



RRB Group D 2019

Level-1 Posts (Group D) · CEN RRC 01/2019 · CBT (17 Aug - 11 Oct 2022) · General Science —
Topic-wise

English

46 Chapters · 2475 Questions · Official Answer Key

About this Compilation

Every **General Science** question asked across all 99 shifts of the **RRB Group D 2019** examination (CEN RRC 01/2019), regrouped by **chapter** instead of by shift, so you can revise one topic end to end. The correct option is marked as per the official answer key.

Source and order. Original question images of the official RRB response sheets (no retyping). RRB shuffled questions and options for every candidate; here each paper runs section by section in the official order (Maths Q1-25, Reasoning Q26-55, General Science Q56-80, General Awareness Q81-100), options in RRB's own order.

Answer key. Official RRB key; 12 questions carry RRB's final (post-objection) answer; 36 questions dropped by RRB are printed as asked, with RRB's note and no tick.

English not saved. For the whole 26 Aug 2022 12:45 PM paper and 149 questions of 17 other shifts no English version was saved; the Hindi version is printed, marked HINDI.

How to use

- Use the **Index** to jump to any chapter (clickable).
- Within a chapter, questions on the same idea are placed together.
- The correct answer is highlighted in green with a tick.
- The same paper is also available complete and section-wise.



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Q1 Conductors, insulators, semiconductors

Which of the following has the maximum electrical resistivity?

Aluminium, Mercury, Glass, Manganin

- A. Mercury
- B. Aluminium
- C. Manganin
- D. Glass



Q2 Conductors, insulators, semiconductors

If equal potential difference is applied across tungsten, manganin and hard rubber wires of the same length and thickness, then:

- A. equal current will flow through all wires
- B. maximum current will pass through manganin
- C. maximum current will pass through tungsten
- D. maximum current will pass through hard rubber



Q3 Conductors, insulators, semiconductors

Which of the following has less opposition to the flow of current?

- A. A good conductor
- B. A good insulator
- C. A high resistance
- D. A bad conductor



Q4 Conductors, insulators, semiconductors

Which of the following represents material in the increasing order of their resistance?

- A. Conductors, alloys, insulators ✓
- B. Alloys, conductors, insulators
- C. Insulator, alloys, conductors
- D. Insulators, conductors, alloys

Q5 Electric charge, current and its unit

_____ helps to maintain potential difference across a conductor.

- A. Plug key
- B. Battery ✓
- C. Resistance
- D. Voltmeter

Q6 Electric motor (principle)

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

- A. split ring ✓
- B. brush
- C. coil
- D. soft iron core

Q7 Electric motor (principle)

The armature of an electric motor consists of which of the following part/parts?

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

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



Q8 Electric motor (principle)

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

A. force, magnetic field



B. magnetic field, force

C. field, current

D. current, field

Q9 Electric motor (principle)

Which of the following rules is used to determine the force on a current carrying conductor kept inside a magnetic field ?

A. Fleming's right-hand rule

B. Maxwell's corkscrew rule

C. Fleming's left-hand rule



D. Right hand thumb rule

Q10 Electric motor (principle)

Which of the following statements is/are true for a DC motor?

(i) The function of the split rings is to reverse the flow of current.

(ii) Maximum force is experienced by arms of the coil aligned parallel to the magnetic field

(iii) Reversing current after every half rotation leads to continuous rotation of coil.

A. Only (i)

B. Only (ii)

C. Both (i) and (ii)

D. Both (i) and (iii)



Q11 Electric motor (principle)

Which of the following home appliances does NOT use an electric motor?

- A. Electric fan
- B. Electric mixer
- C. Electric washing machine
- D. Electric iron



Q12 Electric motor (principle)

Consider the following statements about the force acting on a current-carrying straight conductor placed in a magnetic field:

- (a) The direction of the force does not depend on the direction of current in the conductor.
- (b) The direction of the force depends on the direction of the magnetic field in which the conductor is placed.

Which of the above statements is/are correct?

- A. Only (a)
- B. Only (b)
- C. Neither (a) nor (b)
- D. Both (a) and (b)



Q13 Electric motor (principle)

Consider the following statements about an electric motor:

- (a) An electric motor uses split rings.
- (b) The direction of the force on the motor's coil can be found using Fleming's right-hand rule.

Which of the above statements is/are correct?

- A. Only (a)
- B. Only (b)
- C. Both (a) and (b)
- D. Neither (a) nor (b)



Q14 Electric motor (principle)

A current-carrying straight conductor is placed in a magnetic field. The conductor experiences the maximum force when the angle between the direction of the current in it and the direction of the magnetic field is:

- A. 30°
- B. 45°
- C. 60°
- D. 90°



Q15 Electric motor (principle)

Direction of rotation of armature of motor can be found with the help of _____.

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



Q16 Electric motor (principle)

When magnetic field is acting towards north and current is moving in east to west direction through a conductor, then the conductor will move _____ direction

- A. towards left
- B. towards right
- C. in the upward
- D. in the downward



Q17 Electric motor (principle)

The angle between thumb and middle finger in Fleming's left-hand rule is:

- A. 45°
- B. 180°
- C. 120°
- D. 90°



Q18 Electric motor (principle)

The direction of the current in a coil of a motor is reversed by:

- A. brushes
- B. split ring
- C. slip ring
- D. axle



Q19 Electric motor (principle)

Which of the following devices does NOT use an electric motor?

Electric fan, Electric mixer, Galvanometer, Computer

- A. Electric fan
- B. Galvanometer
- C. Computer
- D. Electric mixer



Q20 Electric motor (principle)

When a coil carrying a current is placed in a magnetic field, a force is produced on it. This is the working principle of:

- A. generator
- B. cooler
- C. motor
- D. turbine



Q21 Electric motor (principle)

Consider the following statements about a commercial motor:

- (a) It uses an electromagnet in place of a permanent magnet.
- (b) It uses a soft-iron core.

Which of the above statements is/are correct?

- A. Only (a)
- B. Only (b)
- C. Both (a) and (b) ✓
- D. Neither (a) nor (b)

Q22 Electric motor (principle)

Consider the following statements about an electric motor:

- (a) It uses a commutator that reverses the direction of the current in the coil after each half rotation.
- (b) The direction of the force on an arm of the coil can be found using Fleming's left hand rule.

Which of the above statements is/are correct?

- A. Neither (a) nor (b)
- B. Both (a) and (b) ✓
- C. Only (a)
- D. Only (b)

Q23 Electric motor (principle)

Conversion of energy in electric motor is:

- A. Sunlight to electrical energy
- B. Electrical energy to mechanical energy ✓
- C. Mechanical energy to electrical energy
- D. Electrical energy to heat energy



Q24 Electric motor (principle)

Working principle of an electric motor is

- A. A coil carrying conductor experiences force in the region of non-uniform magnetic field ✓
- B. Electromagnetic induction
- C. A coil carrying current experiences force in the region of gravitational field
- D. A coil carrying current experiences force in the region of electric field

Q25 Electric motor (principle)

An electric motor is a device which converts:

- A. mechanical energy into electrical energy
- B. electrical energy into mechanical energy ✓
- C. mechanical energy into solar energy
- D. solar energy into electrical energy

Q26 Electric motor (principle)

The magnitude of force that acts on the arms of an armature is the maximum when the length of the arms are:

- A. parallel to the magnetic field
- B. 45° to the magnetic field
- C. perpendicular to the magnetic field ✓
- D. 60° to the magnetic field

Q27 Electric motor (principle)

A commutator is used to change the direction of current in the coil of _____.

- A. AC generator only
- B. DC motor and DC generator both ✓
- C. DC generator only
- D. DC Motor Only



Q28 Electric motor (principle)

In Flemming's left hand rule; the thumb, fore finger and centre finger respectively represent,

- A. Direction of force experienced, magnetic field and current
- B. Direction of magnetic field, force experienced and current
- C. Direction of current, magnetic field and force experienced
- D. Direction of magnetic field, current and force experienced

Q29 Electric motor (principle)

In the Fleming's left hand rule index finger indicates the direction of the:

- A. magnetic force
- B. electric current
- C. magnetic field
- D. motion of conductor

Q30 Electric motor (principle)

Which of the following is used to study the direction of rotation of a coil in a magnetic field in an electric motor?

- A. Right hand thumb rule
- B. Left hand thumb rule
- C. Fleming's left hand rule
- D. Fleming's right hand rule

Q31 Electric motor (principle)

In an electric motor, the direction of flow of current is reversed using:

- A. a motor brush
- B. a split ring
- C. armature winding
- D. a carbon brush



Q32 Electric motor (principle)

If the angle between the direction of current flowing through a conductor and the direction of magnetic field is zero, the force (F) acting on the conductor will be _____.

A. Zero



B. F

C. 2F

D. F/2

Q33 Electric motor (principle)

An electric motor is a device used for converting electrical energy into _____ energy.

A. Magnetic

B. Heat

C. Light

D. mechanical



Q34 Electric motor (principle)

In an electric motor, the direction of currents flowing through the arms of the coil will be _____ to each other due to Fleming's left hand rule.

A. parallel

B. Perpendicular

C. Opposite



D. in the same direction

Q35 Electric motor (principle)

Which of the following method(s) can be used to change the direction of force on a current carrying conductor?

(i) Changing the magnitude of current

(ii) Changing the strength of magnetic field

(iii) Changing the direction of current

A. Only (i)

B. Only (iii)



C. Both (i) and (iii)

D. Both (ii) and (iii)



Q36 Electric motor (principle)

The force acting on a current carrying conductor placed in a magnetic field is _____.

- A. perpendicular to the direction of current and magnetic field ✓
- B. parallel to the direction of current and magnetic field
- C. parallel to the direction of current and perpendicular to the direction of magnetic field
- D. parallel to the direction of magnetic field and perpendicular to the direction of current

Q37 Electric motor (principle)

In a room, a magnetic field is applied vertically upwards. Electron and proton beams are released horizontally from south towards the north direction into this field. The directions of deflections of these beams will be _____ and _____, respectively.

- A. east, west ✓
- B. west, east
- C. vertically up, vertically down
- D. vertically down, vertically up

Q38 Electric motor (principle)

Electric motor works on the principle of _____. It converts _____ energy into _____ energy.

