (d)
  - ☒ C. (a), (b), (e)
  - ☒ D. (c), (d), (e)

**Q.65**  $a\text{HNO}_3(\text{aq}) + b\text{Ca}(\text{OH})_2(\text{aq}) \rightarrow \text{Ca}(\text{NO}_3)_2 + c\text{H}_2\text{O}$

The coefficients a, b and c in the given balanced chemical equation are:

- Ans**
- ☒ A. 2, 1 and 2, respectively
  - ☒ B. 2, 1 and 1, respectively
  - ☒ C. 1, 2 and 1, respectively
  - ☒ D. 2, 2 and 2, respectively

**Q.66** Which of the following salts is an active ingredient in antacids?

- Ans**
- ☒ A.  $\text{Na}_2\text{CO}_3$
  - ☒ B.  $\text{NaHCO}_3$
  - ☒ C.  $\text{CaOCl}_2$
  - ☒ D.  $\text{CaCl}_2$

Q.67 object is placed \_\_\_\_\_ to obtain an inverted and enlarged image.

- Ans
- ☐ A. at infinity from concave mirror
  - ☐ B. at infinity from convex mirror
  - ☒ C. between C and F of concave mirror
  - ☐ D. between C and F of convex mirror

Q.68 What would have happened if Mendel had NOT studied the F<sub>2</sub> generation?

- Ans
- ☐ A. He would not have discovered which traits were dominant
  - ☒ B. He would not have discovered that recessive traits are not lost
  - ☐ C. He would not have been able to get hybrid plants
  - ☐ D. He would not have been able to study multiple characters

Q.69 Bleaching powder is formed when dry slaked lime reacts with \_\_\_\_\_.

- Ans
- ☐ A. nitrogen
  - ☐ B. hydrogen
  - ☒ C. chlorine
  - ☐ D. bromine

Q.70 The best practice that is involved in biological waste disposal is:

- Ans
- ☐ A. reusing
  - ☐ B. recycling
  - ☐ C. open dumping
  - ☒ D. incineration

Q.71 Among the following situations, potential difference is induced in a closed conducting coil when:

- Ans
- ☐ A. a bar magnet is moved towards the closed coil only
  - ☐ B. the closed coil is moved towards the bar magnet only
  - ☒ C. either the bar magnet is moved towards the closed coil or the closed coil is moved towards the bar magnet
  - ☐ D. both the bar magnet and the closed coil are moving with same speed and in the same direction



Q.72 From the following, identify the applications of scattering of light.

- (a) Danger signals being red
- (b) Advanced sun rise and delayed sun set
- (c) Twinkling of stars
- (d) Tyndall effect
- (e) Redness of sun and blueness of sky

Ans ☒ A. (a), (b), (c)  
☒ B. (b), (c), (d)  
☒ C. (c), (d), (e)  
☒ D. (d), (e), (a)

Q.73 Some bacteria are photosynthetic. Where are the photosynthetic pigments located in these cells?

Ans ☒ A. In the infolding of the plasma membrane  
☒ B. In chloroplasts  
☒ C. On special membranes  
☒ D. In the cell cytoplasm

Q.74 How many number of bonds do the single carbon atom form?

Ans ☒ A. 4  
☒ B. 3  
☒ C. 2  
☒ D. 1

Q.75 Parts of which present state had evolved a local system of canal irrigation called 'kulhs' over 400 years ago?

Ans ☒ A. Himachal Pradesh  
☒ B. Jammu and Kashmir  
☒ C. Madhya Pradesh  
☒ D. Uttar Pradesh

Q.76 The voltages across three resistances  $R_1$ ,  $R_2$  and  $R_3$  connected in series are  $V_1$ ,  $V_2$  and  $V_3$ , respectively. What is the net voltage  $V$  across them if  $I$  represents the net current flowing through them?

Ans ☒ A.  $V = (1/V_1) + (1/V_2) + (1/V_3)$   
☒ B.  $V = (1/R_1) + (1/R_2) + (1/R_3)$   
☒ C.  $V = R_1 + R_2 + R_3$   
☒ D.  $V = V_1 + V_2 + V_3$

Q.77 How many elements exist in nature according to Newlands law of octaves?

