



RRB ALP 2024 CBT 2

Assistant Loco Pilot · CEN 01/2024 · CBT 2 · Wireman Trade · Question Paper

English

All 2 Shifts (Sets) · Official Answer Key

About this Compilation

This booklet contains all 2 shift papers of the RRB ALP 2024 CBT 2 (Wireman) examination in English, with the correct option marked as per the official answer key.

✓ Correct option (highlighted green)

29 of these 350 questions are shown in Hindi. Our saved English papers do not carry them in English, so the official Hindi version of the same question is printed instead and marked with a **HINDI** chip. Nothing here is machine translated.

How to use

- Use the **Index** page to jump directly to any set (clickable).
- Questions appear section by section in the order of the paper, numbered 1 onward.
- Diagram and wide-table questions appear at full width at the end of their section.
- The correct answer is highlighted in green with a tick.

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Index — All Sets (click to open)

Set 1

02 May 2025

9:30 AM - 12:00 PM

Set 2

06 May 2025

9:30 AM - 12:00 PM

Part A

100 Questions • Answer Key

Q1 Part A

What is the primary source of energy for most of the ecosystems?

- A. Water
- B. Soil
- C. Wind
- D. Sunlight



Q2 Part A

Four resistors of 4 ohm each are connected in parallel. Four such parallel combinations are then connected in series. The equivalent resistance is _____.

- A. 1 ohm
- B. 2 ohm
- C. 3 ohm
- D. 4 ohm



Q3 Part A

On which of the following factors does the resistivity of a conductor depend?

- A. Diameter of the conductor
- B. Area of the conductor
- C. Mass of the conductor
- D. Nature of the conductor



Q4 Part A

Which of the following statements about geometric figures is/are true?

1. Geometric shapes are enclosed figures made by joining two or more points, lines, or curves.
2. Geometric shapes are always open-ended and made up of only straight lines.

- A. Both statements 1 and 2 are true
- B. Only statement 2 is true
- C. Neither statement 1 nor 2 is true
- D. Only statement 1 is true



Q5 Part A

Based on the English alphabetical order, three of the following four letter-clusters are alike in a certain way and thus form a group. Which letter-cluster DOES NOT belong to that group?

(Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster.)

- A. GMOT
- B. LRTY
- C. FLNS
- D. NTVB



Q6 Part A

An ammeter has 20 divisions between 0 A and 2 A. The least count of ammeter is _____.

- A. 0.2 A
- B. 1 A
- C. 0.1 A
- D. 2 A



Q7 Part A

In the following number-pairs, the second number is obtained by applying certain mathematical operations to the first number. Which numbers should replace X and Y so that the pattern followed by the two numbers on the left side of :: is same as that on the right side of ::?

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

X : 85 :: 36 : Y

- A. X = 42, Y = 71
- B. X = 43, Y = 77
- C. X = 42, Y = 73
- D. X = 44, Y = 73



Q8 Part A

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 conclusion(s) logically follow(s) from the statements.

Statements:

- I. Some desks are tables.
- II. All tables are cabinets.
- III. All cabinets are beds.

Conclusions:

- I. Some beds are tables.
- II. All cabinets are desks.

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

Q9 Part A

An ammeter of range 0 to 10 A shows a current of 7.5 A. If its true value is 6.2 A, the relative error is ____.

- A. 17.33%
- B. 13%
- C. 20.96% ✓
- D. 4.8%

Q10 Part A

Which of the following actions can help prevent slip and fall injuries?

- A. Walking on wet floors carefully
- B. Ignoring clutter in walkways
- C. Cleaning up spills immediately and using warning signs ✓
- D. Wearing loose footwear for comfort

Q11 Part A

Based on the English alphabetical order, three of the following four letter-cluster pairs are alike in a certain way and thus form a group. Which letter-cluster pair DOES NOT belong to that group?

(Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster.)

- A. GN – PV
- B. AH – JR ✓
- C. JQ – SY
- D. HO – QW

Q12 Part A

Which of the following statements is/are true about Functional Dimensions (F) in engineering drawing?

Statement 1: Functional Dimensions are essential to the function of the component or space.

Statement 2: Functional Dimensions are typically shown without limits.

Statement 3: Functional Dimensions are only shown for reference purposes.

- A. Only statement 3 is true
- B. Only statement 1 is true ✓
- C. Only statements 2 and 3 are true
- D. Only statements 1 and 2 are true

Q13 Part A

Refer to the following letter and symbol series and answer the question that follows. Counting to be done from left to right only.

(Left) L R Ω Y A \$ K ^ T J # Q & # E % S U * £ B (Right)

How many such symbols are there, each of which is immediately preceded by a vowel and also immediately followed by a letter?

- A. Four
- B. One
- C. Two ✓
- D. Three

Q14 Part A

Ten people are sitting in two parallel rows with five people each in such a way that there is equal distance between adjacent persons.

In row I, A, B, C, D and E are seated and all of them are facing south.

In row II, R, S, T, U and V are seated and all of them are facing north.

Thus each person faces another person from the other row. A sits at the extreme right end of their row and is facing U. R sits at the centre of their row and is facing C. E sits between C and D and is facing T. S sits at the extreme right end of their row.

Who sits exactly opposite B?

- A. U
- B. V ✓
- C. R
- D. T



Q15 Part A

Which of the following statements is correct about negative work done?

- A. Work done is negative when the force and displacement are in the same direction.
- B. Work done cannot be negative.
- C. Work done is negative when the force is perpendicular to the displacement.
- D. Work done is negative when the force acts opposite to the direction of displacement. ✓

Q16 Part A

Potential energy belongs to which of the following categories of energy?

- A. Heat energy
- B. Light energy
- C. Mechanical energy ✓
- D. Chemical energy

Q17 Part A

What is the total circuit resistance if it contains resistors 10 Ω , 20 Ω and 60 Ω , connected in parallel?

- A. 60 Ω
- B. 90 Ω
- C. 20 Ω
- D. 6 Ω ✓

Q18 Part A

In a certain code language, 'BARE' is coded as '8264' and 'RIDS' is coded as '3587'. What is the code for 'R' in the given code language?

- A. 6
- B. 3
- C. 5
- D. 8 ✓

Q19 Part A

Which of the following statements regarding the use of a fire extinguisher is/are correct?

Statement 1: It is safe to attempt to extinguish any fire regardless of the presence of toxic smoke.
Statement 2: The P.A.S.S. technique, which stands for Pull, Aim, Squeeze and Sweep, is recommended for the effective use of a fire extinguisher.

- A. Only Statement 2 is correct. ✓
- B. Neither Statement 1 nor 2 is correct.
- C. Only Statement 1 is correct.
- D. Both Statements 1 and 2 are correct.

Q20 Part A

The average of 5 results is 51 and that of the first 4 is 50. The 5th result is ____.

- A. 55 ✓
- B. 51
- C. 50
- D. 54

Q21 Part A

The weight of an object on Earth is 60 N. What is its weight on the surface of the moon?

- A. 10 N ✓
- B. 60 N
- C. 600 N
- D. 6 N

Q22 Part A

In a hospital, the ratio between the number of doctors and the number of nurses was 1 : 3. When 12 new doctors joined the hospital and 24 nurses left the hospital, the ratio became 3 : 4. After the resignation of k more nurses from the hospital, the ratio becomes 1 : 1. Find the value of k.

- A. 28
- B. 26
- C. 12 ✓
- D. 24



Q23 Part A

What is the average human body temperature?

- A. 42°C
- B. 40°C
- C. 37°C
- D. 32°C

Q24 Part A

Kinetic energy and potential energy together are called which form of energy?

- A. Thermal
- B. Mechanical
- C. Nuclear
- D. Chemical

Q25 Part A

Which of the following is NOT a benefit of use of mobile governance using ICT?

- A. Increased transparency and accountability in the government
- B. Increased efficiency in government processes
- C. Reduced costs for the government
- D. Improved access to government services for citizens

Q26 Part A

What should be done immediately after a fuel spillage in a workshop?

- A. Use water to wash it away
- B. Evacuate the area and contain the spill using absorbent materials
- C. Leave it unattended and inform the supervisor later
- D. Cover it with plastic to prevent evaporation

Q27 Part A

What should come in place of the question mark (?) in the given alpha-numeric series?

G5, I10, L15, N20, Q25, S30, ?

- A. W35
- B. V40
- C. U35
- D. V35

Q28 Part A

A copper spoon is dipped in hot water. What happens to its other end?

- A. It becomes hot by conduction.
- B. It becomes cold by convection.
- C. It becomes cold by conduction.
- D. It becomes hot by convection.

Q29 Part A

A dozen pairs of jeans quoted at ₹3,520 are available at a discount of 35%. How many pairs of jeans can be bought for ₹572?

- A. 1
- B. 3
- C. 5
- D. 2

Q30 Part A

Two resistors of resistance $20\ \Omega$ and $30\ \Omega$ are connected in series in a circuit. What is the current flow in the circuit if the voltage given is 250 V?

- A. 5 A
- B. 20 A
- C. 8 A
- D. 12 A

Q31 Part A

The rate of doing work is known as _____.

- A. kinetic energy
- B. potential energy
- C. power
- D. force

Q32 Part A

If $x^3 + y^3 = 16$ and $x + y = 4$, what is the value of xy ?

- A. 2
- B. 3
- C. 4
- D. 0



Q33 Part A

Which of the following devices is used to measure temperature?

A. Thermometer



B. Hygrometer

C. Odometer

D. Voltmeter

Q34 Part A

Which of the following is NOT a valid representation of electrical power P in a circuit? (The current, potential difference and resistance are written symbolically as I , V and R , respectively.)

A. $P = IR^2$



B. $P = V^2/R$

C. $P = I^2R$

D. $P = VI$

Q35 Part A

A cube with a mass of 5.74 g occupies a volume of 1.2 cm^3 . The density (in g/cm^3) expressed with the correct number of significant figures is _____.

A. 4.8



B. 4.7833

C. 4.78

D. 4.783

Q36 Part A

Amit's income in 2019 was ₹27,000. He gets an increment of 10% every year. What was his income (in ₹) in 2021?

A. 27,000

B. 29,700

C. 32,400

D. 32,670

**Q37 Part A**

Two sets of numbers are given below. In each set of numbers, certain mathematical operation(s) on the first number result(s) in the second number. Similarly, certain mathematical operation(s) on the second number result(s) in the third number and so on. Which of the given options follows the same set of operations as in the given sets?

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into their constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying 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 - 9 - 12 - 24; 4 - 16 - 20 - 40

A. 1 - 1 - 2 - 4



B. 9 - 2 - 11 - 24

C. 6 - 12 - 18 - 34

D. 7 - 49 - 56 - 122

Q38 Part A

In a certain code language, 'CARD' is coded as '8674' and 'MICE' is coded as '3517'. What is the code for 'C' in the given code language?

A. 7



B. 1

C. 8

D. 6

Q39 Part A

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 bananas are litchis.

All litchis are kiwis.

Some kiwis are strawberries.

Conclusions:

1. All bananas being kiwis is a possibility.

2. All kiwis are litchis.

A. Neither conclusion 1 nor 2 follows

B. Only conclusion 1 follows



C. Only conclusion 2 follows

D. Both conclusions 1 and 2 follow



Q40 Part A

According to the ISO-A size series, what is the designation of a trimmed sheet with dimensions 297 mm × 420 mm?

- A. A1
- B. A2
- C. A3
- D. A4

**Q41 Part A**

Which of the following letter-clusters should replace # and % so that the pattern and relationship followed between the letter-cluster pair on the left side of :: is the same as that on the right side of ::?

: HDI :: MIN : %

- A. # = JFK, % = KGL
- B. # = JFI, % = KGL
- C. # = JFK, % = KHL
- D. # = JFK, % = KGM

**Q42 Part A**

A fruit seller initially had some apples. He sold 40% of those and still had 300 apples. How many apples did he initially have?

- A. 450
- B. 750
- C. 600
- D. 500

**Q43 Part A**

In the following triad, each group of letters is related to the subsequent one following a certain logic. Select from the given options, the one which follows the same logic.

TERM-ERTM-TMRE

- A. ZERO-EZRO-ZREO
- B. WHEN-HWEN-WENH
- C. USER-RESU-REUS
- D. VICE-ICVE-VECI

**Q44 Part A**

A 280 m long train running at a speed of 72 km/hr passes a platform in 30 seconds. Find the length of the platform (in m).

- A. 320
- B. 335
- C. 300
- D. 280

**Q45 Part A**

What is the value of 10 km/hr in SI units?

- A. 2.7 m/s
- B. 1000 m/s
- C. 10 m/s
- D. 0.16 m/s

**Q46 Part A**

Vijay rides a bicycle 10 m from home to his tuition, then 5 m to a shop. He travels back home the same way, covering the same distance. What is his total path length?