- A. Fleming's Right Hand Rule, electrical, mechanical
- B. Fleming's Left Hand Rule, electrical, mechanical ✓
- C. Fleming's Right Hand Rule, mechanical, electrical
- D. Fleming's Left Hand Rule, mechanical, electrical

Q39 Electric motor (principle)

In accordance to Fleming's left hand rule used to find the direction of force on a current carrying conductor placed inside a magnetic field, the centre finger and the index finger represent the directions of _____ and _____, respectively.

- A. force, magnetic field
- B. magnetic field, force
- C. magnetic field, current
- D. current, magnetic field ✓

Q40 Electric motor (principle)

In an electric motor, the forces acting on the arms of the armature of the motor that are perpendicular to the direction of magnetic field are:

- A. equal in magnitude and opposite in direction ✓
- B. unequal in magnitude and along same direction
- C. equal in magnitude and in the same direction
- D. unequal in magnitude and in the opposite direction

Q41 Electric motor (principle)

In an electric motor, the _____ act(s) as a contact between the commutator and the terminals of the battery.

- A. split ring
- B. carbon brushes ✓
- C. magnetic poles
- D. plug key

Q42 Electric power and heating (fuse/bulb)

Which of the following statements are correct?

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

- A. Both (i) and (ii) ✓
- B. Both (ii) and (iii)
- C. Both (i) and (iii)
- D. (i), (ii) and (iii)



Q43 Electric power and heating (fuse/bulb)

The property/properties that must be possessed by a material to be chosen for making heating element of heating devices is/are:

- (i) high melting point
- (ii) high resistivity
- (iii) low resistance

A. Only (i) and (ii)



B. Only (ii) and (iii)

C. Only (i) and (iii)

D. (i), (ii), (iii)

Q44 Electric power and heating (fuse/bulb)

Which of the following devices is/are based on heating effect of electric current?

- (i) Incandescent lamp
- (ii) Electric geyser
- (iii) Electric generator

A. Only (i)

B. Only (ii)

C. Both (i) and (ii)



D. Both (i) and (iii)



Q45 Electric power and heating (fuse/bulb)

Ramesh wants to choose a material for making filament of a bulb. The chosen material should possess which of the following properties?

- (i) Low melting point
- (ii) Ability to glow at high temperatures
- (iii) High resistance

A. Only (i)

B. Only(ii)

C. Both (i) and (ii)

D. Both (ii) and (iii)



Q46 Electric power and heating (fuse/bulb)

An electric heater is rated 2200 W at 220 V. The minimum rating of the fuse wire to be connected to the device is:

A. 5 A

B. 10 A



C. 20 A

D. 22 A

Q47 Electric power and heating (fuse/bulb)

Which of the following materials is preferably used in making heating elements of electrical heating devices?

A. Nichrome



B. Constantan

C. Tin-lead alloy

D. Tungsten

Q48 Electric power and heating (fuse/bulb)

Identify the INCORRECT relation between power (P), Current(I) , Resistance (R) and potential difference (V).

A. $P = VI$

B. $P = V^2/R$

C. $P = IR^2$



D. $P = I^2R$



Q49 Electric power and heating (fuse/bulb)

Three bulbs A, B and C rated 40 W, 60 W and 100 W, respectively, are connected in parallel to a voltage source of 220 V. The bulb that glows with maximum brightness is:

- A. bulb A
- B. bulb B
- C. bulb C
- D. all bulbs will glow with equal brightness

Q50 Electric power and heating (fuse/bulb)

Two bulbs A and B are connected in parallel to a 3 V source. If the ratio of resistance of bulb A to that of bulb B is 1 : 3. The ratio of the heat produced by bulb A to that of bulb B in a given time is:

- A. 1 : 3
- B. 3 : 1
- C. 1 : 9
- D. 9 : 1

Q51 Electric power and heating (fuse/bulb)

Which of the following formulae does NOT represent the heat produced in a conductor due to flow of electric current?

- A. $H = I^2 R t$
- B. $H = I R^2 t$
- C. $H = \frac{V^2}{R} t$
- D. $H = V I t$

Q52 Electric power and heating (fuse/bulb)

An electric device draws a current of 5 A when connected to a 220 V supply. The power of the electric device is:

- A. 0.44 kW
- B. 1.1 kW
- C. 110 W
- D. 440 W



Q53 Electric power and heating (fuse/bulb)

The material most suitable for making the filament of an incandescent bulb is:

A. tungsten



B. manganin

C. tin-lead alloy

D. nichrome

Q54 Electric power and heating (fuse/bulb)

A 200 W bulb is connected to a 220 V source. The current through the bulb is:

A. 0.91 A



B. 0.45 A

C. 2.2 A

D. 1.1 A

Q55 Electric power and heating (fuse/bulb)

Three identical bulbs are connected in parallel to a battery of 6 V. If the current in the circuit is 0.6 A, the power dissipated by the battery is:

A. 5 W

B. 10 W

C. 3.6 W



D. 0.1 W

Q56 Electric power and heating (fuse/bulb)

A bulb draws a current of 3 A when connected to a battery of 12 V. The power of the bulb is:

A. 36 W



B. 18 W

C. 12 W

D. 4 W



Q57 Electric power and heating (fuse/bulb)

A 1100 W electric toaster operates at 220 V. The resistance of its coil is:

A. 11 Ω

B. 22 Ω

C. 44 Ω



D. 88 Ω

Q58 Electric power and heating (fuse/bulb)

A current of 0.2 A is maintained in a resistor of 10 Ω . The heat produced in the resistor in 1 second is:

A. 0.2 J

B. 0.4 J



C. 25 J

D. 50 J

Q59 Electric power and heating (fuse/bulb)

A device of 30 W is connected to a 12 V battery. The current in the device is:

A. 2.5 A



B. 1.25 A

C. 0.4 A

D. 0.2 A

Q60 Electric power and heating (fuse/bulb)

A bulb filament is made of a _____ metal with _____ melting point.

A. weak, low

B. weak, high

C. strong, low

D. strong, high



Q61 Electric power and heating (fuse/bulb)

A steady current I flows through an appliance of resistance R . The amount of heat produced by it in time t is:

- A. IRt
- B. I^2Rt ✓
- C. $(It)/R$
- D. $(I^2t)/R$

Q62 Electric power and heating (fuse/bulb)

If the current passing through a conductor is doubled and the potential difference is tripled then the power will increase:

- A. two fold
- B. three fold
- C. six fold ✓
- D. five fold

Q63 Electric power and heating (fuse/bulb)

If the resistance of a conductor is doubled then the heat produced is:

- A. Half
- B. Two times ✓
- C. Unchanged
- D. Zero

Q64 Electric power and heating (fuse/bulb)

A 2200 W electric toaster operates at 220 V. The resistance of its coil is:

- A. $11\ \Omega$
- B. $22\ \Omega$ ✓
- C. $44\ \Omega$
- D. $88\ \Omega$



Q65 Electric power and heating (fuse/bulb)

Consider the following statements about a fuse wire:

- (a) It is connected in series with a device.
- (b) It is made of a material of low melting point.

Which of the above statements is/are correct?

- A. Only (a)
- B. Only (b)
- C. Both (a) and (b) ✓
- D. Neither (a) nor (b)

Q66 Electric power and heating (fuse/bulb)

If a $4\ \Omega$ resistor is connected to a 12 V battery, then the power consumed is:

- A. 3 Watt
- B. 9 Watt
- C. 36 Watt ✓
- D. 1.25 Watt

Q67 Electric power and heating (fuse/bulb)

If the current passing through a heater is tripled by keeping resistance and time of the current flow unaltered, then the heat produced is:

- A. Tripled
- B. Becomes six times
- C. Becomes nine times ✓
- D. Doubled

Q68 Electric power and heating (fuse/bulb)

Two identical bulbs are connected in parallel to a battery of 4 V. If the current in the circuit is 0.2 A, the power dissipated by the battery is:

- A. 0.05 W
- B. 0.8 W ✓
- C. 10 W
- D. 20 W



Q69 Electric power and heating (fuse/bulb)

A bulb draws a current of 5 A when connected to a battery of 12 V. The power of the bulb is:

- A. 0.41 W
- B. 1.2 W
- C. 2.4 W
- D. 60 W



Q70 Electric power and heating (fuse/bulb)

A 100 W bulb is connected to a 220 V source. The current through the bulb is:

- A. 2.2 A
- B. 1.1 A
- C. 0.45 A
- D. 0.25 A



Q71 Electric power and heating (fuse/bulb)

A device of 60 W is connected to a 12 V battery. The current in the device is:

- A. 0.1 A
- B. 0.2 A
- C. 2.5 A
- D. 5.0 A



Q72 Electric power and heating (fuse/bulb)

A current of 0.4 A is maintained in a resistor of $2\ \Omega$. The heat produced in the resistor in 1 second is:

- A. 0.16 J
- B. 0.32 J
- C. 0.80 J
- D. 1.6 J



Q73 Electric power and heating (fuse/bulb)

The safety device that works on the heating effect of electric current is:

- A. Switch
- B. Fuse
- C. Electric motor
- D. Heater

Q74 Electric power and heating (fuse/bulb)

The correct relation between H (heat), I (current), R (resistance) and T (time) is:

- A. $H = I^2 RT$
- B. $H = IR^2 T$
- C. $H = IR T^2$
- D. $H = I^2 RT^2$

Q75 Electric power and heating (fuse/bulb)

The correct formula for electric power is:

- A. $P = V \cdot T$
- B. $P = V \cdot I$
- C. $P = V \cdot I \cdot T$
- D. $P = V/I$

Q76 Electric power and heating (fuse/bulb)

An electrical device that works on the principle of Joule's Law of Heating is:

- A. Speaker
- B. Electromagnet
- C. Immersion rod
- D. Electrical bell



Q77 Electric power and heating (fuse/bulb)

Which of the following is an INCORRECT formula for electric power?

A. $P = I^2 R$

B. $P = \frac{V^2}{R}$

C. $P = \frac{V}{I}$



D. $P = IV$

Q78 Electric power and heating (fuse/bulb)

Which of the following devices is NOT based on the heating effect of electric current?