- Ans
- ☐ A. 36
  - ☐ B. 46
  - ☒ C. 56
  - ☐ D. 76

Q.78 Which of the following with respect to the Modern Periodic Table is NOT correct?

- Ans
- ☐ A. It has 18 groups and 7 periods.
  - ☐ B. The elements present in the same group have same number of valence electrons.
  - ☐ C. The number of shells increases as we go down the group.
  - ☒ D. Na, Mg and S belongs to the 4<sup>th</sup> period of the Modern Periodic Table.

Q.79 Formation of slaked lime by the reaction of calcium oxide with water is an example of \_\_\_\_\_.

- Ans
- ☒ A. combination reaction
  - ☐ B. endothermic reaction
  - ☐ C. displacement reaction
  - ☐ D. decomposition reaction

Q.80 Meristematic tissue cells lack \_\_\_\_\_.

- Ans
- ☐ A. cell wall
  - ☐ B. cytoplasm
  - ☐ C. nucleus
  - ☒ D. vacuoles

Section : General Awareness and Current Affairs

Q.81 What are the four factors of production?

- Ans
- ☐ A. Man power, transportation, excise duty and import
  - ☒ B. Land, labour, capital, and entrepreneurship
  - ☐ C. Labour, transportation, excise duty and entrepreneurship
  - ☐ D. Capital, transportation, excise duty and entrepreneurship

**Q.82** Match the mountain ranges in column-A with their states in column-B.

| Column-A (Mountain range) | Column-B (State)                    |
|---------------------------|-------------------------------------|
| a. Aravali mountain       | 1. Himachal Pradesh and Uttarakhand |
| b. Vindhya range          | 2. Kerala and Karnataka             |
| c. Western ghat           | 3. Rajasthan                        |
| d. Himalaya range         | 4. Madhya Pradesh                   |

- Ans**
- ☒ A. a-1, b-2, c-3, d-4
  - ☒ B. a-4, b-3, c-2, d-1
  - ☒ C. a-3, b-4, c-2, d-1
  - ☒ D. a-4, b-3, c-1, d-2

**Q.83** During which of the following festivals is the Puli Kali (Tiger dance) event the main attraction?

- Ans**
- ☒ A. Onam
  - ☒ B. Pongal
  - ☒ C. Bihu
  - ☒ D. Baisakhi

**Q.84** In which part of the Indian Constitution are the Fundamental Rights explained?

- Ans**
- ☒ A. Part III
  - ☒ B. Part IV
  - ☒ C. Part V
  - ☒ D. Part VI

**Q.85** As of August 2022, the Maintenance and Welfare of Parents and Senior Citizens Act of which year governs the financial security, welfare and protection of senior citizens?

- Ans**
- ☒ A. 2002
  - ☒ B. 2005
  - ☒ C. 2007
  - ☒ D. 2014

**Q.86** Which of the following is NOT a body of the urban local body administration?

- Ans**
- ☒ A. Municipal Corporation
  - ☒ B. Municipality
  - ☒ C. Nagar Panchayat
  - ☒ D. Zila panchayat

**Q.87** Padma Vibhushan award of 2022 has not been given in which of the following fields?

- Ans**
- ☒ A. Civil Service
  - ☒ B. Art
  - ☒ C. Literature and Education
  - ☒ D. Trade and Industry

**Q.88** Which of the following is a Buddhist temple in India?

- Ans**
- ☐ A. Nidhivan Temple
  - ☐ B. Gorakhnath Temple
  - ☒ C. Mahabodhi Temple
  - ☐ D. Vishwanath Temple

**Q.89** In August 2022, Rameshbabu Praggnanandhaa, the 17-year-old Indian Chess master, defeated world champion Magnus Carlsen in the last round of the FTX Crypto Cup in \_\_\_\_\_.