- A. 20 m
- B. 15 m
- C. 30 m
- D. Zero

**Q47 Part A**

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. D lives on an odd-numbered floor but not 3. The sum of floors on which D and E live is 7. A lives immediately below C. F lives on the top floor. How many people live between E and F?

- A. 2
- B. 3
- C. 4
- D. 1



Q48 Part A

Two plumbers, X and Y, are paid a total of ₹770 per day by their employer. If X is paid 140% of the sum paid to Y, then how much is Y paid (in ₹, rounded off to two decimal places) per day?

A. 320.83



B. 220.83

C. 270.83

D. 370.83

Q49 Part A

Which type of thermometer is used for measuring the internal temperature of ice?

A. Digital thermometer

B. Laboratory thermometer



C. Clinical thermometer

D. Infrared thermometer

Q50 Part A

6 men or 5 women can complete a job in 7 days. 6 men work for 5 days and leave. The number of women required to complete the remaining work in 5 days is:

A. 1

B. 4

C. 3

D. 2

**Q51 Part A**

Which of the following best describes the primary function of a digital signature in electronic communication?

A. It allows the recipient to edit the document before signing.

B. It verifies the identity of the sender and ensures the integrity of the message.



C. It automatically archives all electronic documents for future reference.

D. It encrypts the entire message content to ensure privacy.

Q52 Part A

Which of the following is the work done by the gravitational force on the object of mass 50 kg when the object is moved from one point to another point along a horizontal line ($g = 10 \text{ m/s}^2$)?

A. Zero



B. 500 J

C. 50 J

D. -500 J

Q53 Part A

Jaspreet deposited a sum of ₹58,550 at 20% rate of interest per annum, compounded annually. The total amount (in ₹) received by Jaspreet after 2 years will be:

A. 84,312



B. 83,876

C. 84,735

D. 84,700

Q54 Part A

In the SI system, which of the following options best describes the base quantities?

A. Length, mass, time



B. Distance, speed, acceleration

C. Force, power, energy

D. Temperature, pressure, volume

Q55 Part A

The average of three numbers is 20. If two numbers are 16 and 24, the third number is:

A. 22

B. 19

C. 21

D. 20

**Q56 Part A**

Which of the following ecosystems has very low temperatures and frozen soil?

A. Grassland

B. Tropical rainforest

C. Desert

D. Tundra



Q57 Part A

Which of the following noise levels is considered potentially harmful to human health if experienced over extended periods?

A. 30 dB

B. 70 dB

C. 90 dB

D. 50 dB

Q58 Part A

Match the columns.

Engineering Applications Type of Engineering Drawings

A) Plan, front elevation of homes to be built, foundation drawings P) Mechanical Engineering Drawings
B) Circuit diagrams and Electrical installation drawings Q) Electronics Engineering drawings
C) PCB tracks drawings R) Electrical Engineering drawings
D) Riveted joints and Welded joints S) Civil Engineering drawings

A. A-S ; B-R ; C-Q ; D-P

B. A-S ; B-R ; C-P ; D-Q

C. A-P ; B-R ; C-Q ; D-S

D. A-S ; B-P ; C-Q ; D-R

Q59 Part A

How many base units are used to measure the physical quantities, according to SI units system?

A. 5

B. 7

C. 10

D. 4

Q60 Part A

Rinku riding his car covers 136 metres in 17 seconds. What is his speed (in km/hr)?

A. 11.6

B. 17

C. 26

D. 28.8

Q61 Part A

Megha bought a bag for ₹1,271 after getting a discount of 18% on its marked price. Find the marked price of the bag.

A. ₹1,550

B. ₹1,650

C. ₹1,350

D. ₹1,450

Q62 Part A

Refer to the following letter and symbol series and answer the question that follows. Counting to be done from left to right only.

(Left) ^ T J # * £ B L R Ω Y # E % S U \$ K Q & (Right)

How many such letters are there, each of which is immediately preceded by a letter and also immediately followed by a symbol?

A. Three

B. One

C. Four

D. Two

Q63 Part A

In a certain code language,

'A + B' means 'A is the mother of B',
'A - B' means 'A is the brother of B',
'A × B' means 'A is the wife of B' and
'A & B' means 'A is the father of B'.

How is E related to T if 'E & F + G - H × T'?

A. Wife's mother's father

B. Wife's brother

C. Wife's mother's brother

D. Wife's father

Q64 Part A

Simplify $976 \times 265 + 976 \times 735$.

A. 752800

B. 976000

C. 658200

D. 876000



Q65 Part A

Ganpat starts from Point A and walks 18 m towards west. He takes a left turn, walks 32 m, takes a left turn, walks 26 m, turns left, walks 61 m and stops at Point B. Meena starts from Point Z, which is 22 m towards the east of Point A. She walks 42 m towards north, takes a right turn, walks 35 m, turns right and walks 13 m and stops at Point Y. What is the shortest distance between Point B and Point Y? (All turns are 90-degree turns only.)

- A. 52 m
- B. 57 m
- C. 49 m
- D. 43 m

Q66 Part A

Convert 1 kilowatt hour (kW h) into joule.

- A. $1 \text{ kW h} = 3.6 \times 10^3 \text{ J}$
- B. $1 \text{ kW h} = 3.6 \times 10^7 \text{ J}$
- C. $1 \text{ kW h} = 3.6 \times 10^5 \text{ J}$
- D. $1 \text{ kW h} = 3.6 \times 10^6 \text{ J}$

Q67 Part A

The sum of the ages of Yash and his father is 90 years. When Yash is as old as his father's present age, he will be five times as old as his son Suraj's present age. Suraj will be 12 years older than Yash's present age, when Yash is as old as his father at present. How old is Suraj at present?

- A. 15 years
- B. 18 years
- C. 12 years
- D. 16 years

Q68 Part A

The areas of three adjacent faces of a solid cuboid are 216 cm^2 , 114 cm^2 and 19 cm^2 . What is the volume (in cm^3) of the cuboid?

- A. 955
- B. 532
- C. 684
- D. 880

Q69 Part A

Which of the following is a supplementary protocol that allows non-ASCII data to be sent through e-mail?

- A. Multipurpose Internet Mail Extensions (MIME)
- B. Mailing Lists
- C. DNS
- D. HTTPS

Q70 Part A

Which of the following statements is/are true?

Statement 1: Heat conductors allow heat to pass through them easily.

Statement 2: All plastics are good conductors of heat.

- A. Neither statement 1 nor 2
- B. Both statements 1 and 2
- C. Only statement 2
- D. Only statement 1

Q71 Part A

In hot climate regions, the outer walls of the house are preferred to be white in colour because _____.

- A. white colour reflects sunlight to make the interior of the house cool
- B. white colour looks good
- C. white colour absorbs more sunlight to make the house bright
- D. white colour makes the wall more durable

Q72 Part A

Use of energy-efficient machineries in industrial settings primarily helps _____.

- A. reduce industrial energy requirement and improve products' competitiveness.
- B. decrease operational efficiency
- C. increase energy consumption and thereby product cost
- D. extend the lifespan of outdated equipment



Q73 Part A

The area of a regular polygon with a side of 8 cm is 112 cm^2 . If the perpendicular distance from the centre to the side of the polygon is 7 cm, then the number of sides of the polygon is:

A. 6

B. 5

C. 7

D. 4

**Q74 Part A**

What is the term used to describe organisms that produce their own food in an ecosystem?

A. Herbivores

B. Consumers

C. Producers



D. Decomposers

Q75 Part A

Each of Preeti, Kiran, Grace, Ankit, Deepak, Nitin and Neelam has an exam on a different day of a week, starting from Monday and ending on Sunday of the same week. Preeti has an exam on Thursday. Only one person has an exam between Preeti and Nitin. Grace has exam on the day immediately before Nitin but not on a Monday. Only two people have exams between Grace and Deepak. Neelam's exam is on one of the days before Ankit's but on one of the days after Kiran's. Who among the following has an exam on Monday?

A. Deepak

B. Nitin

C. Kiran



D. Neelam

Q76 Part A

What should come in place of the question mark (?) in the given series?

185 174 163 152 ? 130

A. 143

B. 144

C. 142

D. 141

**Q77 Part A**

If $50 : x :: x : 32$, and $x > 0$, then find the value of x .

A. 45.8

B. 40.6

C. 40



D. 38.7

Q78 Part A

If 'A' stands for '+', 'B' stands for 'x', 'C' stands for '+' and 'D' stands for '-', what will come in place of the question mark (?) in the following equation?

$38 \text{ C } 32 \text{ A } 4 \text{ D } 5 \text{ B } 7 = ?$

A. 10

B. 11



C. 8

D. 9

Q79 Part A

Which of the following will verify the credentials and documents of applicants uploaded on National Scholarship Portal?

A. Third party

B. National Scholarship Portal

C. Government

D. University/Institute in which applicant is studying

**Q80 Part A**

A man purchased two varieties of pens at the rates of ₹8 for 9 pens and ₹8 per pen. If he purchased an equal number of pens of each of the two varieties and then sold all his pens at ₹6 per pen, what was his profit percentage?

A. 32%

B. 33%

C. 35%



D. 45%

Q81 Part A

Which of the following relations is NOT correct?

A. Electric Power = $(\text{Voltage})^2 / \text{Resistance}$

B. Electric Power = Voltage / Current



C. Electric Power = Voltage × Current

D. Electric Power = $(\text{Current})^2 \times \text{Resistance}$ 

Q82 Part A

In the following series, only one letter-cluster is incorrect. Select the INCORRECT letter-cluster.

PCO MEM JGK GIJ DKG AME

- A. AME
- B. JGK
- C. GIJ
- D. DKG

**Q83 Part A**

Which of the following is true?

- A. Both insulators and conductors allow heat to pass through them easily.
- B. Wood is a good conductor of heat.
- C. In a kitchen, aluminium vessels are used because aluminium is a good conductor of heat.
- D. Plastic is a good conductor of heat.

**Q84 Part A**

Which of the following is the safest method for disposing of toxic dust?

- A. Sweeping it into open areas
- B. Releasing it into the air for dilution
- C. Using specialised hazardous waste disposal containers
- D. Dumping it in regular trash bins

**Q85 Part A**

Eight people are sitting in two parallel rows containing 4 people each in such a way that there is equal distance between adjacent persons. In row 1, A, B, C and D are seated, and all of them are facing south. In row 2, P, Q, R and S are seated, and all of them are facing north. Thus, each person faces another person from the other row. Only two people sit between P and Q. A faces the person sitting to the immediate left of P. R sits to the immediate left of S. D sits to the immediate right of C. Who among the following faces P?

- A. B
- B. C
- C. A
- D. D

**Q86 Part A**

Which of the following orders of components is primarily responsible for executing instructions, storing permanent firmware, temporarily storing data during program execution and providing a platform for interconnecting hardware components on a computer motherboard?

- A. RAM - ROM - CPU - PCB
- B. CPU - ROM - RAM - PCB
- C. CPU - RAM - ROM - PCB
- D. PCB - ROM - CPU - RAM

**Q87 Part A**

Which of the following is a geometrical figure with a three-dimensional geometry that has eight vertices and six rectangular faces?

- A. Cylinder
- B. Cuboid
- C. Parallelogram
- D. Pyramid

**Q88 Part A**

What should come in place of the question mark (?) in the given series?

893 891 889 887 ? 883

- A. 886
- B. 986
- C. 885
- D. 985

**Q89 Part A**

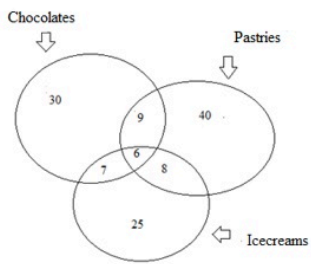
Which of the following is the best way to identify workplace hazards?

- A. Ignoring small risks
- B. Waiting for an incident to occur
- C. Conducting regular safety inspections
- D. Relying on employees to report accidents



Q90 Part A

Study the given diagram carefully and answer the question that follows. The numbers in different sections indicate the number of children preferring different desserts.



How many children prefer both pastries and ice creams but NOT chocolates?

A. 8



B. 7

C. 6

D. 9

Q91 Part A

What does the symbol given below denote in a circuit diagram?



A. Variable resistor



B. Resistor

C. Voltmeter

D. Voltage source

Q92 Part A

If $\frac{5}{9}$ of a number is 6 more than $\frac{1}{2}$ of the number, then what is the number?

A. 102

B. 104

C. 108



D. 106



Q93 Part A

A piece of rod $\frac{8}{9}$ metre long is broken into two pieces. If one piece is $\frac{1}{3}$ metre long, find the length (in m) of the other piece.