Electric kettle, Electric bulb, Oven, Electric generator

A. Electric kettle

B. Electric bulb

C. Oven

D. Electric generator



Q79 Electric power and heating (fuse/bulb)

If the current and potential difference are tripled in a circuit, keeping the resistance constant, then power will increase:

A. Three fold

B. One third

C. six fold

D. nine fold



Q80 Electric power and heating (fuse/bulb)

The correct relation between P, V and R is:

A. $V = \frac{P}{R}$

B. $P = \frac{V^2}{R^2}$

C. $P = \frac{V^2}{R}$



D. $P = V^2 R$



Q81 Electric power and heating (fuse/bulb)

If a toaster is connected to 440 V AC instead of 220 V AC, then the heat produced per second will be _____ of the initial amount.

- A. twice
- B. half
- C. four times
- D. one-fourth

Q82 Electric power and heating (fuse/bulb)

In electrical geyser _____ energy is converted to _____.

- A. Electrical, magnetic
- B. Mechanical, electrical
- C. Electrical, heat
- D. Electrical, light

Q83 Electric power and heating (fuse/bulb)

The heating element of a bulb is made up of:

- A. silicon
- B. tungsten
- C. copper
- D. mercury

Q84 Electric power and heating (fuse/bulb)

The correct relation for heat produced by electric current is:

- A. $H = \frac{V.I}{T}$
- B. $H = V.I.T$
- C. $H = I^2.R$
- D. $H = \frac{R}{T}$



Q85 Electric power and heating (fuse/bulb)

When 60 KJ heat is produced by a heater in 1 minute and 20 seconds then its power is:

- A. 7.5 kW
- B. 150 W
- C. 750 W
- D. 1.5 kW



Q86 Electric power and heating (fuse/bulb)

Ram bought a bulb rated as 50 W and 220 V. When it is connected to a 220 V supply, its resistance will be:

- A. 868 Ω
- B. 968 Ω
- C. 1068 Ω
- D. 1098 Ω



Q87 Electric power and heating (fuse/bulb)

An electric lamp is connected to a 240 V DC source. The current flowing through the lamp is 0.25 A. The power of the lamp is:

- A. 40 W
- B. 60 W
- C. 80 W
- D. 100 W



Q88 Electric power and heating (fuse/bulb)

The heat produced in a resistor of 100 Ω when a current of 5A passes through it for 15 minutes is:

- A. 3.25×10^6 J
- B. 2.25×10^6 J
- C. 1.15×10^7 J
- D. 1.05×10^7 J



Q89 Electric power and heating (fuse/bulb)

The electric power consumed by an electric heater is found to be 500 W per unit time when it is connected to a 250 V source. The current drawn by the heater per unit time is:

A. 2 A



B. 0.2 A

C. 0.5 A

D. 5 A

Q90 Electric power and heating (fuse/bulb)

Nichrome is used to make an electric heater because it has:

A. low resistivity and high melting point

B. low resistivity and low melting point

C. high resistivity and high melting point



D. high resistivity and low melting point

Q91 Electric power and heating (fuse/bulb)

A $10\ \Omega$ resistor is connected across a battery. The heat produced in the resistor in 5 seconds is 200 J. The potential difference across the resistor is:

A. 10 V

B. 20 V



C. 30 V

D. 40 V

Q92 Electric power and heating (fuse/bulb)

In an electric circuit 2 lamps of resistances $10\ \Omega$ and $20\ \Omega$ are in parallel and a battery of 20 V is applied. If power, voltage, current and resistance are represented by P,V,I and R, respectively, then which of the following relations holds true?

A. $P = V^2 R$

B. $P = \frac{V^2}{R}$



C. $P = \frac{V}{R^2}$

D. $P = IR^2$



Q93 Electric power and heating (fuse/bulb)

What is the heat energy produced in a resistance of $10\ \Omega$ when 5 A current flows through it for 5 minutes ?

A. $7.5 \times 10^3\text{ J}$

B. $7.5 \times 10^4\text{ J}$ ✓

C. $7.5 \times 10^5\text{ J}$

D. $7.5 \times 10^6\text{ J}$

Q94 Electric power and heating (fuse/bulb)

A house is supplied electricity through a 15 A fuse. The number of 100 W lamps that can be used simultaneously along with a 2KW AC is: (The AC and lamps both are rated for 220 V Supply)

A. 23

B. 18

C. 15

D. 13 ✓

Q95 Electric power and heating (fuse/bulb)

The power of a bulb is 40 W . Then the energy in SI units consumed by it in 100 s is:

A. 40 J

B. 400 J

C. 4000 J ✓

D. 40000 J

Q96 Electric power and heating (fuse/bulb)

Suppose an electric kettle consumes 1.5 kW of electric power when it is operated at 240 V . What will be the rating of the fuse wire used for it?

A. 6.25 A ✓

B. 5 A

C. 8 A

D. 9 A



Q97 Electric power and heating (fuse/bulb)

Suppose a lamp is connected to a battery of 10 V and current flowing through the lamp is 2 A. The heat energy produced by the lamp in 10 s is:

- A. 50 J
- B. 100 J
- C. 175 J
- D. 200 J



Q98 Electric power and heating (fuse/bulb)

A 12 V battery is connected across a $250\ \Omega$ resistance. The heat produced in 5 seconds is:

- A. 2.99 J
- B. 3.0 J
- C. 3.15 J
- D. 2.88 J



Q99 Electric power and heating (fuse/bulb)

Suppose a lamp of $25\ \Omega$ is connected across a battery. The heat produced by the lamp per second is 100 J. The potential difference across the lamp is:

- A. 30 V
- B. 40 V
- C. 50 V
- D. 60 V



Q100 Electric power and heating (fuse/bulb)

The energy lost in the form of heat in an electrical circuit is,

- A. directly proportional to the resistance
- B. Inversely proportional to time for which current flows through the circuit
- C. Inversely proportional to the current flowing through the circuit
- D. Inversely proportional to the potential difference applied in the circuit



Q101 Electric power and heating (fuse/bulb)

The current I flowing through an electric circuit of resistance $10\ \Omega$ is $5\ \text{amp}$. What is the heat generated per second?

A. $250\ \text{joule}$



B. $50\ \text{joule}$

C. $250\ \text{calorie}$

D. $50\ \text{calorie}$

Q102 Electric power and heating (fuse/bulb)

The power input to the circuit when charge of Q coulomb is flowing for t seconds for a potential difference of V volt is _____.

A. $P = VQt$

B. $P = Qt/V$

C. $P = VQ/t$



D. $P = Vt/Q$

Q103 Electric power and heating (fuse/bulb)

Resistors of $0.2\ \Omega$, $0.4\ \Omega$, $0.6\ \Omega$, $0.8\ \Omega$ are connected in series across a voltage of $20\ \text{V}$. What is the net power of the electric circuit?

A. $200\ \text{Watt}$



B. $20\ \text{J/s}$

C. $800\ \text{Watt}$

D. $80\ \text{J/s}$

Q104 Electric power and heating (fuse/bulb)

A battery of $12\ \text{V}$ supplies a current of $3\ \text{A}$ to a lamp connected to it. The energy supplied to it in 15 minutes will be:

A. $32000\ \text{J}$

B. $32150\ \text{J}$

C. $540\ \text{J}$

D. $32400\ \text{J}$



Q105 Electric power and heating (fuse/bulb)

The heat generated H due to Joule's heating effect is directly proportional to _____.

- A. cube of the current
- B. square root of the current
- C. cube root of the current
- D. square of the current



Q106 Electric power and heating (fuse/bulb)

The current in a short circuit _____.

- A. does not change
- B. reduces enormously
- C. increases enormously
- D. varies continuously



Q107 Electric power and heating (fuse/bulb)

The potential difference across a resistor of 2 ohm when 200 joule of heat is produced each second is given by _____.

- A. 10 volt
- B. 20 volt
- C. 40 volt
- D. 80 volt



Q108 Electric power and heating (fuse/bulb)

The phenomena behind the working of an electric oven is _____.

- A. Joule's heating effect
- B. electromagnetic induction
- C. induced current
- D. induced voltage



Q109 Electric power and heating (fuse/bulb)

If a 12 V power supply supplies a power of 24 W to a bulb, then the power supplied would be when connected to a 6 V supply:

- A. 12W
- B. 18W
- C. 6W
- D. 9W



Q110 Electric power and heating (fuse/bulb)

The power of an electric equipment through which a charge of 15 coulomb is flowing per 5 seconds when it is connected to a 20 V source is _____.

- A. 1500 calorie
- B. 60 watt
- C. 60 calorie
- D. 1500 watt



Q111 Electric power and heating (fuse/bulb)

_____ protects circuits and appliances by stopping the flow of excessively high electric current.

- A. Electric heater
- B. Bulb
- C. Fuse
- D. Electric metre



Q112 Electric power and heating (fuse/bulb)

The formula for Joule's heating effect is represented as _____. (In the options, H denotes the heat produced, I is the current flowing through the conductor, R is the resistance and t is the time period.)

- A. $H = VI t$
- B. $H = IR t$
- C. $H = QI t$
- D. $H = VIR$



Q113 Electric power and heating (fuse/bulb)

A heating device of power 1100 W is designed to operate at 220 V line voltage. If on a particular day the line voltage drops to 110 V, then the current through it and its output power will be _____ and _____.

- A. 5 A, 550 W
- B. 10 A, 550W
- C. 2.5 A, 275 W
- D. 10 A, 275 W



Q114 Electric power and heating (fuse/bulb)

A 12V car head light lamp draws a current of 3A for 15 minutes. The energy transferred during this time by the car battery is

- A. 0.008 kWh
- B. 0.009 kWh
- C. 0.54 kWh
- D. 5.4 kWh



Q115 Electric power and heating (fuse/bulb)

The element used as a fuse _____ when a huge current flows through it.

- A. heats up
- B. cools
- C. boils
- D. melts



Q116 Electric power and heating (fuse/bulb)

The rate at which electrical energy is dissipated in an electric circuit is called _____.

- A. electric power
- B. electric heat
- C. electric work
- D. electric force



Q117 Electric power and heating (fuse/bulb)

The heat produced in an electric circuit is proportional to _____.

A. current

B. $1/\text{current}$

C. $(\text{current})^2$



D. $1/(\text{current})^2$

Q118 Electric power and heating (fuse/bulb)

A current flowing through a 10 ohm resistor per second in which 360 J energy is produced is _____.