- Ans**
- ☐ A. Austin
  - ☐ B. Boston
  - ☐ C. San Jose
  - ☒ D. Miami

**Q.90** Which is the apex governing body of air sports in India?

- Ans**
- ☒ A. Air Sports Federation of India
  - ☐ B. Ministry of Civil Aviation
  - ☐ C. Ministry of Youth Affairs and Sports
  - ☐ D. Aero Club of India

**Q.91** Which of the following is NOT correctly matched?

- Ans**
- ☐ A. Indian Sandalwood – Deciduous forests of Deccan Plateau
  - ☐ B. Pine – Himalayan subtropical forest
  - ☒ C. Neem – Alpine region
  - ☐ D. Ficus – Malabar coast moist forests

**Q.92** Which group of organisation/institutes is an example of Constitutional bodies in India?

- Ans**
- ☒ A. Election Commission of India, Attorney General of India, Union Public Service Commission
  - ☐ B. National Human Right Commission, National Commission for Minorities, Election Commission of India
  - ☐ C. National Commission of India, Securities and Exchange Board of India, Attorney General of India
  - ☐ D. Comptroller and Auditor General of India, National Human Rights Commission, Election Commission of India

**Q.93** What is the full form of 'MICR' in MICR code?

- Ans**
- ☐ A. Marking Ink Character Recognition
  - ☐ B. Magnetic Ink Character Reconstruction
  - ☐ C. Magnetic Ink Character Registration
  - ☒ D. Magnetic Ink Character Recognition

**Q.94** Which of the following languages has maximum number of speakers in India according to the Census 2011 data?

- Ans**
- ✓ **A. Bengali**
  - ✗ **B. Kannada**
  - ✗ **C. Odia**
  - ✗ **D. Malayalam**

**Q.95** Which of the following events of modern Indian history is NOT correctly matched?

- Ans**
- ✗ **A. Partition of Bengal by Lord Curzon – 1905**
  - ✗ **B. Jallianwala Bagh massacre at Amritsar – 1919**
  - ✓ **C. Dandi March by Mahatma Gandhi – 1910**
  - ✗ **D. Quit India movement – 1942**

**Q.96** Which NRI was awarded Padma Vibhushan in the field of Science and Engineering posthumously in 2022 ?

- Ans**
- ✗ **A. Rattan Lal**
  - ✗ **B. Narinder Singh Kapany**
  - ✗ **C. Sanjay Rajaram**
  - ✗ **D. Thiruvengadam Veeraraghavan**

**Note:** For this question, discrepancy is found in question/answer. So, This question is ignored for all candidates.

**Q.97** In 1955 a special committee known as the Karve Committee was constituted. This committee advised:

- Ans**
- ✓ **A. the promotion of small-scale industries for the purpose of rural development**
  - ✗ **B. the promotion of large industries for the purpose of urban development**
  - ✗ **C. the promotion of the agriculture sector**
  - ✗ **D. the rapid export of cotton and fresh fruits**

**Q.98** According to the NREGA 'At a Glance' report, the average MGNREGA wages paid in the financial year 2021-2022 remain at only ₹208.85 per day. What is the full form of MGNREGA?

- Ans**
- ✓ **A. Mahatma Gandhi National Rural Employment Guarantee Act**
  - ✗ **B. Mahatma Gandhi National Rural Employment Guarantee Activity**
  - ✗ **C. Mahatma Gandhi National Rural Employee Guarantee Act**
  - ✗ **D. Mahatma Gandhi National Rural Employer Guarantee Action**

**Q.99** Orchidarium and the orchid production unit on the premises of the Institute of Bioresources and Sustainable Development (IBSD), is coming up in the state of \_\_\_\_\_ which has about 300 of the world's 17,000 species of orchids.

- Ans**
- ✗ **A. Himachal Pradesh**
  - ✗ **B. Arunachal Pradesh**
  - ✓ **C. Meghalaya**
  - ✗ **D. Uttarakhand**

**Q.100** Which of the following is NOT among the groups organised by microfinance institutions in India?

- Ans**
- ✗ **A. Joint Liability Group (JLG)**
  - ✗ **B. Self Help Group (SHG)**
  - ✗ **C. Grameen Model Bank**
  - ✓ **D. Urban Model Bank**