A. $\frac{7}{9}$

B. $\frac{5}{9}$

C. $\frac{2}{9}$

D. $\frac{4}{9}$

**Q94 Part A**

From a rectangular cardboard sheet of length 46 m and breadth 8 m, three circular plates of radii 3 m, 2 m and 1 m are cut out. If the area of the remaining part of the cardboard sheet is equal to the area of a square, then find the length of each side of the square (use $\pi = \frac{22}{7}$).

A. 16 m

B. 20 m

C. 18 m

D. 14 m

**Q95 Part A**

A cistern has two inlets I_1 and I_2 . I_1 alone can fill it in 8 hours and I_2 in 4 hours. If both the inlets are open, what will be the time required to fill the cistern.

A. 2 hours

B. $4\frac{2}{3}$ hours

C. $2\frac{2}{3}$ hours

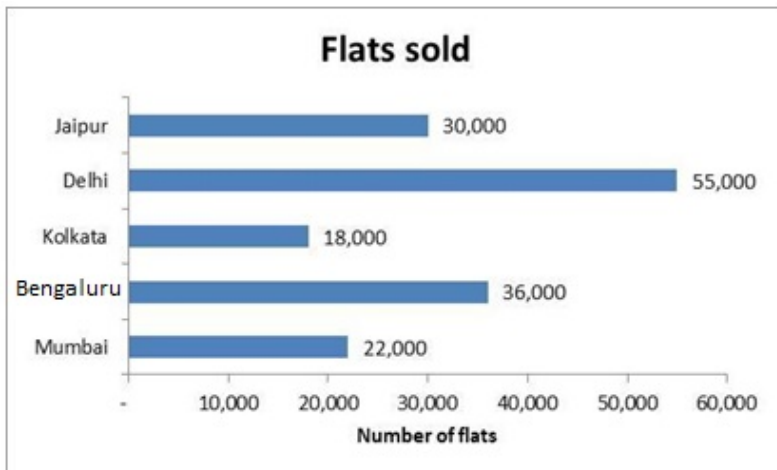
D. $3\frac{2}{3}$ hours



Q96 Part A

Study the given bar-graph and answer the question that follows.

The given bar-graph indicates the number of flats sold by a builder in five different cities in 2020.



The number of flats sold in Delhi is what percentage more than the number of flats sold in Mumbai?

- A. 120%
- B. 75%
- C. 125%
- D. 150%

**Q97** Part A

$$\frac{p^2 - n^2}{pn}$$

- A. $\sin A \cdot \cos A$
- B. $\cot A \cdot \cos A$
- C. $\frac{\tan A}{\sec A}$
- D. $= \cos A \cot A$

**Q98** Part A

Find the value of $x^2 + y^2$, given the following.

$$x = 7 + \sqrt{5}, y = 7 - \sqrt{5}$$

- A. 96
- B. 108
- C. 124
- D. 137



Q99 Part A

Work done is defined in science as _____.

- A. 1. force $\times$ distance
- B. $\frac{\text{force}}{\text{distance}}$
- C. 3. force $\times$ displacement ☒
- D. $\frac{\text{force}}{\text{displacement}}$

Q100 Part A

Which of the following expressions is NOT correct for electric power?

- A. $P = \frac{V^2}{R}$
- B. $P = VI$
- C. $P = \frac{I^2}{R}$ ☒
- D. 4. $P = I^2R$

Part B (Wireman)

75 Questions • Answer Key

Q101 Part B (Wireman)

A 220 V shunt generator has a field resistance of 110 Ω . What is the field current?

- A. 10 A
- B. 20 A
- C. 5 A
- D. 2 A ☒

Q102 Part B (Wireman)

Which of the following best describes the construction of a mica capacitor?

- A. A thin polymer film rolled into a cylinder
- B. A ceramic disc with metal coatings
- C. Alternating layers of metal foil and mica sheets ☒
- D. A liquid electrolyte between two aluminium plates

Q103 Part B (Wireman)

At what overload percentage does the solenoid attract the armature fully, causing instantaneous tripping in a MCB?

- A. 700% ☒
- B. 130%
- C. 300%
- D. 1000%

Q104 Part B (Wireman)

When measuring the resistance of a resistor using an ohmmeter, what does a reading of zero resistance indicate?

- A. The resistor is functioning normally.
- B. The resistor is open-circuited.
- C. The resistor is short-circuited. ☒
- D. The ohmmeter is malfunctioning.

Q105 Part B (Wireman)

A circuit consists of three resistors; 15 ohms, 10 ohms, and 20 ohms. The 15-ohm resistor is in series with the parallel combination of the 10-ohm and 20-ohm resistors. If a 24 V battery is applied across the circuit, what is the total current flowing through the circuit?

- A. 3.1 A
- B. 0.1 A
- C. 1.1 A ☒
- D. 2.1 A



Q106 Part B (Wireman)

Read the given statements carefully and select the correct option.

Statement 1: Plate earthing ensures a low-resistance path for fault current to safely flow into the earth.

Statement 2: The resistance of the earthing system is not affected by the soil type or moisture content.

- A. Both Statement 1 and Statement 2 are correct.
- B. Statement 1 is incorrect, but Statement 2 is correct.
- C. Statement 1 is correct, but Statement 2 is incorrect. ✓
- D. Both Statement 1 and Statement 2 are incorrect.

Q107 Part B (Wireman) HINDI

केबलों में तांबे की तुलना में ऐलुमिनियम चालकों का उपयोग करने का नुकसान निम्नलिखित में से कौन-सा है?

- A. तांबे की तुलना में ऐलुमिनियम में उच्चतर प्रतिरोध होता है, जिससे अधिक विद्युत हानि होती है। ✓
- B. तांबे की तुलना में ऐलुमिनियम अधिक महंगा होता है।
- C. तांबे की तुलना में ऐलुमिनियम कम चिरस्थायी होती है।
- D. तांबे की केबल की तुलना में ऐलुमिनियम केबल अधिक नम्य होती हैं।

Q108 Part B (Wireman) HINDI

किस प्रकार का केबल चैनल उन क्षेत्रों के लिए सबसे उपयुक्त होता है, जहां बार-बार अनुरक्षण या वायरिंग प्रणाली में परिवर्तन की आवश्यकता होती है?

- A. धातु नलिका चैनल (Metal conduit channel)
- B. नम्य केबल चैनल (Flexible cable channel)
- C. दृढ़ केबल चैनल (Rigid cable channel)
- D. खांचित केबल चैनल (Slotted cable channel) ✓

Q109 Part B (Wireman)

What is the effect of increasing the field current in a DC shunt motor?

- A. The motor speed increases.
- B. The torque decreases.
- C. The motor stops immediately.
- D. The motor speed decreases. ✓

Q110 Part B (Wireman)

What is the basic working principle of a DC generator?

- A. Electrostatic induction
- B. Mutual induction
- C. Faraday's law of electromagnetic induction ✓
- D. Lenz's law

Q111 Part B (Wireman)

A drawing instrument box is used to carry all _____ instruments.

- A. drawing ✓
- B. screening
- C. drilling
- D. casting

Q112 Part B (Wireman)

What is the primary material used in the resistance wire of wire-wound resistors?

- A. Aluminium
- B. Silver
- C. Nichrome ✓
- D. Copper

Q113 Part B (Wireman)

What should you do to ensure your personal safety at work?

- A. Wear personal protective equipment. ✓
- B. Work in a hurry without checking equipment.
- C. Ignore warning signs and instructions.
- D. Take risks to finish tasks quickly.

Q114 Part B (Wireman)

Calculate the voltage regulation (in percentage) of the transformer if the no load secondary voltage is 250 V and full load secondary voltage is 200 V?

- A. 20%
- B. 100%
- C. 50%
- D. 25% ✓

Q115 Part B (Wireman)

Non-functional dimensions are _____.

- A. not essential for the function of the space or component ✓
- B. essential for the function of the space or component
- C. derived from the values of the related features of a drawing
- D. directly derived from the values given on a drawing



Q116 Part B (Wireman)

Which of the following hand-operated drilling machines is used for drilling small diameter holes up to 6 mm?

- A. Electric hand drill
- B. Ratchet drilling machine
- C. Breast drilling machine
- D. Bevel gear type drilling machine ✓

Q117 Part B (Wireman)

Which of the following instruments is used to test the earth resistance of an earthing system?

- A. Multimeter
- B. Megger ✓
- C. Clamp meter
- D. Oscilloscope

Q118 Part B (Wireman)

Permeability of ideal transformer core is equal to:

- A. low value
- B. zero
- C. unity
- D. infinite ✓

Q119 Part B (Wireman) HINDI

जब सामान्यतः खुले (NO) संपर्क को ऊर्जित किया जाता है, तो क्या होता है?

- A. संपर्क, परिपथ से वियोजित हो जाता है।
- B. परिपथ खुला रहता है।
- C. संपर्क अपनी स्थिति में लॉक हो जाता है।
- D. परिपथ बंद हो जाता है। ✓

Q120 Part B (Wireman)

In a lead-acid battery, what is the chemical composition of the material used for the positive plate during discharge?

- A. Sulphuric acid (H_2SO_4)
- B. Lead (Pb)
- C. Lead dioxide (PbO_2) ✓
- D. Lead sulfate (PbSO_4)

Q121 Part B (Wireman)

Air-cored inductors are most commonly used in circuits operating at/in:

- A. high frequencies from 1 MHz to several hundred MHz ✓
- B. DC power supply circuits
- C. low frequencies below 50 Hz
- D. audio frequency range (20 Hz – 20 kHz)

Q122 Part B (Wireman)

According to BIS SP 46-2003, which of the following applications is correctly represented by a chain-thin line in engineering drawings?

- A. Center lines ✓
- B. Hidden edges
- C. Dimension lines
- D. Visible edges

Q123 Part B (Wireman)

What is the advantage of giving heat treatment to a material?

- A. To decrease the melting point of the material
- B. To increase the weight of the material
- C. To change it from one element to another element
- D. To make surgical knives of sharp edges ✓

Q124 Part B (Wireman)

What does the 'Make and Break after delay' function primarily protect against in electrical systems?

- A. Voltage spikes and electromagnetic interference
- B. Sudden mechanical movements of motors
- C. High inrush currents and voltage surges ✓
- D. Overheating of the circuit

Q125 Part B (Wireman)

A transformer's open circuit test is used to determine:

- A. core losses and no load current ✓
- B. stray loss
- C. windage loss
- D. copper loss



Q126 Part B (Wireman)

Where are ceramic capacitors commonly used?

- A. Mobile Phones
- B. High-power motors
- C. TV circuits ✓
- D. Transformers

Q127 Part B (Wireman) HINDI

केसिंग और कैपिंग तार स्थापन प्रणाली कहाँ उपयोग के लिए सबसे उपयुक्त है?

- A. सुंदर दिखने और विस्तार के लिए भीतरी पृष्ठीय तार-स्थापन ✓
- B. बाह्य उच्च-वोल्टेता पारेषण लाइन
- C. भूमिगत केबल अधिष्ठापन
- D. जलगत विद्युत अधिष्ठापन

Q128 Part B (Wireman)

When selecting a sheet size for an original drawing, what should be the primary consideration?

- A. The standard size of the drawing office.
- B. The clarity and resolution required. ✓
- C. The orientation of the drawing (horizontal or vertical).
- D. The size of the reproduction.

Q129 Part B (Wireman)

A DC generator is running at constant speed. If the load current increases, what happens to the terminal voltage?

- A. Decreases ✓
- B. Increases
- C. Remains constant
- D. Fluctuates randomly

Q130 Part B (Wireman)

Which of the following statements is NOT true if any electrical system is not properly earthed?

- A. It provides voltage constant voltage supply regardless of perturbation in load side. ✓
- B. It may lead to damage of electrical equipment.
- C. It can increase the risk of electric shock.
- D. It may cause the electric current to flow in an uncontrolled manner.

Q131 Part B (Wireman)

In the context of earthing in an electrical system, _____ has the greatest impact on earth resistance.

- A. the length of the earthing conductor
- B. the voltage applied to the ground
- C. the material of the grounding rod
- D. soil resistivity ✓

Q132 Part B (Wireman)

What type of components are used for tapping in the ring main system?

- A. Directly from the main supply
- B. Using transformers
- C. Through capacitors
- D. Through fuses and controlling switches ✓

Q133 Part B (Wireman)

Which of the following is an important safety measure during a power failure?

- A. Using candles for lighting
- B. Continuing to use equipment without verifying power status
- C. Ensuring all machines and electrical equipment are turned off ✓
- D. Ignoring alarm systems

Q134 Part B (Wireman) HINDI

तारों को बदलते समय इंसुलेटेड कनेक्टर का उपयोग करने का मुख्य कारण क्या है?

- A. आकस्मिक शॉर्ट सर्किट या विद्युत प्रघात को रोकना ✓
- B. धारावाही क्षमता को बढ़ाना
- C. तार को अधिक नम्य बनाना
- D. संस्थापन की लागत को कम करना

Q135 Part B (Wireman) HINDI

यदि कुल लोड 800 वाट से कम हो, तो कितने लाइटिंग परिपथों (lighting circuits) की आवश्यकता होती है?