A. 90 amp

B. 3600 amp

C. 6 amp



D. 36 amp

Q119 Electric power and heating (fuse/bulb)

The filament of an electric bulb is made up of which of the given materials?

A. Copper

B. Gold

C. Nichrome

D. Tungsten



Q120 Electric power and heating (fuse/bulb)

The power of an electric fan is 10 Watt when it is connected to 20 V source. What is the current flowing through the fan?

A. 0.5 amp



B. 200 amp

C. 2 amp

D. 0.005 amp



Q121 Electric power and heating (fuse/bulb)

The ratio of currents flowing through two electric circuits is 1: 4. If the ratio of resistances is 2: 1, what is the ratio of their powers?

- A. 8: 1
- B. 1: 32
- C. 1: 8
- D. 32: 1



Q122 Electric power and heating (fuse/bulb)

The power of an electric bulb in which a current of 2 amp flows when it is connected to a 220 V generator is _____.

- A. 120 joule
- B. 120 watt
- C. 440 joule
- D. 440 watt



Q123 Electric power and heating (fuse/bulb)

In electric circuits, losses take place in the form of _____ due to flow of electric current.

- A. light
- B. sound
- C. heat
- D. Magnetic losses



Q124 Electric power and heating (fuse/bulb)

Which of the following properties is required for a material to be used in filament of an electric bulb?

- A. Low temperature
- B. Low melting point
- C. High resistivity
- D. High conductivity



Q125 Electric power and heating (fuse/bulb)

An electric circuit consumes energy at a rate of 540 W per minute when heated. If the voltage across the circuit is 270 V, what is the resistance of the circuit?

- A. 65 ohm
- B. 135 ohm
- C. 270 ohm
- D. 540 ohm



Q126 Electric power and heating (fuse/bulb)

The power of an electric bulb of resistance 18 ohm if no voltage is applied across it is _____.

- A. 0 W
- B. 18 W
- C. 9 W
- D. infinity



Q127 Electric power and heating (fuse/bulb)

Which of the following statements is/are true in case of an incandescent filament bulb?

- (a) Filament can be made of tungsten or nichrome.
- (b) The glass envelope covering the filament is filled with inactive gases such as nitrogen or argon.
- (c) Since the filament used is thin, its resistivity is very low.
- (d) The resistivity of the filament is low to allow more current.
- (e) The filament material used should have high melting point.

- A. (a), (c), (d)
- B. (b), (c), (d)
- C. (a), (b), (e)
- D. (c), (d), (e)



Q128 Electromagnetic induction / generator

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

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



Q129 Electromagnetic induction / generator

An AC generator works on the principle of:

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



Q130 Electromagnetic induction / generator

A magnet, when moved near a coil, produces an induced current. Which of the following method(s) can be used to increase the magnitude of the induced current?

- (i) Increasing the number of turns in the coil
- (ii) Increasing the speed of the magnet
- (iii) Increasing the resistivity of the wire of the coil

- A. Only (i)
- B. Only (iii)
- C. Both (i) and (ii)
- D. Both (ii) and (iii)



Q131 Electromagnetic induction / generator

The process of producing an induced current by a changing magnetic field is called:

- A. electromagnetism
- B. electromagnetic induction
- C. electric conduction
- D. electromagnetic radiation

Q132 Electromagnetic induction / generator

A magnet, when moved near a coil, produces an induced potential difference in the coil. What happens when we increase the speed of the magnet near the coil?

- A. The induced potential difference in the coil increases.
- B. The induced potential difference in the coil decreases.
- C. The induced potential difference remains the same.
- D. The induced current in the coil remains the same.

Q133 Electromagnetic induction / generator

In a dynamo, electric current is produced using the principle of:

- A. electric conduction
- B. electromagnetism
- C. electromagnetic radiation
- D. electromagnetic induction

Q134 Electromagnetic induction / generator

The phenomenon due to which the relative motion between a conductor and a magnet produces a potential difference across the conductor is called:

- A. electromagnetic induction
- B. electromagnetism
- C. electrostatic force
- D. electromagnetic force



Q135 Electromagnetic induction / generator

Which of the following devices is based on the principle of electromagnetic induction?

- A. Electric fan
- B. Electric motor
- C. Electric generator
- D. Electric bulb



Q136 Electromagnetic induction / generator

In which of the following case(s) will a current be registered by the galvanometer connected to a circular coil?

- (i) When a magnet is held stationary near the coil.
- (ii) When a magnet is moved towards the coil.
- (iii) When a magnet is moved away from the coil.

- A. Only (i)
- B. Only (iii)
- C. Both (i) and (ii)
- D. Both (ii) and (iii)



Q137 Electromagnetic induction / generator

If a coil of a conductor with $50\ \Omega$ resistance is subjected to time varying magnetic field such that the EMF induced is 5 V , then the induced current in the coil is:

- A. zero
- B. infinite
- C. 0.01 A
- D. 0.1 A



Q138 Electromagnetic induction / generator

According to Fleming's right-hand rule, the index finger and the central finger of the right hand represent directions of _____ and _____, respectively.

- A. induced current, magnetic field
- B. magnetic field, induced current ✓
- C. motion of the conductor, magnetic field
- D. motion of the conductor, induced current

Q139 Electromagnetic induction / generator

Fleming's right-hand rule can be used to determine the direction of induced current when the angle between the magnetic field and the motion of the conductor is:

- A. 0°
- B. 30°
- C. 90° ✓
- D. 180°

Q140 Electromagnetic induction / generator HINDI - no English version saved

चुंबकीय क्षेत्र में परिवर्तन के कारण कुंडली में उत्पन्न प्रेरित विभवांतर के परिमाण को बढ़ाने के लिए इनमें से किस विधि का उपयोग किया जा सकता है?

- (i) कुंडली में फेरों की संख्या में वृद्धि करना
- (ii) चुंबकीय क्षेत्र की प्रबलता में वृद्धि करना
- (iii) कुंडली के तार की प्रतिरोधकता में वृद्धि करना

- A. केवल (i)
- B. केवल (ii)
- C. (i) और (ii) दोनों ✓
- D. (i) और (iii) दोनों



Q141 Electromagnetic induction / generator

Two coils, A and B, such that A is connected to a battery through a key and B is connected to a galvanometer, are arranged parallel and close to each other. During which of the following duration will the phenomenon of electromagnetic induction be observed?

- (a) Two minutes after closing the key.
- (b) During the interval the key is taken out.

A. Only (a)

B. Only (b)



C. Both (a) and (b)

D. Neither (a) nor (b)

Q142 Electromagnetic induction / generator

In which of the following situations will the potential difference induced in the coil be the maximum?

- (a) A bar magnet moving with a speed of 2 m/s towards a stationary coil
- (b) A coil moving with a speed of 2 m/s towards a stationary bar magnet
- (c) A coil and a bar magnet moving in the same direction with the speed of 2 m/s.
- (d) A coil and a bar magnet moving towards each other with the speed of 2 m/s.

A. (a)

B. (b)

C. (c)

D. (d)



Q143 Electromagnetic induction / generator

Consider the magnitudes and directions of the induced potential difference in the following situations:

- (a) A current-carrying straight wire moving with a speed of 1.5 m/s towards a stationary coil.
- (b) The same current-carrying straight wire moving away with a speed of 1.5 m/s from the same stationary coil.

The induced potential differences are of _____ magnitude(s) and have _____ sign(s) in the above two cases.

- A. different, opposite
- B. different, the same
- C. the same, the same
- D. the same, opposite



Q144 Electromagnetic induction / generator

In an electric generator, _____ energy is used to rotate a conductor in a _____ field to produce electricity.

- A. electrical, electric
- B. electrical, magnetic
- C. mechanical, magnetic
- D. mechanical, electric



Q145 Electromagnetic induction / generator

Consider the following statements about an electric generator:

- (a) After every half rotation, the current in the respective arms of the coil reverses its direction.
- (b) The direction of the induced current in the coil can be found using Fleming's right-hand rule.

Which of the above statements is/are correct?

- A. Neither (a) nor (b)
- B. Both (a) and (b)
- C. Only (a)
- D. Only (b)



Q146 Electromagnetic induction / generator

Induced EMF in a coil during the phenomenon of electromagnetic induction is directly proportional to:

- A. magnetic flux
- B. resistance of the circuit
- C. change in magnetic flux
- D. rate of change in magnetic flux



Q147 Electromagnetic induction / generator

In which of the following situations will there be no potential difference induced in the coil?

- (a) A bar magnet moving towards a stationary coil
- (b) A coil moving towards a stationary bar magnet
- (c) A coil and a bar magnet moving in the same direction with the same speed
- (d) A coil and a bar magnet moving towards each other with the same speed

- A. (a)
- B. (b)
- C. (c)
- D. (d)



Q148 Electromagnetic induction / generator

If the armature of an AC generator is rotated faster, then:

- A. induced potential difference decreases
- B. induced potential difference increases
- C. induced current decreases
- D. there is no change in induced current



Q149 Electromagnetic induction / generator

Fleming's right-hand rule is used to find the direction of:

- A. electric field
- B. force
- C. potential
- D. induced current



Q150 Electromagnetic induction / generator

A DC generator is based on the principle of:

- A. heating effect of current
- B. magnetic effect of current
- C. electromagnetic induction
- D. inductive effect



Q151 Electromagnetic induction / generator

Induced current is maximum when _____.

- A. coil is kept in the direction parallel to the magnetic field
- B. coil is kept in the direction perpendicular to the magnetic field
- C. direction of motion of the coil is parallel to the magnetic field
- D. direction of motion of the coil is perpendicular to the magnetic field



Q152 Electromagnetic induction / generator

A strong magnet is moved towards a stationary coil. The induced current in the coil is the maximum when the angle between the direction of motion of the magnet and the plane of the coil is _____.