- A. दो
- B. चार
- C. एक ✓
- D. तीन



Q136 Part B (Wireman)

Which of the following factors DOES NOT affect the rating of a fuse?

- A. The ambient temperature
- B. The colour of the fuse holder ✓
- C. The type of electrical load
- D. The cross-sectional area of the conductor

Q137 Part B (Wireman)

What is a key advantage of using MOSFETs in electronic circuits compared to other types of transistors?

- A. High frequency response
- B. High input impedance and low power consumption ✓
- C. Ability to handle higher voltages and currents than BJTs
- D. Ability to amplify both AC and DC signals

Q138 Part B (Wireman)

Which component in a magnetic hydraulic MCB holds the ferrous plunger?

- A. A non-ferrous tube ✓
- B. A bimetallic strip
- C. A thermal coil
- D. A fuse element

Q139 Part B (Wireman)

What is the main purpose of continuity testing in a DC generator?

- A. To detect open or broken windings ✓
- B. To test insulation resistance
- C. To measure current flow
- D. To check voltage regulation

Q140 Part B (Wireman)

Arrange the following steps in the correct order to draw an equilateral triangle with each side of 35 mm.

1. Join CA and CB.
2. Draw a line and mark AB 35 mm as the side of the triangle.
3. With radius AB and center A and B, draw arcs cutting at C.
4. ABC is the required triangle.

A. 2, 3, 1, 4 ✓

B. 1, 2, 4, 3

C. 2, 1, 3, 4

D. 3, 2, 1, 4

Q141 Part B (Wireman)

In a velocity-time graph, the negative slope represents ____.

A. retardation ✓

B. displacement

C. acceleration

D. distance

Q142 Part B (Wireman)

What is the purpose of an emergency evacuation plan?

A. To ensure safe and orderly evacuation during emergencies ✓

B. To avoid safety drills

C. To increase productivity

D. To allow workers to leave early

Q143 Part B (Wireman) HINDI

दोषपूर्ण तार को बदलते समय सबसे महत्वपूर्ण सुरक्षा कदम क्या है?

A. खुले धातु भागों वाले टूल का उपयोग करें

B. प्रभावित क्षेत्र में बिजली की आपूर्ति बंद करें ✓

C. आर्द्र परिस्थितियों में काम करें

D. कनेक्शन के लिए उचित इन्सुलेशन का उपयोग करें



Q144 Part B (Wireman)

For what purpose are pins and clips used in engineering drawings?

- A. To transfer dimensions and dividing lines into a number of equal parts
- B. To draw horizontal lines, parallel lines and to guide/hold the set squares
- C. To fasten the drawing sheet on to the drawing board firmly so that it does not shake ✓
- D. To support the drawing paper/tracing paper for making drawings

Q145 Part B (Wireman) HINDI

जंक्शन बॉक्स में तारों के सुरक्षित कनेक्शन के लिए निम्नलिखित में से किस वायरिंग उपकरण (accessories) मुख्य रूप से उपयोग किया जाता है?

- A. स्विच (Switch)
- B. टर्मिनल ब्लॉक (Terminal Block) ✓
- C. सॉकेट (Socket)
- D. फ्यूज (Fuse)

Q146 Part B (Wireman)

Which of the following vices consists of a handle and a small collet chuck at one end?

- A. Hand vice
- B. Pin vice ✓
- C. Pipe vice
- D. Toolmaker's vice

Q147 Part B (Wireman)

Which of the following is a key safety measure to follow when installing an earthing system?

- A. Use thin copper wires for earthing to reduce costs.
- B. Use flexible conductors for earthing connections.
- C. Ensure the earthing system is properly inspected and tested for safety compliance. ✓
- D. Ensure the earthing system is designed for maximum efficiency.

Q148 Part B (Wireman)

In the open circuit test of a transformer, the supply frequency should be:

- A. higher than the rated frequency
- B. equal to the rated frequency ✓
- C. independent of the rated frequency
- D. lower than the rated frequency

Q149 Part B (Wireman)

When a strong magnet is placed near a weak magnet, what will likely happen?

- A. The weak magnet will disappear.
- B. The strong magnet will induce magnetism in the weak magnet. ✓
- C. The strong magnet will lose its magnetism.
- D. The weak magnet will repel the strong magnet.

Q150 Part B (Wireman)

Which of the following parts of a file is the part fitted to the tang for holding the file?

- A. Tip or Point
- B. Handle ✓
- C. Edge
- D. Tang

Q151 Part B (Wireman)

What is the primary reason for electrical injuries when a person comes in contact with electrical equipment?

- A. Electrical equipment is not properly grounded.
- B. Current flows through the body causing harm. ✓
- C. Devices are used for too long.
- D. Electrical devices are too powerful.

Q152 Part B (Wireman) HINDI

प्राथमिक और द्वितीयक अंतः क्षेपण परीक्षण (injection testing) का उद्देश्य क्या है?

- A. शक्ति गुणक का परीक्षण करना
- B. ब्रेकर और रिले प्रचालन की जाँच करना ✓
- C. विद्युत रोधन प्रतिरोध की जाँच करना
- D. संपर्क प्रतिरोध को मापना

Q153 Part B (Wireman)

A 20 kVA, 2500/250 V, 50 Hz, single phase transformer gave the open circuit test result (on low voltage side) as 250 V and 100 W; then core loss current is:

- A. 0.4 A ✓
- B. 0.1 A
- C. 0.3 A
- D. 0.2 A



Q154 Part B (Wireman) HINDI

विद्युत प्रणाली के संदर्भ में 'अधिकतम मांग' का क्या अर्थ है?

- A. प्रचालन के लिए आवश्यक न्यूनतम लोड
- B. किसी महीने में खपत की गई कुल ऊर्जा
- C. किसी अवधि में औसत लोड
- D. किसी विशिष्ट अवधि में रिकॉर्ड किया गया उच्चतम लोड ✓

Q155 Part B (Wireman)

How long does a fuse element take to melt when carrying twice its rated current?

- A. 1 minute
- B. 5 minutes
- C. 30 seconds
- D. 2 minutes ✓

Q156 Part B (Wireman)

Which of the following files is used for filing narrow grooves and angles above 10° ?

- A. Knife-edge file ✓
- B. Half round file
- C. Square file
- D. Triangular file

Q157 Part B (Wireman)

A circular hole of radius 3 cm is cut from a rectangular sheet of dimensions 12 cm $\times$ 10 cm. Find the remaining area.

(Take $\pi = 3.14$)

- A. 100 cm²
- B. 91.74 cm² ✓
- C. 95.86 cm²
- D. 75.74 cm²

Q158 Part B (Wireman)

When using a multimeter to measure current, which of the following is correct?

- A. The multimeter is connected directly to the power source.
- B. The multimeter is connected in series with the load. ✓
- C. The multimeter is connected only across resistive components.
- D. The multimeter is connected in parallel with the load.

Q159 Part B (Wireman)

Where are Kit-Kat type fuses commonly used?

- A. Electronic circuits
- B. High-voltage transmission systems
- C. Domestic and small industrial electrical circuits ✓
- D. Power generation plants

Q160 Part B (Wireman)

Gaskets, seals and spacers are made using:

- A. centre punch
- B. hollow punch ✓
- C. pin punch
- D. prick punch

Q161 Part B (Wireman) HINDI

विद्युत वायरिंग में फेरूल (ferrule) का प्राथमिक कार्य क्या है?

- A. तार के स्ट्रैंड को टूटने से बचाकर सुरक्षित और विश्वसनीय कनेक्शन सुनिश्चित करना ✓
- B. तार को यांत्रिक क्षति से बचाना
- C. तार को इन्सुलेशन प्रदान करना
- D. तार की वोल्टता रेटिंग को बढ़ाना

Q162 Part B (Wireman)

Why is it important for every person to follow safety procedures in the workplace?

- A. To increase overall production efficiency
- B. To minimise risks and avoid accidents ✓
- C. To reduce operational costs significantly
- D. To limit the need for frequent supervision

Q163 Part B (Wireman)

Which of the following types of pliers is used to shape loops in wires and to form curves in light metal strips?

- A. Flat nose pliers
- B. Round nose pliers ✓
- C. Slip-joint pliers
- D. End cutting pliers



Q164 Part B (Wireman)

The unit for specific gravity is ____.

- A. m/s^2
- B. g/cm^3
- C. kg/m^3
- D. no unit (dimensionless) ✓

Q165 Part B (Wireman)

If the current flowing through a conductor is 5 A and the resistance of the conductor is 10 ohms, what will be the voltage across the conductor, according to Ohm's Law?

- A. 15 V
- B. 50 V ✓
- C. 5 V
- D. 10 V

Q166 Part B (Wireman) HINDI

किसी पैनल में दोषपूर्ण तार को बदलते समय, तार की रूटिंग के संबंध में क्या सावधानी बरतनी चाहिए?

- A. भविष्य में मरम्मत को आसान बनाने के लिए तार में अतिरिक्त ढीलापन छोड़ दें।
- B. सुविधा के लिए तार को अन्य परिपथों में रूट करें।
- C. सुनिश्चित करें कि तार ताप स्रोतों और गतिशील भागों से दूर रूट हो। ✓
- D. पैनल के अंदर किसी भी उपलब्ध स्थान पर तार को रूट करें।

Q167 Part B (Wireman)

IEEE 80 provides recommendations for ____.

- A. standards for electrical insulation materials
- B. voltage regulation in power systems
- C. measurement of electrical power consumption
- D. proper installation of grounding and bonding systems in electrical installations ✓

Q168 Part B (Wireman)

Which of the following organisations is responsible for enforcing workplace safety regulations in India?

- A. World Health Organization (WHO)
- B. Food and Drug Administration (FDA)
- C. Directorate General of Factory Advice Service and Labour Institutes (DGFASLI) ✓
- D. Environmental Protection Agency (EPA)

Q169 Part B (Wireman) HINDI

घरेलू तार-स्थापन प्रणाली में, निम्नलिखित में से कौन-सा उपकरण सामान्य तौर पर प्रतिरोधी लोड को प्रदर्शित करता है?

- A. प्रशीतक (Refrigerator)
- B. वैद्युत तापक (Electric heater) ✓
- C. प्रतिदीप्ति लैम्प (Fluorescent lamp)
- D. छत पंखा (Ceiling fan)

Q170 Part B (Wireman)

A 20 kVA, 2500/250 V, 50 Hz, single phase transformer gave the open circuit test result (on low voltage side) as 250 V, 1.6 A and 100 W; then no load power factor is:

- A. 0.15
- B. 0.2
- C. 0.25 ✓
- D. 0.1

Q171 Part B (Wireman) HINDI

भार गुणक (Load Factor) के संबंध में निम्नलिखित में से कौन-सा कथन सत्य है?

- A. भार गुणक घरेलू तार-स्थापन के लिए अप्रासंगिक है।
- B. भार गुणक की गणना केवल उच्चतम मांग का उपयोग करके की जाती है।
- C. अधिक भार गुणक के परिणामस्वरूप विद्युत अवसंरचना का बेहतर उपयोग होता है। ✓
- D. भार गुणक सदैव 1 से अधिक होता है।

Q172 Part B (Wireman)

Why is armature resistance control NOT suitable for speed control in high-power DC motors?

- A. It results in poor efficiency due to high power loss. ✓
- B. It causes high torque fluctuations.
- C. It cannot reduce the motor speed.
- D. It increases field current.



Q173 Part B (Wireman)

$$\left(\frac{3}{8}\right) + \left(\frac{5}{12}\right)$$

A. $\frac{17}{24}$

B. $\frac{19}{24}$ ✓

C. $\frac{8}{20}$

D. $\frac{7}{12}$

Q174 Part B (Wireman)

If two inductors are connected in series with mutual inductance M (aiding), what is the equivalent inductance?

A. $L_{eq} = L_1 + L_2 - 2M$

B. $L_{eq} = \frac{L_1 + L_2}{2}$

C. $L_{eq} = L_1 + L_2 + 2M$ ✓

D. $L_{eq} = \frac{L_1 + L_2}{L_1 * L_2}$

Q175 Part B (Wireman)

$\cos\theta$

A. $\frac{3}{5}$

B. $\frac{4}{5}$ ✓

C. $\frac{5}{4}$

D. $\frac{3}{4}$



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Part A

100 Questions • Answer Key

Q1 Part A

Which of the following is NOT a fundamental quantity in the SI system?

- A. Force ☒
- B. Time
- C. Luminous intensity
- D. Amount of substance

Q2 Part A

The floor of a rectangular hall has a perimeter of 220 m. If the cost of painting the four walls at the rate of ₹10 per m² is ₹11,000, then find the volume of the hall.

- A.
- B.
- C. ☒
- D.