- A. 15°
- B. 45°
- C. 75°
- D. 90°



Q153 Electromagnetic induction / generator

The process by which electrical energy can be produced in a coil involves:

- A. inclusion of commutator in the system
- B. magnet and coil under stationary positions
- C. relative motion of the coil and magnet ✓
- D. presence of galvanometer in the system

Q154 Electromagnetic induction / generator

The phenomenon of electromagnetic induction occurs due to:

- A. stationary positions of the magnet and coil
- B. change in magnet flux passing through coil ✓
- C. placement of galvanometer in the system
- D. connecting the system with an electromagnet

Q155 Electromagnetic induction / generator

A rectangular coil is moving in a uniform magnetic field. The direction of the magnetic field is perpendicular to the plane of the coil. If the speed of the moving coil in the magnetic field decreases, then:

- A. it will destroy the magnetic field
- B. induced potential difference increases
- C. induced potential difference decreases ✓
- D. it will strengthen the magnetic field

Q156 Electromagnetic induction / generator

Consider the magnitudes and directions of the induced potential difference in the following situations:

- (a) A magnet moving with a speed of 1 m/s with its north pole towards a stationary coil.
- (b) The same magnet moving with a speed of 1 m/s with its south pole towards the same stationary coil.

The induced potential differences are of _____ magnitude(s) and have _____ sign(s) in the above two cases

- A. the same, the same
- B. the same, opposite ✓
- C. different, the same
- D. different, opposite



Q157 Electromagnetic induction / generator

A strong magnet is moved towards a stationary coil. The induced current in the coil is the minimum when the angle between the direction of motion of the magnet and the plane of the coil is _____.

A. 0°



B. 30°

C. 60°

D. 90°

Q158 Electromagnetic induction / generator

If the induced current in the coil of a conductor of resistance $4\ \Omega$ is 1 mA, then EMF induced in the coil is:

A. 1 mV

B. 1 V

C. 4 mV



D. 4 V

Q159 Electromagnetic induction / generator

Electromagnetic induction is the phenomenon wherein:

A. a moving magnet induces an EMF in the closed loop of a conductor



B. a moving closed loop of a conductor induces an EMF in the closed loop of another conductor

C. a moving magnet exerts force on the closed loop of a conductor

D. a moving coil carrying current induces force on the magnet

Q160 Electromagnetic induction / generator

An electric generator is a device which converts:

A. mechanical energy into light energy

B. light energy into mechanical energy

C. mechanical energy into electrical energy



D. electrical energy into mechanical energy



Q161 Electromagnetic induction / generator

A straight conductor carrying current is kept along the axis of a closed circular loop of a conductor. If we change the direction of the current continuously in the straight conductor:

- A. induced current in the loop is constant
- B. induced current in the loop is zero
- C. induced current in the loop is negative
- D. induced current in the loop is not constant



Q162 Electromagnetic induction / generator

The phenomena that links current induced in a coil and change in magnetic flux is known as:

- A. electromagnetic radiation
- B. electromagnetic wave
- C. electromagnetic induction
- D. electromagnetic wave propagation



Q163 Electromagnetic induction / generator

Consider two coils, A, having larger number of turns than B, kept axially at a distance from each other. The coil A is connected to a battery and a switch and B is connected to a galvanometer. On switching on or off the circuit a DC current flows through the coil A, then deflection in the galvanometer connected to coil B can be increased by winding the core of coil B on _____.

- A. an iron rod
- B. a glass rod
- C. an ebonite rod
- D. a wooden rod



Q164 Electromagnetic induction / generator

According to Fleming's right hand rule, the direction of the motion of the conductor and the direction of the induced EMF are:

- A. the same
- B. perpendicular
- C. parallel
- D. opposite



Q165 Electromagnetic induction / generator

Which of the following is based on the principle of 'Electromagnetic induction'?

- A. The relative motion between a coil and a bar magnet induces electric current ✓
- B. An electric current produces a magnetic field
- C. The electricity produced in a glass rod
- D. The magnetic field exerts a force on a current carrying conductor

Q166 Electromagnetic induction / generator

Considering Fleming's right hand rule, the thumb indicates:

- A. the motion of the conductor ✓
- B. the magnetic force
- C. the magnetic flux
- D. the induced EMF

Q167 Electromagnetic induction / generator

Consider two coils A and B. Suppose coil A is replaced with coil B that has the number of loops 2 times as that of loop A and the rate of change of magnetic flux is constant. Determine the ratio of the initial to the final induced EMF.

- A. 1 : 2 ✓
- B. 2 : 1
- C. 2 : 3
- D. 3 : 2

Q168 Electromagnetic induction / generator

If the induced EMF in the coil of a conductor of resistance $10\ \Omega$ is -2 V , then the induced current in the coil is:

- A. 0.2 A
- B. -2 A
- C. 2 A
- D. -0.2 A ✓

Q169 Electromagnetic induction / generator

The most essential difference between a DC and an AC generator is _____.

- A. Higher voltages are generated by DC generator only
- B. Higher Voltages are generated by AC generator Only
- C. DC generator uses a commutator and AC generator uses Slip rings ✓
- D. DC generator has permanent magnet and AC has an electromagnet

Q170 Electromagnetic induction / generator

If coil A of resistance $15\ \Omega$ and coil B of resistance $5\ \Omega$ are subjected to time varying magnetic field, then the current induced in these coils are:

- A. same
- B. different ✓
- C. in the ratio 1 : 2
- D. in the ratio 1 : 1

Q171 Electromagnetic induction / generator

Dependence on the resistance R of a coil for the electromagnetically induced EMF and induced current in a coil follows:

- A. induced EMF depends on R but induced current does not
- B. induced EMF does not depend on R but induced current does ✓
- C. both are independent of R
- D. Induced EMF and induced current both depend on R

Q172 Electromagnetic induction / generator

Fleming's right hand rule gives us:

- A. the magnitude of the induced EMF
- B. the direction of the magnetic field
- C. the magnitude and the direction of the induced EMF
- D. the direction of the induced current ✓



Q173 Electromagnetic induction / generator

Suppose Rammohan has kept a cylindrical bar magnet along the axis of a circular solenoid. Now, he is rotating the magnet about the axis of the solenoid. The induced electric current in the coil will be:

- A. proportional to the number of turns in the solenoid
- B. inversely proportional to the resistance of the solenoid
- C. proportional to the length of the solenoid
- D. zero



Q174 Electromagnetic induction / generator

Fleming's Right Hand Rule can be applied only if the directions of the applied magnetic field, the motion of conductor and the induced current are mutually at _____ with respect to each other.

- A. 30°
- B. 60°
- C. 90°
- D. 45°



Q175 Electromagnetic induction / generator

The device which converts mechanical energy into electrical energy is _____.

- A. electric dynamo
- B. electric motor
- C. compass needle
- D. dry cell



Q176 Electromagnetic induction / generator

The induced current is _____ when the direction of the motion of the coil is at right angles to the magnetic field.

- A. Maximum
- B. Minimum
- C. Zero
- D. Infinity



Q177 Electromagnetic induction / generator

If a copper wire is moving through a uniform magnetic field, then the direction of the induced current can be found using the:

- A. Fleming's left hand rule
- B. Fleming's right hand rule
- C. Maxwell's right hand screw rule
- D. Maxwell's left hand screw rule



Q178 Electromagnetic induction / generator

A square-shaped coil of copper wires is rotating in a magnetic field. Then direction of the induced current in the coil changes once in each:

- A. one-fourth of the revolution of the coil
- B. one-eighth of the revolution of the coil
- C. one-half of the revolution of the coil
- D. one-sixth of the revolution of the coil



Q179 Electromagnetic induction / generator

If the forefinger indicates the direction of magnetic field and the thumb shows the direction of motion of a conductor, then the middle finger will show the direction of induced current, when the thumb, forefinger and middle finger are stretched perpendicular to each other. This is called _____.

- A. Fleming's left hand rule
- B. Fleming's right hand rule
- C. right hand thumb rule
- D. cork screw rule



Q180 Electromagnetic induction / generator

In the phenomena of electromagnetic induction, when the coil carrying current and magnetic field are stationary, the galvanometer _____.

- A. deflects right
- B. deflects left
- C. shows null deflection
- D. Shows deflection on both sides alternately



Q181 Electromagnetic induction / generator

Fleming's right hand rule gives the direction of current induced in a conductor moving in a _____.

- A. electric field
- B. magnetic field
- C. electromagnetic field
- D. gravitational field

Q182 Electromagnetic induction / generator

The direction of the induced current when the conductor is moving in the region of magnetic field is given by:

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

Q183 Electromagnetic induction / generator

The induced emf developed in a conductor when it is moved in a direction parallel to the magnetic field is _____.

- A. Infinity
- B. Maximum
- C. Minimum
- D. Zero

Q184 Electromagnetic induction / generator

For an electric generator, which of the following statement(s) are true:

- (i) Induced current can be increased by increasing the number of turns in the coil
- (ii) Induced current can be increased by increasing the speed of the coil
- (iii) Induced current can be increased by decreasing the applied magnetic field

- A. Only (i)
- B. Only (ii)
- C. Both (i) and (ii)
- D. Both (ii) and (iii)



Q185 Electromagnetic induction / generator

Consider a horse shoe magnet with its north pole towards west and south pole towards east. A conducting rod is loosely connected to a galvanometer. If this rod is now moved between the poles of the magnet vertically downwards, the direction of the induced current in it will be _____.

- A. south to north direction
- B. north to south direction
- C. east to west direction
- D. west to east direction



Q186 Electromagnetic induction / generator

The process by which a changing magnetic field in a conductor induces a potential difference that sets up an induced electric current is called _____.

- A. magnetic induction
- B. electric induction
- C. thermal induction
- D. electromagnetic induction



Q187 Electromagnetic induction / generator

A device employed to produce large currents for use in homes and industry is _____.

- A. electric motor
- B. electric kettle
- C. electric generator
- D. electric toaster



Q188 Electromagnetic induction / generator

When a magnet is moved into a coil connected to a galvanometer, the current is induced in the coil. The induced current does not depend on which of the following factor?

- A. The pole strength of the magnet
- B. Speed of movement of the magnet
- C. Resistance of the galvanometer connected in the coil
- D. Number of turns of the coil



Q189 Electromagnetic induction / generator

Among the following situations, potential difference is induced in a closed conducting coil when:

- A. a bar magnet is moved towards the closed coil only
- B. the closed coil is moved towards the bar magnet only
- C. either the bar magnet is moved towards the closed coil or the closed coil is moved towards the bar magnet ✓
- D. both the bar magnet and the closed coil are moving with same speed and in the same direction

Q190 Electromagnetism and electromagnet uses

Which of the following statements is/are correct for a current carrying solenoid?

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

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

Q191 Electromagnetism and electromagnet uses

The pattern of magnetic field lines due to a current carrying solenoid is similar to a:

- A. bar magnet ✓
- B. horseshoe magnet
- C. current carrying straight wire
- D. current carrying circular loop



Q192 Electromagnetism and electromagnet uses HINDI - no English version saved

n फेरों (turns) और प्रवाहित धारा I वाली किसी परिनालिका के अंदर उत्पन्न चुंबकीय क्षेत्र का परिमाण _____ के समानुपाती होता है।

A. nI



B. nI^2

C. n^2I

D. n^2I^2

Q193 Electromagnetism and electromagnet uses

Consider the following statements about magnetic field due to a current-carrying solenoid:

(a) The magnetic field is uniform inside the solenoid.

(b) One end of the solenoid behaves like the north pole and the other like the south pole of a bar magnet.

Which of the above statements is/are correct?

A. Both (a) and (b)



B. Neither (a) nor (b)

C. Only (a)

D. Only (b)

Q194 Electromagnetism and electromagnet uses

In a science book, two solenoids, P and Q, of the same average radius and the same length are shown. The number of field lines drawn inside Q is twice of that drawn inside P. If the number of turns in the two solenoids is the same, the current in solenoid P is _____ times the current in solenoid Q.

A. $\frac{1}{4}$

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



C. 2

D. 4



Q195 Electromagnetism and electromagnet uses

Consider the following statements about magnetic field due to a current-carrying solenoid:

- (a) The magnetic field inside the solenoid is in the form of parallel straight lines.
- (b) The strong magnetic field produced inside the solenoid can be used to magnetise a piece of a magnetic material.

Which of the above statements is/are correct?

- A. Only (a)
- B. Only (b)
- C. Neither (a) nor (b)
- D. Both (a) and (b) ☒

Q196 Electromagnetism and electromagnet uses

Which of the following will NOT affect the magnetic strength of an electromagnet?

- A. Number of turns in the coil
- B. Direction of placement of the coil ☒
- C. Current flowing through the coil
- D. Length of the metallic core

Q197 Electromagnetism and electromagnet uses

The magnetic field produced by a solenoid increases by:

- A. changing direction of solenoid
- B. changing direction of current
- C. placing soft iron core inside it ☒
- D. decreasing number of turns

Q198 Electromagnetism and electromagnet uses

An electromagnet is formed when:

- A. a current is passed through magnet
- B. a magnet is placed near current carrying conductor
- C. a current is passed through a coil wound around a soft iron core ☒
- D. a current is passed through a coil wound around a glass rod



Q199 Electromagnetism and electromagnet uses

If the number of turns in a solenoid increases, then:

- A. magnetic field increases ✓
- B. magnetic field decreases
- C. magnetic field remains constant
- D. magnetic field decreases to zero

Q200 Electromagnetism and electromagnet uses

A solenoid carrying constant current can be used as a:

- A. source of a constant magnetic field ✓
- B. source of a non-uniform magnetic field
- C. source of a light
- D. source of a mechanical energy

Q201 Electromagnetism and electromagnet uses

The magnetic field produced by the long solenoid carrying current is:

- A. uniform inside the solenoid ✓
- B. zero inside the solenoid
- C. maximum at the ends of the solenoid
- D. non-uniform inside the solenoid

Q202 Electromagnetism and electromagnet uses

Which of the following materials is best suitable for making an electromagnet ?

- A. Steel
- B. Aluminum
- C. Copper
- D. Soft iron ✓

Q203 Electromagnetism and electromagnet uses

The direction of the magnetic field produced by the current carrying solenoid is:

- A. parallel to the direction of the current
- B. perpendicular to the axis of the solenoid
- C. parallel to the axis of the solenoid
- D. parallel to the diameter of the solenoid



Q204 Electromagnetism and electromagnet uses

The magnitude of the magnetic field of a current carrying conductor increases with increase in _____.

- A. current
- B. distance
- C. resistance
- D. Resistivity



Q205 Electromagnetism and electromagnet uses

Direction of the magnetic field produced by the straight conductor carrying current in the east direction is along the _____ direction

- A. north
- B. west
- C. south
- D. east



Q206 Electromagnetism and electromagnet uses

Which of the following rules or laws correctly describe the direction of force, magnetic field and current at the same instant?

- A. Palm rule
- B. Right hand thumb rule
- C. Fleming's left hand rule
- D. Ampere's circuital law



Q207 Electromagnetism and electromagnet uses

The field produced by n turns of a coil is _____ times that of a single turn.

A. n



B. n^2

C. $1/n$

D. $1/n^2$

Q208 Electromagnetism and electromagnet uses

The polarity of an electromagnet can be reversed by changing the _____.

A. direction of current



B. number of turns in the electromagnet

C. distance between the turns

D. magnitude of the current flowing through it

Q209 Electromagnetism and electromagnet uses

If two parallel straight conductors are carrying current in the same direction, then the directions of the magnetic fields produced will be:

A. in the same direction

B. opposite to each other



C. perpendicular to each other

D. in random directions

Q210 Electromagnetism and electromagnet uses

According to right hand thumb rule, _____ represent(s) the direction of current.

A. the thumb



B. the middle finger

C. the little finger

D. the fore finger



Q211 Electromagnetism and electromagnet uses

Which of the following is/are the correct conclusion(s) from Oersted's experiment?

- (a) A magnetic compass needle placed along the side of a current carrying conductor deflects
- (b) A current carrying conductor will produce magnetic field around it.
- (c) The direction of deflection of the compass needle placed along the side of a current carrying conductor does not change with reversal in the direction of current.

A. Only (a) and (b) are correct



B. Only (b) and (c) are correct

C. Only (c) and (a) are correct

D. (a), (b) and (c) are correct

Q212 Household Wiring & Safety

The common domestic power supplied in India is given by which of the following?

A. 110V, 60 Hz

B. 220V, 50Hz



C. 110V, 50Hz

D. 220V, 100Hz

Q213 Household Wiring & Safety

A 2KW AC is to be used on a 250 V a.c. mains for which a 3-pin top plug fitted to a cable is required. Which of the following option is **NOT** correct:

A. The neutral wire is coloured Black

B. A fuse should be connected in the live wire

C. The green wire is for earth pin connection

D. The appropriate value of fuse to be used is 12 A



Q214 Household Wiring & Safety

The fuse used for domestic purpose is rated in the range of _____.

A. 1 Ampere – 10 Ampere



B. 100 Ampere – 200 Ampere

C. 500 Ampere – 1000 Ampere

D. 1000 Ampere – 2000 Ampere



Q215 Magnetic Effects of Current

The magnetic field produced due to a circular coil carrying a current having six turns will be how many times that of the field produced due to a single circular loop carrying the same current?

- A. 2 times
- B. 4 times
- C. 6 times
- D. 8 times



Q216 Magnetic Effects of Current

The current through horizontal straight wire flows from west to east. The direction of the magnetic field lines as viewed from the east end will be:

- A. clockwise in a plane perpendicular to the wire
- B. anticlockwise in a plane perpendicular to the wire
- C. clockwise in the plane of the wire
- D. anticlockwise in the plane of the wire



Q217 Magnetic Effects of Current

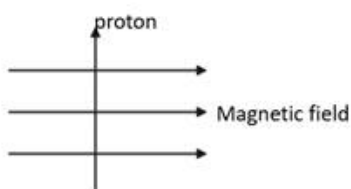
The direction of a magnetic field due to a straight current carrying conductor can be determined using:

- A. right hand thumb rule
- B. left hand thumb rule
- C. Fleming's right-hand rule
- D. Fleming's left-hand rule



Q218 Magnetic Effects of Current

A proton is projected into a magnetic field as shown in the figure, the direction of force experienced by it is :



- A. in the direction of motion of proton
- B. against the direction of motion of proton
- C. into the plane of paper
- D. outside the plane of paper



Q219 Magnetic Effects of Current

Which of the following method(s) can be used to change the direction of force on a current carrying conductor?

- (i) Changing the magnitude of current
- (ii) Changing the strength of magnetic field
- (iii) Changing the direction of current

A. Only (i)

B. Only (iii)



C. Both (i) and (iii)

D. Both (ii) and (iii)

Q220 Magnetic Effects of Current

Consider the following statements about magnetic field due to a current-carrying straight conductor:

- (a) The magnetic field at a distance r from the wire is in the form of a concentric circle.
- (b) The radius of the concentric circle increases as the distance from the conductor increases.

Which of the above statements is/are correct?

A. Neither (a) nor (b)

B. Both (a) and (b)



C. Only (b)

D. Only (a)

Q221 Magnetic Effects of Current

Magnetic field lines around the current carrying circular loop are:

A. perpendicular to conductor

B. parallel lines

C. semi-circular

D. concentric circles



Q222 Magnetic Effects of Current

Consider the following statements about the force acting on a current-carrying straight conductor placed in a magnetic field:

- (a) The direction of the force remains the same even when the direction of magnetic field is reversed.
- (b) The direction of the force can be determined using Fleming's left-hand rule.

Which of the above statements is/are correct?

- A. Both (a) and (b)
- B. Neither (a) nor (b)
- C. Only (b)**
- D. Only (a)

Q223 Magnetic Effects of Current

Magnetic field lines around a straight conductor carrying a current will always be:

- A. parallel to the direction of current
- B. parallel to the length of the conductor
- C. perpendicular to the direction of current**
- D. intersecting each other

Q224 Magnetic Effects of Current

Magnetic field lines can NEVER be:

- A. parallel to each other
- B. perpendicular to each other**
- C. uniformly distributed
- D. non uniformly distributed

Q225 Magnetic Effects of Current

The direction of the force acting on a current carrying conductor in the presence of a magnetic field depends on:

- A. the direction of the current alone
- B. the direction of the magnetic field alone
- C. the direction of both, the magnetic field and the current**
- D. neither the direction of the current nor the direction of the magnetic field



Q226 Magnetic Effects of Current

Suppose a proton moves towards the east by entering a uniform magnetic field in the downward direction. The direction of the force acting on the proton will be:

- A. towards the east
- B. towards the west
- C. towards the north
- D. towards the south



Q227 Magnetic Effects of Current

The strength of magnetic field inside a long current-carrying straight solenoid is:

- A. the maximum at the middle
- B. the minimum at the centre
- C. more at the end than the centre
- D. uniform at all points inside the solenoid



Q228 Magnetic Effects of Current

The circumference of magnetic field lines _____ as we move away from a current carrying a straight conductor.