Q3 Part A

Two sets of numbers are given below. In each set of numbers, certain mathematical operation(s) on the first number results in the second number. Similarly, certain mathematical operation(s) on the second number results in the third number and so on. Which of the given options follows the same set of operations as in the given sets?

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into their constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying 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 – 8 – 18 – 9
6 – 12 – 22 – 11

- A. 11 – 13 – 22 – 63
- B. 8 – 16 – 26 – 13 ☒
- C. 9 – 18 – 28 – 20
- D. 3 – 15 – 12 – 20

Q4 Part A

A fruit seller had some apples. He sells 40% of the apples and now has 900 apples. How many apples did he originally have?

- A. 1350
- B. 1800
- C. 2250
- D. 1500 ☒

Q5 Part A

Which of the following is a poor conductor of heat?

- A. Wool ☒
- B. Copper
- C. Steel spoon
- D. Aluminium rod

Q6 Part A

Pihu starts her car at 9 a.m. to reach her office, which is 20 km away. She covers the first 10 km in 30 minutes and reaches her office at 10 a.m. Pihu's motion is _____.

- A. uniform motion ☒
- B. non-uniform motion
- C. retarded motion
- D. accelerated motion

Q7 Part A

Match the following, according to lettering and numbering (uppercase lettering) as per BIS SP: 46-2003.

Width (W) Capital letters

- (A) 5 (I) W
- (B) 6 (II) A, M, Q, V, X, Y
- (C) 7 (III) B, D, G, H, K, N, O, P, R, S, T, U and Z
- (D) 9 (IV) C, E, F, L

- A. A-(IV), B-(III), C-(II), D-(I) ☒
- B. A-(II), B-(III), C-(II), D-(IV)
- C. A-(IV), B-(II), C-(III), D-(I)
- D. A-(IV), B-(III), C-(I), D-(II)



Q8 Part A

If an electric heater draws a current of 5 A when the potential difference across its terminals is 75 V, what current will it draw when the potential difference is increased to 150 V?

A. 30 A

B. 20 A

C. 10 A



D. 15 A

Q9 Part A

The list price of an article is ₹5,000 and a discount of 70% 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 ₹1,275?

A. 18%

B. 15%



C. 16%

D. 10%

Q10 Part A

The areas of three adjacent faces of a solid cuboid are 162 cm^2 , 144 cm^2 and 50 cm^2 . What is the volume (in cm^3) of the cuboid?

A. 1365

B. 805

C. 833

D. 1080

**Q11 Part A**

How many base units are given in the SI system?

A. 9

B. 3

C. 11

D. 7

**Q12 Part A**

What should come in place of the question mark (?) in the given series?

87 118 149 ? 211 242

A. 199

B. 171

C. 188

D. 180

**Q13 Part A**

The heat developed in a 5 ohm resistor in 2 minutes when a 2A current passes through it is _____.

A. 1000 J

B. 500 J

C. 2400 J



D. 40 J

Q14 Part A

Two sets of numbers are given below. In each set of numbers, certain mathematical operation(s) on the first number results in the second number. Similarly, certain mathematical operation(s) on the second number results in the third number and so on. Which of the given options follows the same set of operations as in the given sets?

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into their constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying 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 – 121 – 221 – 171; 27 – 729 – 829 – 779

A. 13 – 169 – 244 – 188

B. 16 – 196 – 296 – 246

C. 23 – 529 – 629 – 589

D. 25 – 625 – 725 – 675

**Q15 Part A**

Which term describes the maximum amount of solar energy that a photovoltaic (PV) system can convert into electricity under standard test conditions?

A. Effective capacity

B. Peak load

C. Nameplate capacity



D. Rated capacity

Q16 Part A

If the sum of lengths of two adjacent sides of a parallelogram is 12 cm, then the perimeter of the parallelogram is:

A. 36 cm

B. 34 cm

C. 20 cm

D. 24 cm



Q17 Part A

Which of the following is an application of the 5S concept in a workshop?

- A. Removing safety protocols to improve efficiency
- B. Increasing the number of safety supervisors
- C. Using extra tools without proper storage
- D. Keeping tools and materials organised for easy access ✓

Q18 Part A

Two containers, one painted black and the other painted white, have been kept in sunlight for one hour in the afternoon. Choose the correct observation.

- A. Both containers become equally hot.
- B. The black container becomes hotter than the white container. ✓
- C. There is no effect on either container.
- D. The white container becomes hotter than the black container.

Q19 Part A

The energy possessed by an object by virtue of its motion is known as _____.

- A. heat energy
- B. kinetic energy ✓
- C. light energy
- D. potential energy

Q20 Part A

What should come in place of the question mark (?) in the given alpha-numeric series?

2M, 5O, 10R, 13T, 18W, 21Y, ?

- A. 26A
- B. 26B ✓
- C. 26C
- D. 24B

Q21 Part A

Which of the following features allows the user to quickly find emails received from a specific sender?

- A. Draft
- B. Sort ✓
- C. Filter
- D. Archive

Q22 Part A

Which technology operates through an electrochemical process that transforms the energy stored in hydrogen gas (H_2) and oxygen into electrical power without combustion?

- A. Wind power
- B. Solar thermal power
- C. Hydrogen fuel cells ✓
- D. Hydroelectric power

Q23 Part A

Simran rides a distance of 60 m in one minute and then returns along the same straight path. The average velocity of her ride is _____.

- A. 1 m/s
- B. 60 m/s
- C. 2 m/s
- D. 0 m/s ✓

Q24 Part A

In a certain code language, 'WILD' is coded as '8164' and 'DOGS' is coded as '3517'. What is the code for 'D' in the given code language?

- A. 1 ✓
- B. 4
- C. 3
- D. 5

Q25 Part A

If 'A' stands for '+', 'B' stands for 'x', 'C' stands for '+' and 'D' stands for '-', then what will come in place of the question mark (?) in the following equation?

35 A 7 C 9 B 3 D 16 = ?

- A. 16 ✓
- B. 10
- C. 18
- D. 21



Q26 Part A

In a certain code language, 'LOVE' is coded as '8364' and 'EARS' is coded as '3517'. What is the code for 'E' in the given code language?

A. 7

B. 4

C. 5

D. 3 ✓

Q27 Part A

Seema is twice as old as Alka. If nine years is subtracted from Alka's age and six years is added to Seema's age, then Seema will be four times Alka's age. How old was Alka three years ago?

A. 20 years

B. 16 years

C. 18 years ✓

D. 21 years

Q28 Part A

What should come in place of the question mark (?) in the given series?

UT27, RQ25, NM23, ?

A. IH21 ✓

B. IG21

C. IH29

D. JH19

Q29 Part A

Find the value of $x^2 + y^2$, given that, $x = 7 + \sqrt{1}$, $y = 7 - \sqrt{1}$.

A. 98

B. 69

C. 100 ✓

D. 56

Q30 Part A

What is the main advantage of using solar energy over fossil fuels?

A. Solar energy extraction requires high operational cost when compared to fossil fuels.

B. Greenhouse gas emission is higher when solar energy is used.

C. Solar energy is abundantly available and renewable in nature. ✓

D. Solar energy requires mining and extraction, whereas fossil fuels are free of cost.

Q31 Part A

Match the following.

(A) Continuous thick lines (P) Projection lines

(B) Hidden lines (Q) Principal lines

(C) Outlines (R) Dotted lines

(D) Extension lines (S) Object lines

A. A-S, B-R, C-P, D-Q

B. A-P, B-R, C-Q, D-S

C. A-S, B-R, C-Q, D-P ✓

D. A-R, B-S, C-Q, D-P

Q32 Part A

If $11.6 : x :: x : 2.9$, and $x > 0$, then find the value of x .

A. 10.9

B. 7.7

C. 5.8 ✓

D. 3.1

Q33 Part A

A can complete a piece of work in 18 days. B can complete it in 14 days. With the assistance of C, they completed the work in 7 days. C alone can complete it in _____ days.

A. 36

B. 63 ✓

C. 42

D. 64



Q34 Part A

A person saves 50% of his income. If his expenditure is ₹640, then his income (in ₹) is:

- A. 600
- B. 1,320
- C. 1,280
- D. 560

**Q35 Part A**

Mangal starts from Point A and walks 14 m towards north. He takes a right turn, walks 9 m and then takes a right turn, walks 37 m, reaches Point B and stops. Jayanti starts from Point Z which is 15 m towards the east of Point B. She walks 11 m towards east, takes a left turn, walks 42 m, turns left and walks 63 m, turns left and walks 19 m and stops at Point Y. What is the shortest distance between Point A and Point Y? (All turns are 90 degree turns only.)

- A. 25 m
- B. 31 m
- C. 26 m
- D. 28 m

**Q36 Part A**

In a business, Tushar invests in ₹10,000 and Salil invests in ₹20,000. Tushar received 10% of the profit for managing the business and the rest of the profit is divided in the ratio of their capitals. Find Tushar's share of the profit (in ₹) in a profit of ₹14,400.

- A. 5,510
- B. 5,610
- C. 5,910
- D. 5,760

**Q37 Part A**

Aditya is using two thin blankets instead of one thick blanket in winter to keep himself warm because _____.

- A. the friction between the two blankets produces heat
- B. the air trapped between the blankets is a poor conductor of heat
- C. two blankets are cheaper than one thick blanket
- D. the blankets are at a higher temperature than the surroundings

**Q38 Part A**

Which of the following steps is essential when configuring a web browser to enhance both security and privacy for a user?

- A. Enabling pop-ups for all websites to improve user experience
- B. Setting the homepage to a frequently visited website for quick access
- C. Configuring the browser to block third-party cookies and enabling HTTPS-only mode
- D. Disabling the browser's cache to improve website loading times

**Q39 Part A**

Based on the English alphabetical order, three of the following four letter-cluster pairs are alike in a certain way and thus form a group. Which letter-cluster pair DOES NOT belong to that group?

(Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster pair.)

- A. DL – HB
- B. WE – AU
- C. SA – WQ
- D. MU – QL

**Q40 Part A**

Select the triad that follows the same pattern as that followed by the two triads given below. Both triads follow the same pattern.

JK - LM - NO
TU - VW - XY

- A. DE - FB - DF
- B. DE - FG - KL
- C. WE - DF - HI
- D. DE - FG - HI

**Q41 Part A**

Which of the following represents an item with kinetic energy?

- A. A stone in motion
- B. A book resting on a table
- C. A compressed spring
- D. An extended rubber band



Q42 Part A

Which key combination is commonly used for copying text in many text editing applications in Windows?

A. Ctrl+C



B. Tab

C. Ctrl+V

D. Ctrl+S

Q43 Part A

Which of the following is an example of uniform motion?

A. A vehicle moving through a crowded area

B. A sprinter running a 100-metre race with varying speed

C. A ball rolling down a slope

D. A train moving at a constant speed on a straight track

**Q44 Part A**

Which of the following is an effective way to prevent electrical accidents in the workplace?

A. Using water to cool overheated electrical equipment

B. Using insulated tools and wearing rubber gloves



C. Working on live wires with bare hands

D. Ignoring minor electrical faults

Q45 Part A

An object of mass m is made to fall freely from a height h . As the object continues to fall, what will happen to its energy?

A. The potential energy and kinetic energy will both increase.

B. The potential energy would decrease while the kinetic energy would increase.



C. The kinetic energy and potential energy will not change.

D. The potential energy would increase while the kinetic energy would decrease.

Q46 Part A

E, F, G, H, P, Q, and R, are sitting around a circular table facing the centre. F sits fourth to the right of E. Only R sits between F and H. H is NOT an immediate neighbour of E. Only P sits between E and G. How many people sit between G and Q when counted from the right of G?

A. Three

B. One

C. Two



D. Four

Q47 Part A

Jaspreet deposited a sum of ₹12,800 at 5% rate of interest per annum, compounded annually. The total amount (in ₹) received by Jaspreet after 2 years will be:

A. 14,512

B. 14,112



C. 14,442

D. 13,997

Q48 Part A

A boy goes to school at a speed of 5 km/hr. He returns at a speed of 14 km/hr. He takes a total of 8 hours for both going to school and returning. The distance (in km) between his home and school is:

A. 28.6

B. 29.5



C. 31

D. 27

Q49 Part A

Find the value of 96.86572×10^7 .

A. 96,86,57,200



B. 9,68,65,720

C. 0.9686572

D. 96,86,572



Q50 Part A

An electric lamp with a resistance of 35 ohms and a conductor with a resistance of 5 ohms are connected to an 8 V battery in series. Calculate the current flowing through the circuit.

- A. 2 A
- B. 1.82 A
- C. 0.2 A
- D. 40 A

**Q51 Part A**

What is the scientific notation for 55,60,000 km?