- A. increases
- B. Decreases
- C. become zero
- D. remains the same



Q229 Magnets and properties / magnetic field

Which of the following situations is/are possible?

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

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



Q230 Magnets and properties / magnetic field

Which of the following statements is/are correct?

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

A. Only (i)

B. Only (ii)

C. Both (i) and (ii)

D. Both (ii) and (iii)



Q231 Magnets and properties / magnetic field

In which direction does a freely suspended bar magnet point?

A. Geographical South- Geographical East

B. Geographical North- Geographical West

C. Geographical South- Geographical West

D. Geographical North- Geographical South



Q232 Magnets and properties / magnetic field

The magnetic field lines inside a bar magnet are directed from:

A. north pole to south pole

B. south pole to north pole

C. centre to north pole

D. centre to south pole



Q233 Magnets and properties / magnetic field

The magnetic field strength inside a current carrying solenoid is:

A. zero

B. uniform and non-zero

C. more at ends and less at centre

D. less at ends and more at centre



Q234 Magnets and properties / magnetic field

Identify the INCORRECT statement from among the following.

- A. Outside a bar magnet, the magnetic field lines are directed from north to south pole.
- B. A freely suspended bar magnet points in north-south direction.
- C. Repulsion is a sure test of magnetism.
- D. A number of field lines intersect at a given point inside a magnetic field. ✓

Q235 Magnets and properties / magnetic field

Identify the correct statement(s) from among the following.

- (a) The direction of magnetic field at a point can be found by placing a magnetic compass at that point.
- (b) A freely suspended magnetic needle points in north-east direction.
- (c) The magnetic field lines are denser near the poles of a magnet.
- (d) Two magnetic field lines can intersect at a given point.

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

Q236 Magnets and properties / magnetic field

Which of the following property/properties are correct for the magnetic field lines around a bar magnet:

- (i) Magnetic field lines form closed loops
- (ii) Magnetic field lines do not intersect
- (iii) Outside the magnet, magnetic field lines go from south to north pole of the magnet.

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



Q237 Magnets and properties / magnetic field

Which of the following properties are a sure test for magnetism?

- (a) Attractive property
- (b) Repulsive property
- (c) Directive property

A. Both (a) and (b)

B. Both (b) and (c)



C. Both (a) and (c)

D. (a), (b) and (c)

Q238 Magnets and properties / magnetic field

Consider the following statements about magnetic field due to a current-carrying straight conductor:

- (a) The direction of the south pole of a compass needle at a point gives the direction of the magnetic field at that point.
- (b) The direction of the magnetic field lines gets reversed if the direction of the current in the conductor is reversed.

Which of the above statements is/are correct?

A. Only (a)

B. Only (b)



C. Neither (a) nor (b)

D. Both (a) and (b)

Q239 Magnets and properties / magnetic field

The magnitude of the magnetic field due to a current-carrying circular coil varies with the number of turns n as _____.

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

B. $\frac{1}{n^2}$

C. n



D. n^2



Q240 Magnets and properties / magnetic field

Consider the following statements about magnetic field due to a bar magnet:

- (a) The field lines inside a bar magnet are directed from its south pole to the north pole.
- (b) The magnetic field lines exist only outside the bar magnet.

Which of the above statements is/are correct?

A. Both (a) and (b)

B. Neither (a) nor (b)

C. Only (a)



D. Only (b)

Q241 Magnets and properties / magnetic field

The magnetic field around a current carrying conductor:

A. increases with increase in distance

B. remains constant with increase in distance

C. decreases with increase in distance



D. is unaffected by any variation in distance

Q242 Magnets and properties / magnetic field

Magnetic field lines at north pole of a magnet are:

A. parallel lines

B. lines emerging from the pole



C. lines merging at the pole

D. intersecting lines

Q243 Magnets and properties / magnetic field

The area around a magnet in which force is exerted by the magnet is called:

A. pole

B. magnetic lines

C. magnetic field



D. magnetic material



Q244 Magnets and properties / magnetic field

A science book depicts magnetic field lines around two bar magnets marked A and B. In A, six lines enter into its south pole, and from B, three lines emerge from its north pole. The strength of A is _____ that of B.

- A. is the same as
- B. four times
- C. twice
- D. half



Q245 Magnets and properties / magnetic field

Consider the following statements about magnetic field of a Bar Magnet

- (a) It has magnitudes and directions both.
- (b) Magnetic field lines are closed curves.

Which of the above statements is/are correct?

- A. Only (a)
- B. Only (b)
- C. Both (a) and (b)
- D. Neither (a) nor (b)



Q246 Magnets and properties / magnetic field

Consider the following statements about magnetic field due to a bar magnet:

- (a) There is no field inside the bar magnet.
- (b) The field lines inside the bar magnet are directed from its north pole to the south pole.

Which of the above statements is/are correct?

- A. Only (a)
- B. Only (b)
- C. Neither (a) nor (b)
- D. Both (a) and (b)



Q247 Magnets and properties / magnetic field

A current carrying wire is placed horizontally in a magnetic field with north pole in upward and south pole in downward direction. The wire is deflected towards south direction. The direction of electrons in the wire is:

- A. east to west
- B. west to east
- C. north to south
- D. south to north



Q248 Magnets and properties / magnetic field

The part of the magnet from where magnetic field lines emerge is known as:

- A. middle of the magnet
- B. north pole
- C. south pole
- D. north and south pole



Q249 Magnets and properties / magnetic field

Select the INCORRECT statement related to magnetic field lines outside a bar magnet.

- A. Field lines intersect each other.
- B. Field lines do not intersect each other.
- C. Field lines emerge from north pole.
- D. Field lines merge at south pole.



Q250 Magnets and properties / magnetic field

Magnetic field lines inside a solenoid are in the form of:

- A. spiral
- B. curved lines
- C. parallel lines
- D. intersecting lines



Q251 Magnets and properties / magnetic field

The magnitudes of the magnetic field at a point at distance r from a straight conductor carrying current I , $2I$ and $3I$, one by one, are B_1 , B_2 and B_3 , respectively. Which of the following relations is correct?

- A. $B_1 > B_2 > B_3$
- B. $B_2 > B_3 > B_1$
- C. $B_3 > B_2 > B_1$ ✓
- D. $B_1 = B_2 = B_3$

Q252 Magnets and properties / magnetic field

When a bar magnet is used as a source of constant magnetic field, the direction of the magnetic field is:

- A. from south pole to the north pole of the magnet
- B. from north pole to the south pole of the magnet ✓
- C. normal to the length of the magnet
- D. normal to the south pole of the magnet

Q253 Magnets and properties / magnetic field

Magnetic field lines never cross each other. This fact implies that the magnetic field always have _____.

- A. multiple values at any point in space
- B. a unique value at any point in space ✓
- C. double values at any point in space
- D. triple values at any point in space

Q254 Magnets and properties / magnetic field

A magnetic compass consists of:

- A. a tiny magnetic needle attached to an aluminium pointer ✓
- B. an aluminium pointer alone
- C. a coil of a conductor
- D. a coil carrying conductor



Q255 Magnets and properties / magnetic field

Magnetic field lines appear to move inside a bar magnet from

- A. middle to all sides
- B. middle to the north pole only
- C. south pole to north pole
- D. north pole to south pole



Q256 Magnets and properties / magnetic field

The magnetic field lines _____.

- A. do not cross each other
- B. intersect each other at an angle of 45°
- C. intersect each other at an angle of 60°
- D. intersect each other at an angle of 90°



Q257 Magnets and properties / magnetic field

The magnetic field lines produced by a bar magnet _____.

- A. originate from its north pole and end at its east pole
- B. originate from its south pole and end at its east pole
- C. originate from its north pole and end at its south pole
- D. originate from its south pole and end at its north pole



Q258 Magnets and properties / magnetic field

The direction of a magnetic field can be obtained from the _____ drawn at any point of the magnetic lines of force.

- A. slope
- B. tangent
- C. secant
- D. subtangent



Q259 Magnets and properties / magnetic field

The magnetic field produced by a current carrying conductor decreases as the _____ increases.

- A. current
- B. distance
- C. voltage
- D. resistance



Q260 Magnets and properties / magnetic field

The compass needle gets deflected when it is brought near to a bar magnet because it _____.

- A. carries current
- B. is an iron rod
- C. is a tiny magnet
- D. is a conductor



Q261 Magnets and properties / magnetic field

From the following, identify the correct properties of magnetic field lines.

- (a) Magnetic field lines are closed loops.
- (b) Magnetic field lines are from north pole of magnet to its south pole, outside the magnet.
- (c) Magnetic field lines intersect each other.
- (d) If magnetic field lines are crowded, the magnetic field strength in that region is high.
- (e) The number of magnetic field lines per unit area is called magnetic flux.

- A. (a), (b), (d)
- B. (b), (c), (e)
- C. (a), (c), (d)
- D. (a), (b), (c) and (d)



Q262 Magnets and properties / magnetic field

Magnetic field lines are _____.

- A. straight lines
- B. open loops
- C. closed curves
- D. Dots



Q263 Magnets and properties / magnetic field

The presence of a magnetic field can be determined by _____.

- A. an ammeter
- B. a voltmeter
- C. a galvanometer
- D. a magnetic needle



Q264 Ohm law ($V=IR$)

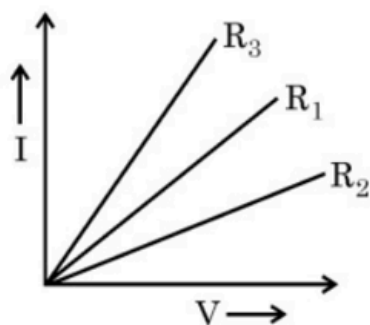
Which of the following relations represents the correct mathematical form of Ohm's law?