- A. 55.6×10^4 km
- B. 5.56×10^4 km
- C. 5.56×10^6 km
- D. 556×10^6 km

**Q52 Part A**

Calculate the energy possessed by an object of mass 10 kg when it is raised to a height of 5 m from the ground. Given: $g = 9.8 \text{ m s}^{-2}$.

- A. 450 J
- B. 400 J
- C. 500 J
- D. 490 J

**Q53 Part A**

What is the first step when encountering a system failure in a workplace?

- A. Report the issue and follow the emergency protocol
- B. Immediately restart all systems without inspection
- C. Ignore the failure and continue working
- D. Disconnect all power sources permanently

**Q54 Part A**

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 conclusion(s) logically follow(s) from the statements.

Statements:

Some ships are boats.
All boats are submarines.
Some submarines are yachts

Conclusions:

(I) Some yachts are boats.
(II) Some yachts are ships.

- A. Neither conclusion (I) nor (II) follows.
- B. Only conclusion (II) follows.
- C. Only conclusion (I) follows.
- D. Both conclusions (I) and (II) follow.

**Q55 Part A**

The mode of 4, 6, 4, 6, 5, 7, 5, 7, 4, 6, 7, 6 is:

- A. 5
- B. 6
- C. 4
- D. 7

**Q56 Part A**

Akshay gets 2% increase in his sale amount in the first year and 25% in the second year. With that his present sale is ₹1,42,800. What was his sale (in ₹) two years ago?

- A. 1,12,000
- B. 1,14,240
- C. 1,40,000
- D. 92,000

**Q57 Part A**

In a certain code language,
'A × B' means 'A is the son of B',
'A – B' means 'A is the brother of B',
'A + B' means 'A is the wife of B' and
'A % B' means 'A is the father of B'.

How is M related to T if 'M × N % P + S – T'?

- A. Brother's wife's father's brother
- B. Brother's wife's father's father
- C. Brother's wife's brother
- D. Brother's wife's father



Q58 Part A

What is the immediate action to take when a fire breaks out in a workplace?

A. Raise the alarm and evacuate the area



B. Try to put it out using water without knowing the fire type

C. Gather near the fire to observe the situation

D. Ignore the fire and continue working

Q59 Part A

The resistances of 30 ohm, 20 ohm and 60 ohm are connected in parallel. The equivalent resistance of the combination is _____.

A. 12 ohm

B. 10 ohm



C. 0.1 ohm

D. 110 ohm

Q60 Part A

Each of I, J, K, L, U, V and W has an exam on a different day of a week starting from Monday and ending on Sunday of the same week. J has the exam on Friday. Only two people have the exam between V and J. Only four people have the exam between L and V. U has the exam immediately after W. K does not have the exam on Monday. How many people have the exam before K and after I?

A. Three

B. One

C. Two

D. Four

**Q61 Part A**

In a certain code language, 'BORE' is coded as '8624' and 'TABS' is coded as '3217'. What is the code for 'B' in the given code language?

A. 1

B. 7

C. 8

D. 2

**Q62 Part A**

Two trains of lengths 155 m and 160 m are running at speeds of 74 km/hr and 52 km/hr, respectively, on parallel tracks in opposite directions. In how many seconds will they pass each other?

A. 7 seconds

B. 18 seconds

C. 14 seconds

D. 9 seconds

**Q63 Part A**

Select the pair that follows the same pattern as the one followed by the two sets of pairs given below. Both pairs follow the same pattern.

BSR : GQW
LOB : QMG

A. QGT : TDW

B. RWH : WUM



C. HVD : LTH

D. KRW : NPZ

Q64 Part A

Based on the English alphabetical order, three of the following four letter-cluster pairs are alike in a certain way and thus form a group. Which letter-cluster pair DOES NOT belong to that group?

(Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster pair)

A. SL – NP

B. MF – HJ

C. WP – RS



D. DW – YA

Q65 Part A

Refer to the following letter, number and symbol series and answer the question that follows. Counting to be done from left to right only.

(Left) K A T & 4 @ Y # 6 K & 2 R % 7 D 3 5 E * S (Right)

How many such symbols are there which are immediately preceded by a number and also immediately followed by a letter?

A. Three

B. Two

C. One



D. Four



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Q66 Part A

In winters, people wear jacket because ____.

- A. jacket allows the heat to flow from our body to surroundings
- B. fabric of jacket is an insulator of heat so it traps body heat ☒
- C. it looks good
- D. fabric of jacket is a conductor of heat so it traps body heat

Q67 Part A

Which of the following options is correct when two objects at the same temperature are kept in contact with each other?

- A. Heat is transferred from object 1 to object 2.
- B. Both objects transfer heat to each other.
- C. Heat is transferred from object 2 to object 1.
- D. No heat is transferred. ☒

Q68 Part A

How fast should a cat of mass 15 kg run in order to have a kinetic energy of 120 J?

- A. 0.16 m/s
- B. 40 m/s
- C. 4 m/s ☒
- D. 16 m/s

Q69 Part A

Two sets of numbers are given below. In each set of numbers, certain mathematical operation(s) on the first number results in the second number. Similarly, certain mathematical operation(s) on the second number results in the third number and so on. Which of the given options follows the same set of operations as in the given sets?

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into their constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying 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 – 48 – 108 – 36; 18 – 36 – 96 – 32

- A. 82 – 139 – 234 – 78
- B. 48 – 96 – 156 – 52 ☒
- C. 53 – 106 – 166 – 55
- D. 132 – 264 – 444 – 138

Q70 Part A

In a clearance sale of electronic items, an item whose marked price was ₹12,225 is now sold for ₹10,758, d% is the discount percentage on the item. The value of d is:

- A. 12% ☒
- B. 11%
- C. 14%
- D. 13%

Q71 Part A

In Engineering Drawing, principal lines are drawn to represent ____.

- A. wide lines along which the prints are trimmed
- B. interior or hidden edges
- C. axes of cylindrical, conical or spherical objects
- D. visible edges and surface boundaries of objects ☒

Q72 Part A

What should come in place of the question mark (?) in the given series?

17 29 41 59 77 101 125 ?

- A. 161
- B. 149
- C. 175
- D. 155 ☒

Q73 Part A

Eight people are sitting in two parallel rows containing 4 people each in such a way that there is equal distance between adjacent persons. In row 1 – A, B, C and D are seated and all of them are facing south. In row 2 – P, Q, R and S are seated and all of them are facing north. Thus each person faces another person from the other row. Only three people sit to the right of R. D faces the person who is the immediate neighbour of S and P. C faces the person who sits second to the left of S. R does not face A. Who amongst the following faces B?

- A. R ☒
- B. S
- C. P
- D. Q



Q74 Part A

The taxi charges in a city consist of a fixed charge together with the charge per kilometre for the distance covered. For a distance of 35 km, the charge paid is ₹375 and for a distance of 48 km, the charge paid is ₹427. Find the fixed charges and the charge per km (in ₹), respectively.

A. 227 and 5

B. 235 and 4

C. 275 and 3

D. 220 and 6

Q75 Part A

A is thrice as good a workman as B and together they can finish a piece of work in 12 days. In how many days can A alone finish the work?

A. 18 days

B. 16 days

C. 12 days

D. 14 days

Q76 Part A

What will come in place of the question mark (?) in the following equation, if '+' and '-' are interchanged and 'x' and '÷' are interchanged?

$$32 + 28 \div 3 \times 4 - 15 = ?$$

A. 29

B. 26

C. 20

D. 32

Q77 Part A

Which of the following benefits can be obtained by conducting an energy audit in a commercial building?

A. Identification of opportunities for energy savings

B. Increasing the cost of energy bills

C. Reduced market value of building

D. Reduction in price of energy per its unit usage

Q78 Part A

What is the amount of work done in moving a charge of 6 C from a point with a potential of 120 V to a point with a potential of 140 V?

A. 3.33 J

B. 120 J

C. 720 J

D. 840 J

Q79 Part A

In this question, a statement is given followed by two courses of action, numbered I and II. You must assume everything in the statement to be true, and on the basis of the information given in the statement, decide which of the given courses of action logically follow(s) for pursuing.

Statement:

A major fire broke out this afternoon in a mall in Jaipur, causing several casualties amongst the people present inside.

Courses of Action:

- I. The police must check to see if the fire safety regulations were followed by the mall.
- II. Traffic police must divert traffic away from the fire site, to enable evacuation of people.

A. Only II follows.

B. Neither I nor II follows.

C. Both I and II follow.

D. Only I follows.

Q80 Part A

A line in an engineering drawing is the _____.

A. closed curve where all points are the same distance from a fixed centre point

B. three-dimensional object with length, breadth, and height

C. dimensionless location in space or on a drawing sheet that has no width, height, or depth

D. one-dimensional figure, which has length but no width



Q81 Part A

The HCF of two numbers is 62, and the other two factors of the LCM of these factors are 7 and 9. Which of the options given below can be a possible value of the smaller of the two numbers?

A. 433

B. 434 ☒

C. 431

D. 432

Q82 Part A

How does turning off unused electrical devices contribute to energy conservation?

A. ☒

B.

C.

D.

Q83 Part A

In Engineering Drawing, which of the following is the correct definition of the term 'dimension'.

A. A numerical value expressed in an appropriate unit of measurement ☒

B. A continuous thick or wide line along which the prints are trimmed

C. The thickness of the line of a letter

D. A line that is drawn to make a section evident

Q84 Part A

Which of the following is an INCORRECT formula for power?

A. VI

B. I^2Rt ☒

C. I^2R

D. V^2/R

Q85 Part A

Ampere is the SI unit of _____.

A. mass

B. electric charge

C. electric current ☒

D. electric power

Q86 Part A

Which of the following groups represents conductors of heat?

A. Wood, paper, silver

B. Paper, copper, plastic

C. Aluminium, silver, copper ☒

D. Aluminium, plastic, wood

Q87 Part A

The median of the data 2, 6, 4, 8, 1, 2, 5, 8, 9, 10, 12, 9, 7, 8, 3, 1, 0, 9, 2, 5 is _____.

A. 5

B. 5.5 ☒

C. 6.5

D. 6

Q88 Part A

What is the main function of the Transport Layer in the internet architecture?

A. Routing of packets

B. Data encapsulation

C. IP addressing

D. Reliable data transfer and error correction ☒

Q89 Part A

How do we find absolute error?

A. Absolute error = Actual value + observed value

B. Absolute error = Actual value/observed value

C. Absolute error = Actual value – observed value ☒

D. Absolute error = Actual value × observed value

Q90 Part A

Alloys are preferred over pure metals in electrical heating devices:

A. because the resistivity of an alloy is lower than that of its constituent metals.

B. because the resistivity of an alloy is generally higher than its constituent metals. ☒

C. because the elasticity of an alloy is higher than that of its constituent metals.

D. because alloys oxidise (burn) readily at high temperatures.



Q91 Part A

Which of the following is NOT one of the 5S principles?

A. Supervise



B. Standardise

C. Sustain

D. Sort

Q92 Part A

How many significant figures are there in 4.700 m?

A. 3

B. 4



C. 2

D. 1

Q93 Part A

Which of the following correctly describes the role of DNS (Domain Name System) in internet architecture?

A. DNS routes data packets to their destination across the internet.

B. DNS translates IP addresses into domain names to make them easier to remember.

C. DNS translates domain names into IP addresses to allow browsers to locate web servers.



D. DNS secures the data transmitted over the internet by encrypting it.

Q94 Part A

Which of the following is the temperature range in a clinical thermometer?

A. 10°C to 45°C

B. 31°C to 44°C

C. 30°C to 43°C

D. 35°C to 42°C

**Q95 Part A**

Which of the following correctly describes the direction of electric current?

A. Opposite to the direction of electron flow



B. From low potential to high potential

C. Same as the direction of electron flow

D. Opposite to the direction of positive charge flow

Q96 Part A

Rakesh starts a business with a capital of ₹2,50,000. He incurs a loss of 5% during the first year. However, he makes a profit of 4% on his remaining investment during the second year. Finally, he makes a profit of 20% on his new capital during the third year. Find his total profit at the end of three years.

A. ₹46,500

B. ₹46,600

C. ₹46,400



D. ₹46,700

Q97 Part A

$$\frac{121\tan^2\theta - 3}{169\cot^2\theta + 1}$$

A. $-\frac{83}{21}$

B. $-\frac{83}{61}$

C. $\frac{83}{61}$



D. $\frac{83}{21}$



Q98 Part A

$$\frac{a^2 + b^2 + ab}{a^3 - b^3}$$

A. $\frac{1}{2}$



B. $\frac{2}{3}$

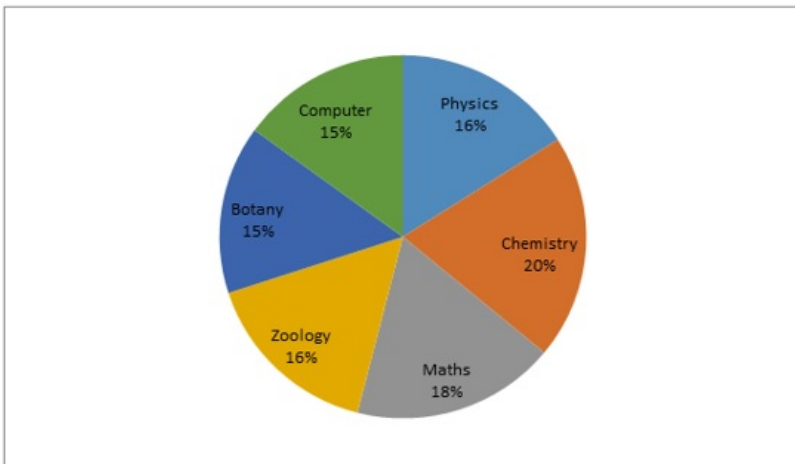
C. $\frac{3}{5}$

D. $\frac{2}{5}$

Q99 Part A

Study the given pie chart and answer the question that follows.

The given pie chart indicates the percentage-wise breakup of students in different subjects. The total number of students in the college is 5000.



What is the ratio of the students studying Zoology to the students studying Botany?

A. 15 : 14

B. 16 : 15



C. 15 : 16

D. 14 : 15

Q100 Part A

The resistance of a metallic wire is R. If the radius of the metallic wire is reduced to half of its initial value while keeping all other parameters the same, the new resistance becomes _____.

A. 1. 4R



B. $\frac{R}{2}$

C. $\frac{R}{4}$

D. 4. 2R



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Q101 Part B (Wireman)

The SI unit of 'ultimate stress' is _____.

- A. pascal (Pa) ✓
- B. newton (N)
- C. newton per meter (N/m)
- D. joule per square meter (J/m²)

Q102 Part B (Wireman)

Which of the following is a primary difference between a primary and a secondary electrochemical cell?

- A. A secondary cell produces more energy than a primary cell.
- B. A primary cell can be recharged, while a secondary cell cannot be recharged.
- C. A primary cell cannot be recharged, while a secondary cell can be recharged. ✓
- D. There is no difference between primary and secondary cells.

Q103 Part B (Wireman) HINDI

निम्नलिखित में से कौन-सा, वायरिंग संस्थापनों में कंड्यूट का सही अनुप्रयोग नहीं है?

- A. सर्किट की वोल्टता को कम करना ✓
- B. दोष की स्थिति में आग को फैलने से रोकना
- C. वायरिंग को यांत्रिक क्षति से बचाना
- D. तारों को व्यवस्थित करना और विद्युत ख को कम करना

Q104 Part B (Wireman)

Two coils, A and B, have self-inductances of 120 μH and 300 μH , respectively. When a current of 1 A flows through coil A, it induces a flux linkage of 100 μWb turns in coil B. What is the mutual inductance between the coils?

- A. 50 μH
- B. 100 μH ✓
- C. 120 μH
- D. 300 μH

Q105 Part B (Wireman)

Which of the following is INCORRECT about line standard?

- A. More accurate due to line thickness ✓
- B. Subject to parallax error
- C. Quick measurements over a wide range
- D. Used to measure the distance between two engraved lines

Q106 Part B (Wireman)

While performing short circuit test on a transformer to determine its parameter, instruments are placed on the:

- A. low voltage side, while the high voltage side is short circuit
- B. high voltage side, while the low voltage side is short circuit ✓
- C. high voltage side, while the low voltage side is open circuit
- D. low voltage side, while the high voltage side is open circuit

Q107 Part B (Wireman)

Match the following designations of sheets with their respective trimmed sizes in length and breadth.

Designation Trimmed Size

- A) A0 P) 297 × 420
- B) A1 Q) 420 × 594
- C) A2 R) 594 × 841
- D) A3 S) 841 × 1189

- A. A-S ; B-R ; C-Q ; D-P ✓
- B. A-Q ; B-R ; C-S ; D-P
- C. A-S ; B-P ; C-Q ; D-R
- D. A-P ; B-R ; C-Q ; D-S

Q108 Part B (Wireman)

Which of the following types of resistors is preferred for high-current applications?

- A. Film resistor
- B. Wire-wound resistor ✓
- C. Variable resistor
- D. Carbon composition resistor

Q109 Part B (Wireman)

Which of the following care and maintenance of a marking table is INCORRECT?

- A. The marking table should be protected from damage.
- B. The marking table should be protected from rust.
- C. After use, the marking table should be cleaned with a soft cloth.
- D. The surface of the marking table should not be given a thin layer of oil. ✓



Q110 Part B (Wireman)

What is the primary goal of the 5S concept?

- A. To replace traditional safety measures
- B. To increase the number of safety regulations
- C. To improve workplace organisation and efficiency ✓
- D. To eliminate the need for maintenance

Q111 Part B (Wireman)

In the context of earthing system measurement, what does 'Earth resistance' refer to?

- A. The resistance between any two points of the ground with a distance of 1 metre
- B. The resistance between the live wire and the earth
- C. The ability of the ground to resist current flow ✓
- D. The voltage required to activate the earthing system

Q112 Part B (Wireman) HINDI

कंट्रोल पैनल वायरिंग में DIN रेल का उपयोग करने का प्राथमिक उद्देश्य क्या है?

- A. विद्युत धारा के लिए एक पथ प्रदान करना
- B. विद्युत घटकों को सुरक्षित रूप से व्यवस्थित और आरोपित करना ✓
- C. विद्युत घटकों की बिजली खपत को कम करना
- D. घटकों की वोल्टता रेटिंग को बढ़ाना

Q113 Part B (Wireman)

Which of the following is a key electrical safety tip in a workshop?

- A. Operate machines with wet hands
- B. Ignore frayed wires if the device is still working
- C. Use water to clean electrical panels
- D. Ensure electrical equipment is properly grounded ✓

Q114 Part B (Wireman) HINDI

संयोजक ब्लॉकों के निर्माण के लिए निम्नलिखित में से किस सामग्री का उपयोग किया जाता है?

- A. ऐलुमिनियम
- B. तांबा
- C. पीतल
- D. पॉलीकार्बोनेट ✓

Q115 Part B (Wireman) HINDI

नियंत्रण पैनल सर्किट में, रिले पर NO (Normally Open - सामान्य रूप से खुला) संपर्क क्या दर्शाता है?

- A. रिले के ऊर्जाविहीन होने पर संपर्क बंद हो जाते हैं। ✓
- B. रिले के ऊर्जाविहीन (de-energised) होने पर संपर्क बंद होते हैं।
- C. संपर्क ऊर्जावित (energised) और ऊर्जाविहीन दोनों अवस्थाओं में खुले होते हैं।
- D. रिले के ऊर्जाविहीन होने पर संपर्क खुले होते हैं।

Q116 Part B (Wireman) HINDI

नियंत्रण पैनल में PVC चैनल का क्या कार्य होता है?

- A. विद्युत परिपथों के लिए भू-संपर्कन चालक के रूप में कार्य करना
- B. सुरक्षा के लिए उच्च-वोल्टेज ट्रांसफॉर्मर को परिबद्ध करना
- C. वेंटिलेशन स्लॉट के साथ विद्युत वायरिंग के लिए मार्ग प्रदान करना ✓
- D. कठोर परिवेश में आउटडोर केबल संस्थापनों को सपोर्ट करना

Q117 Part B (Wireman)

Sine bars are used when a high degree of accuracy less than _____ is needed for measuring angles.

- A. 1 degree
- B. 30 degrees
- C. 1 minute ✓
- D. 30 minutes

Q118 Part B (Wireman)

What is the importance of following the manufacturer's guidelines for DC motor maintenance?

- A. Ensures safe and efficient operation ✓
- B. Modifies the motor's design
- C. Increases the motor's power output
- D. Saves time and resources

Q119 Part B (Wireman)

What is the objective of testing an earthing system?

- A. To test the current capacity of the earthing system
- B. To check the voltage levels
- C. To measure the insulation resistance of cables
- D. To ensure the system has a low resistance path to the earth ✓



Q120 Part B (Wireman)

What is the term used to describe programs that distinguish between uppercase and lowercase letters, treating "yes" and "YES" as different inputs?

- A. Case-insensitive
- B. Numerical
- C. Case-sensitive ✓
- D. Alphabetical

Q121 Part B (Wireman) HINDI

घरेलू अधिष्ठापन में, 1.5 का विविधता गुणक क्या दर्शाता है?

- A. अधिकतम मांग, कुल संयोजित भार से 1.5 गुना कम है। ✓
- B. अधिकतम मांग, संयोजित भार से 1.5 गुना है।
- C. भार सभी परिपथों में समान रूप से वितरित किया जाता है।
- D. युक्तियों का सदैव एक साथ उपयोग किया जाएगा।

Q122 Part B (Wireman)

According to Ohm's Law, how is current related to voltage and resistance?

- A. It is directly proportional to voltage and inversely proportional to resistance. ✓
- B. It has no relation with voltage or resistance.
- C. It is directly proportional to voltage and resistance.
- D. It is inversely proportional to voltage and resistance.

Q123 Part B (Wireman)

Connection of voltage transformer and current transformer across line are _____, respectively.

- A. series and parallel ✓
- B. series and series
- C. parallel and series
- D. parallel and parallel

Q124 Part B (Wireman)

What is the primary reason for conducting a vehicle road test?

- A. To test how fast the vehicle can go
- B. To avoid the need for inspections
- C. To increase fuel efficiency
- D. To ensure the vehicle is functioning safely and correctly ✓

Q125 Part B (Wireman)

A statement and conclusion for pictorial drawing are given below. Determine the logical relationship between them.

Statement: Pictorial drawings are three-dimensional and provide a visual representation of an object.

Conclusion: Therefore, pictorial drawings are useful for describing the shape of a piece part or component.

- A. The conclusion does not logically follow from the statement.
- B. The conclusion is partially supported by the statement.
- C. The conclusion is unrelated to the statement.
- D. The conclusion logically follows from the statement. ✓

Q126 Part B (Wireman)

In a logic circuit, three SPST (Single Pole Single Throw) switches are used to implement a logic gate. The switches are connected in series. What is the output of the circuit if all switches are closed?

- A. Undefined
- B. 1 ✓
- C. The output will depend on the type of gate used
- D. 0

Q127 Part B (Wireman)

Which of the following statements is/are true about Non-Functional Dimensions (NF) in engineering drawing?

Statement 1: Non-functional Dimensions are shown without limits, as they do not affect the functionality of the component or space.

Statement 2: Non-Functional Dimensions are typically used for reference purposes only, and do not impact the assembly or performance of the component or space.

- A. Only statement 2 is true ✓
- B. Only statement 1 is true
- C. Both statements are true
- D. Neither statement is true

Q128 Part B (Wireman)

In a transformer, insulation resistance test is carried out to measure:

- A. frequency
- B. magnetic flux
- C. the resistance of the insulation between windings and core ✓
- D. the inductance between different parts of the transformer



Q129 Part B (Wireman)

Why do cars have treaded tyres?

A. To increase friction and grip on the road



B. To reduce weight

C. To decrease friction

D. To increase speed

Q130 Part B (Wireman) HINDI

उच्चतर विविधता गुणक का घरेलू तार-स्थापन प्रणाली पर क्या प्रभाव पड़ता है?

A. यह सुनिश्चित करता है कि उपकरणों का उपयोग एक साथ किया जाए।

B. यह प्रणाली के कुल लोड में वृद्धि करता है।

C. यह तार-स्थापन के आवश्यक आकार और परिपथ सुरक्षा को कम करता है।



D. यह समग्र विद्युत खपत को कम करने में सहायता करता है।

Q131 Part B (Wireman)

An angle greater than 180 degrees is referred to as _____.

A. a right angle

B. an acute angle

C. an obtuse angle

D. a reflex angle

**Q132 Part B (Wireman)**

_____ recommend(s) 20 mm wide margins for sheet sizes AO and A1 in engineering drawings.

A. Borders and frames: SP: 46 (2003)



B. Geographic coordinate systems

C. Custom grids

D. Grid reference system

Q133 Part B (Wireman) HINDI

दो स्थानों से लाइट को नियंत्रित करने के लिए निम्नलिखित में से कौन-सी स्विचिंग व्यवस्था अनुशंसित की जाती है?

A. सिंगल-पोल स्विच (Single-pole switch)

B. पुश-बटन स्विच (Push-button switch)

C. डिमर स्विच (Dimmer switch)

D. द्वि-पथी स्विच (Two-way switch)

**Q134 Part B (Wireman)**

Which device is used to protect against electric shocks and fires caused by earth leakage currents?

A. ELCB



B. MCCB

C. MCB

D. ECB

Q135 Part B (Wireman) HINDI

घरेलू संस्थापनों में शाखा परिपथों के लिए लोड आवश्यकताओं के प्राक्कलन में, जब वास्तविक लोड मान ज्ञात नहीं होते हैं, तो विशिष्ट रूप से किस पर विचार किया जाता है?

A. प्रकाश व्यवस्था और उपकरणों के लिए मानक लोड अभिधारणाओं



B. केवल हैवी-ड्यूटी उपकरणों की वाट क्षमता

C. मुख्य परिपथ वियोजक की अधिकतम क्षमता

D. विविधता के बिना सभी उपकरणों की कुल धारा

Q136 Part B (Wireman)

A 100-mm centre-punch could have a 10-mm diameter body and a 6-mm diameter point ground to an angle of _____.

A. 120°

B. 90°



C. 60°

D. 30°

Q137 Part B (Wireman)

Which type of electrolytic capacitor is generally more stable and has better performance in small sizes?

A. Tantalum capacitor

B. Mica capacitor

C. Aluminium capacitor



D. Ceramic capacitor

Q138 Part B (Wireman)

Transformer oil should have _____ dielectric strength and _____ viscosity.

A. high; high

B. low; high

C. high; low



D. low; low



Q139 Part B (Wireman) HINDI

रिले और संपर्कित (contactor) के बीच निर्माण संबंधी प्राथमिक अंतर क्या होता है?

- A. संपर्कित आमतौर पर प्लास्टिक से बने होते हैं, जबकि रिले धातु से बने होते हैं।
- B. रिले सदैव परिबद्ध रहते हैं, जबकि संपर्कित परिबद्ध नहीं रहते।
- C. रिले में संपर्कित की तुलना में छोटे संपर्क (contacts) होते हैं। ✓
- D. इनके निर्माण में कोई अंतर नहीं होता है।

Q140 Part B (Wireman)

The Insulation Resistance value for a transformer is measured in:

- A. megaohms ✓
- B. ohms
- C. KVA
- D. kilohms

Q141 Part B (Wireman)

Why is a DC compound generator preferred for industrial loads?

- A. It has no losses.
- B. It is easier to manufacture.
- C. It provides better efficiency.
- D. It has constant voltage characteristics. ✓

Q142 Part B (Wireman)

What is the purpose of measuring the electrode resistance during the installation of an earthing system?

- A. To measure the insulation resistance of the system
- B. To determine the electrical load capacity of the system
- C. To ensure the earthing system has low impedance for fault current dissipation ✓
- D. To ensure proper grounding of electrical equipment

Q143 Part B (Wireman)

What is the primary purpose of preventive maintenance?

- A. To increase the workload of employees
- B. To reduce unexpected equipment failures ✓
- C. To delay repairs until breakdowns occur
- D. To eliminate the need for regular inspections

Q144 Part B (Wireman)

What should be the position of the 'OFF' marking on a fireman's switch?

- A. At the top ✓
- B. In the centre
- C. At the bottom
- D. On the side

Q145 Part B (Wireman) HINDI

उच्च लोड आकलन, वायरिंग घटकों के चयन को कैसे प्रभावित करता है?

- A. परिपथ-वियोजक की आवश्यकता को कम करता है
- B. वितरण-बोर्ड की आवश्यकता को समाप्त करता है
- C. उच्च रेटिंग वाले मुख्य स्विच और सुरक्षात्मक उपकरणों की आवश्यकता होती है ✓
- D. पतली केबल के उपयोग की अनुमति देता है

Q146 Part B (Wireman)

In pipe earthing, what is used to connect the earthing conductor to the pipe?

- A. ✓
- B.
- C.
- D.

Q147 Part B (Wireman)

Which of the following conversions are correct?

- A. 1 L = 1000 dm³ and 1 mL = 1000 cm³
- B. 1000 L = 1 dm³ and 1000 mL = 1 cm³
- C. 1 L = 1 dm³ and 1 mL = 1 cm³ ✓
- D. 1000 L = 1 dm³ and 1 mL = 1000 cm³

Q148 Part B (Wireman)

Which option shows the correct answer when 27°C is converted to the kelvin scale?

- A. - 300 K
- B. 246 K
- C. 300 K ✓
- D. - 246 K



Q149 Part B (Wireman) HINDI

औद्योगिक परिवेश में नियंत्रण वायरिंग (control wiring) के लिए निम्नलिखित में से किस प्रकार के केबल को इसकी नम्यता और परिस्थिति गुणकों के प्रति प्रतिरोध के कारण प्राथमिकता दी जाती है?

- A. PVC रोधित केबल (PVC insulated cables)
- B. कवचित केबल (Armoured cables) ✓
- C. हाई-टेंशन केबल (High-tension cables)
- D. निम्न-वोल्टता केबल (Low-voltage cables)

Q150 Part B (Wireman)

Which of the following screwdrivers has cross-shaped tips that are unlikely to slip from the cruciform slots in Philips recessed head screws?

- A. Stumpy screwdriver
- B. Offset screwdriver
- C. Cross-recess screwdriver ✓
- D. Ratchet screwdriver

Q151 Part B (Wireman) HINDI

NBC के अनुसार आवासीय कमरों में सामान्य प्रकाश व्यवस्था के लिए अनुशंसित प्रदीप्ति स्तर कितना है?

- A. 200 लक्स
- B. 500 लक्स
- C. 50 लक्स
- D. 100 लक्स ✓

Q152 Part B (Wireman)

A rectangular floor measuring 10 m × 8 m is to be tiled. If each tile covers 0.25 m², how many tiles are needed?

- A. 200
- B. 300
- C. 320 ✓
- D. 250

Q153 Part B (Wireman)

For which of the following calipers, a screw and nut are provided for opening and closing the caliper legs?

- A. Spring joint calipers ✓
- B. Firm joint calipers
- C. Simple calipers
- D. Leg and point calipers

Q154 Part B (Wireman)

What is the primary cause of sudden insulation resistance failure in a DC generator?

- A. Moisture ingress or contamination ✓
- B. High ambient temperature
- C. Increase in rotational speed
- D. Excessive armature current

Q155 Part B (Wireman)

In a circuit with a NTC type thermistor and a fixed resistor connected in series connected to a DC power supply, what will happen to the output voltage if there is a rise in temperature?

- A. The output voltage will increase. ✓
- B. The output voltage will remain constant.
- C. The output voltage will fluctuate depending on the resistor value.
- D. The output voltage will decrease.

Q156 Part B (Wireman)

What is the primary purpose of shielding in electrical cables?

- A. To increase the voltage capacity of the cable
- B. To increase the current-carrying capacity of the cable
- C. To protect the cable from external electromagnetic interference ✓
- D. To prevent heat loss from the cable

Q157 Part B (Wireman)

Which DC motor type provides the best speed regulation under varying loads?

- A. DC Series Motor
- B. Cumulative Motor
- C. DC Shunt Motor ✓
- D. Permanent Magnet DC Motor

Q158 Part B (Wireman)

Which component in an MCB is responsible for detecting a short circuit?

- A. Bimetallic strip
- B. Solenoid ✓
- C. Arc chute
- D. Handle



Q159 Part B (Wireman) HINDI

घटकों के बीच विद्युत कनेक्शन प्रदान करने के लिए DIN रेल के साथ सामान्यतः किस प्रकार के कनेक्टर का उपयोग किया जाता है?

- A. सोल्डर कनेक्टर (Solder connectors)
- B. वायर नट (Wire nuts)
- C. टर्मिनल ब्लॉक (Terminal blocks) ✓
- D. प्लग-इन कनेक्टर (Plug-in connectors)

Q160 Part B (Wireman)

Which of the following types of DC motor is commonly used in electric traction applications such as trains and trams?

- A. Permanent Magnet DC Motor
- B. DC Compound Motor
- C. DC Series Motor ✓
- D. DC Shunt Motor

Q161 Part B (Wireman)

What is the unit of measurement for earth fault loop impedance?

- A. Amperes (A)
- B. Ohms (Ω) ✓
- C. Volts (V)
- D. Farads (F)

Q162 Part B (Wireman)

Which electrical component is used to perform a polarity test to check whether or not the switches are connected in phase/live cable?

- A. Megger
- B. Ammeter
- C. Multimeter
- D. Test lamp ✓

Q163 Part B (Wireman)

Which of the following is a major risk associated with fuel spillage?

- A. Fire hazards and environmental contamination ✓
- B. Better lubrication for workshop floors
- C. Increased productivity
- D. Reduced need for ventilation

Q164 Part B (Wireman)

In crane and hoist applications, why is a DC series motor preferred over a DC shunt motor?

- A. It requires minimal maintenance compared to other motors.
- B. It maintains constant speed regardless of load variations.
- C. It provides a high starting torque, which is required for lifting loads. ✓
- D. It consumes less power at no load.

Q165 Part B (Wireman)

What are the two types of mica capacitors?

- A. Ceramic and film capacitors
- B. Electrolytic and paper capacitors
- C. Variable and fixed capacitors
- D. Stacked foil and silvered mica capacitors ✓

Q166 Part B (Wireman)

Natural rubber is soft at high temperatures and brittle at low temperatures; hence raw rubber is heated with sulphur and other additives at a temperature range between 373 – 415 K to make it strong. This process is called ____ of rubber.

- A. vulcanisation ✓
- B. molding
- C. latex
- D. extrusion

Q167 Part B (Wireman)

What is the maximum total current allowed in a ring circuit as per IEE regulations?

- A.
- B.
- C. ✓
- D.



Q168 Part B (Wireman)

Read the Assertion (A) and Reason (R) carefully, and select the correct option.

Assertion (A): The earth resistance must be kept as low as possible to ensure that the earthing system is effective during fault conditions.

Reason (R): A low resistance allows fault current to flow easily into the ground, ensuring safety by preventing electrical hazards.

- A. Both Assertion (A) and Reason (R) are correct, and the reason correctly explains the assertion. ✓
- B. Assertion (A) is incorrect, but Reason (R) is correct.
- C. Both Assertion (A) and Reason (R) are correct, but the reason does not correctly explain the assertion.
- D. Assertion (A) is correct, but Reason (R) is incorrect.

Q169 Part B (Wireman)

Which of the following actions is a part of the emergency response team's responsibilities during an active emergency?

- A. Preparing reports on emergency incidents
- B. Rescuing persons in immediate danger ✓
- C. Conducting routine safety checks
- D. Scheduling regular evacuation drills

Q170 Part B (Wireman)

The accuracy of measurement by a try square is about:

- A. 0.02 mm per 10 mm length
- B. 0.001 mm per 10 mm length
- C. 0.004 mm per 10 mm length
- D. 0.002 mm per 10 mm length ✓

Q174 Part B (Wireman)

The voltage regulation in percentage for transformer is given by:

- A. $\text{Voltage regulation} = \frac{V_{\text{no load}} - V_{\text{load}}}{V_{\text{no load}}} \times 100$
- B. $\text{Voltage regulation} = \frac{V_{\text{no load}} - V_{\text{load}}}{V_{\text{load}}} \times 100$ ✓
- C. $\text{Voltage regulation} = \frac{V_{\text{no load}} - V_{\text{no load}}}{V_{\text{load}}} \times 100$
- D. $\text{Voltage regulation} = \frac{V_{\text{load}} - V_{\text{no load}}}{V_{\text{load}}} \times 100$

Q171 Part B (Wireman) HINDI

टेपित वायरिंग प्रणाली (taped wiring system) का निम्नलिखित में से कौन-सा एक विशिष्ट लक्षण है?

- A. यह भौतिक क्षति के विरुद्ध यांत्रिक सुरक्षा प्रदान करता है।
- B. इसका उपयोग सामान्यतः सीलिंग (ceilings) जैसे खुले क्षेत्रों में किया जाता है।
- C. इसका उपयोग उच्च-वोल्टता उपकरणों में किया जाता है।
- D. यह नम्य होता है और इसे रुद्ध स्थानों (tight spaces) पर संस्थापित किया जा सकता है। ✓

Q172 Part B (Wireman)

How should the electrode resistance be measured if multiple earthing electrodes are used in parallel?

- A. Measure electrode resistance individually and then add it
- B. Use a clamp meter to measure the resistance of parallel electrodes
- C. Measure electrode resistance individually and then average the values
- D. Measure the total resistance of the combined electrodes in parallel ✓

Q173 Part B (Wireman)

What is the primary reason for the heating effect in a conductor when an electric current passes through it?

- A. The electric field in the conductor causes heat generation.
- B. The movement of electrons causes heat generation. ✓
- C. The conductor absorbs heat from the surrounding environment.
- D. The movement of protons causes heat generation.



Q175 Part B (Wireman)

The energy stored (W) in an inductor is given by the formula _____, where C = Capacitance, V= Voltage, I = Current, and L= inductance.

A. $W = \frac{1}{2}VI$

B. $W = \frac{1}{2}LI^2$



C. $W = LI$

D. $W = \frac{1}{2}CV^2$