- A. $R = I/V$
- B. $I = R/V$
- C. $I = V^2R$
- D. $V = IR$



Q265 Ohm law ($V=IR$)

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



A. $R_1 > R_2 > R_3$

B. $R_1 < R_2 < R_3$

C. $R_3 < R_1 < R_2$ ✓

D. $R_3 > R_1 > R_2$

Q266 Ohm law ($V=IR$)

A potential difference of 5 V when applied across a conductor produces a current of 2.5 mA. The resistance of the conductor (in Ω) is:

A. 2

B. 20

C. 200

D. 2000 ✓

Q267 Ohm law ($V=IR$)

A current of 2.5 mA flows through a conductor having resistance $2\ \Omega$. The potential difference across the ends of the conductor is:

A. 1.25 V

B. 1.25 mV

C. 5 V

D. 5 mV ✓



Q268 Ohm law ($V=IR$)

A current of 5 A flows through an electrical appliance when the potential difference of 50 V is applied across its terminals. What will be the current drawn by the appliance if the potential difference is increased to 110 V?

- A. 5 A
- B. 10 A
- C. 11 A
- D. 25 A



Q269 Ohm law ($V=IR$)

A current of 5 A flows through a conductor having resistance $2\ \Omega$. The potential difference (in volt) across the ends of the conductor is:

- A. 2.5
- B. 3
- C. 7
- D. 10



Q270 Ohm law ($V=IR$)

The potential difference across a copper wire is 2.0 V when a current of 0.4 A flows through it. The resistance of the wire is:

- A. $0.2\ \Omega$
- B. $0.5\ \Omega$
- C. $2.5\ \Omega$
- D. $5.0\ \Omega$



Q271 Ohm law ($V=IR$)

A battery is connected to a conductor, and a current I passes through it. If the resistance of the conductor is made four times, the current _____.

- A. becomes $\left(\frac{I}{4}\right)$
- B. becomes $\left(\frac{I}{2}\right)$
- C. becomes $4I$
- D. remains I



Q272 Ohm law ($V=IR$)

A conductor is connected to a battery of 2V. Let V_1 be the potential difference across the conductor. When a battery of 4 V is connected, the potential difference becomes V_2 . The ratio(V_1/V_2) is:

A. $\frac{1}{4}$

B. $\frac{1}{2}$ ✓

C. 2

D. 4

Q273 Ohm law ($V=IR$)

The potential difference across a copper wire is 5.0 V when a current of 0.5 A flows through it. The resistance of the wire is:

A. 2.5Ω

B. 5.0Ω

C. 0.1Ω

D. 10.0Ω ✓

Q274 Ohm law ($V=IR$)

When a 24 V potential is applied across a conductor and 96 mA current is flowing through it then the resistance of the conductor is:

A. 40Ω

B. 0.250Ω

C. 0.04Ω

D. 250Ω ✓

Q275 Ohm law ($V=IR$)

A conductor is connected to a battery of 6V. Let V_1 be the potential difference across the conductor. When a battery of 9 V is connected, the potential difference becomes V_2 . (V_1/V_2) is:

A. 1.5

B. $\frac{1}{3}$

C. $\frac{2}{3}$ ✓

D. 3



Q276 Ohm law ($V=IR$)

The Resistance of a conductor is:

- A. The ratio of I and V
- B. The product of I and V
- C. The ratio of V and I ✓
- D. The Difference of V and I

Q277 Ohm law ($V=IR$)

If the resistance of a conductor is $4.2\ \Omega$ and 220 V is applied across it then the current passing through the conductor is:

- A. 924 ampere
- B. 52.38 ampere ✓
- C. 5238 ampere
- D. 0.02 ampere

Q278 Ohm law ($V=IR$)

If current is doubled and potential difference is reduced to half, then _____.

- A. resistance will be doubled
- B. resistance will be halved
- C. resistance will become four times
- D. resistance will become one-fourth ✓

Q279 Ohm law ($V=IR$)

When a graph is plotted between V and I:

- A. a curved graph is obtained
- B. a horizontal straight line is obtained
- C. an inclined straight line is obtained ✓
- D. a vertical straight line is obtained



Q280 Ohm law ($V=IR$)

On increasing the potential difference applied across a conductor at constant temperature, _____

- A. current decreases
- B. current increases
- C. current remains constant
- D. current becomes zero

Q281 Ohm law ($V=IR$)

Which of the following is an INCORRECT relation between V , I and R ?

- A. $R = \frac{V}{I}$
- B. $V = \frac{R}{I}$
- C. $V = IR$
- D. $I = \frac{V}{R}$

Q282 Ohm law ($V=IR$)

If a constant current of 2 A is maintained in a conductor of resistance $100\ \Omega$, then the potential difference across the conductor is:

- A. 200 V
- B. 50 V
- C. 0.02 V
- D. 20 V

Q283 Ohm law ($V=IR$)

Ashutosh plotted Voltage against Current for two Ohmic conductors and found that the slopes of these two conductors are 10 and 50, respectively. If the same 20 V battery is connected across these two Ohmic wires separately, what will be the ratio of the current flow in these two wires?

- A. 5 : 4
- B. 5 : 3
- C. 5 : 2
- D. 5 : 1



Q284 Ohm law ($V=IR$)

Suppose a current of 0.05 A is passing through a wire of resistance R when the voltage across the resistor is 10 V. What current will pass through this wire when the voltage across it is 20 V?

- A. 0.01 A
- B. 0.1 A
- C. 0.02 A
- D. 0.2 A



Q285 Ohm law ($V=IR$)

A current of 15 mA is flowing through an electronic device when the voltage across the device is 0.3 mV. The resistance of the device is:

- A. 0.2 $m\Omega$
- B. 2.0 $m\Omega$
- C. 20 $m\Omega$
- D. 200 $m\Omega$



Q286 Ohm law ($V=IR$)

A constant current of 0.1 A is passed through a copper wire by applying potential difference of 3 V across the wire. The resistance of the wire is:

- A. 0.3 Ω
- B. 30 Ω
- C. 0.033 Ω
- D. 3 Ω



Q287 Ohm law ($V=IR$)

The shape of the voltage-current graph for a conductor is _____.

- A. linear
- B. exponential
- C. Parabolic
- D. zig-zag



Q288 Ohm law ($V=IR$)

The mathematical form of Ohm's law is represented as _____. (Here V = potential difference, I = current flowing through a conductor and R = Resistance.)

A. $V = I/R$

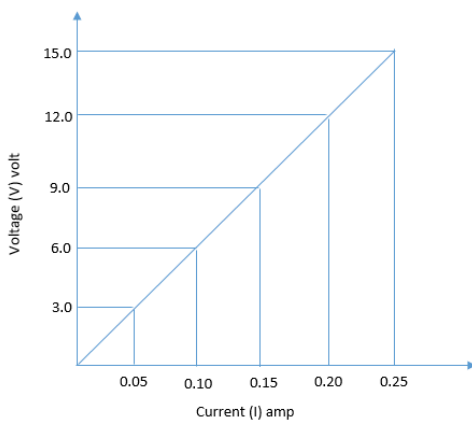
B. $I = V/R$ ✓

C. $I = R/V$

D. $I=R^2/V$

Q289 Ohm law ($V=IR$)

Find the resistance of the conductor using the given graph.



A. 60 ohm ✓

B. 0.016 ohm

C. 0.24 ohm

D. 600 ohm

Q290 Ohm law ($V=IR$)

A 12 V battery is connected across an unknown resistor. If a current of 2 mA is flowing through the circuit, the value of the resistance is _____.

A. 6 ohm

B. 60 ohm

C. 600 ohm

D. 6000 ohm ✓



Q291 Ohm law ($V=IR$)

A 12 V battery is connected across a resistor of resistance R . If a current of 2.4 mA flows through the circuit, then the value of R is _____ ohm.

- A. 2×10^{-4}
- B. 2×10^{-4} milli
- C. 5000 ☒
- D. 5000 milli

Q292 Resistance and factors affecting it

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

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

Q293 Resistance and factors affecting it

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

- A. $R/2$ ☒
- B. $R/4$
- C. R
- D. $2R$

Q294 Resistance and factors affecting it

The resistivity of a material is dependent on which of the following factors?

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



Q295 Resistance and factors affecting it

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

A. $\frac{3}{2}R$



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

C. $\frac{1}{2}R$

D. $3R$

Q296 Resistance and factors affecting it

A metallic wire having resistivity ρ is cut into four equal parts. The resistivity of each part is:

A. $\rho/2$

B. $\rho/4$

C. ρ



D. 4ρ

Q297 Resistance and factors affecting it

The resistance of a conductor is NOT dependent on:

A. current flowing through the conductor



B. temperature of the conductor

C. length of the conductor

D. area of cross section of the conductor

Q298 Resistance and factors affecting it

The resistance of a conductor is directly proportional to:

A. area of cross section of the conductor

B. length of the conductor



C. current flowing through the conductor

D. potential difference applied across the conductor



Q299 Resistance and factors affecting it

Which of the following statements is/are correct?

- (A) Resistance is independent of temperature.
- (B) The more the voltage across a conductor, the more is the resistance.
- (C) The S.I unit of resistance is ohm.

A. Only A

B. Only C



C. Both A and B

D. Both A and C

Q300 Resistance and factors affecting it

Identify the correct statement(s) from among the following.

- (a) Resistivity of a material is dependent on the nature of the material.
- (b) Resistivity of a material is independent of the area of cross section.
- (c) Resistivity of a pure metal is more than its alloy.

A. Only (a)

B. Only (b)

C. Both (a) and (b)



D. Both (b) and (c)

Q301 Resistance and factors affecting it HINDI - no English version saved

L लंबाई और A अनुप्रस्थ काट के क्षेत्रफल वाले एक तार का प्रतिरोध 0.5Ω है। समान पदार्थ से निर्मित, समान लंबाई (L) और 2A अनुप्रस्थ काट के क्षेत्रफल वाले तार का प्रतिरोध _____ होगा।

A. 1.0Ω

B. 0.25Ω



C. 0.5Ω

D. 4.0Ω



Q302 Resistance and factors affecting it

The resistance of a wire of length L and area of cross-section A is 0.2Ω . The resistance of a wire of the same material, but of length $2L$ and area of cross-section $4A$ will be:

A. 0.1Ω



B. 0.2Ω

C. 0.4Ω

D. 10Ω

Q303 Resistance and factors affecting it

Which of the following has the maximum electrical resistivity?

Silver, Copper, Iron, Nichrome

A. Copper

B. Nichrome



C. Iron

D. Silver

Q304 Resistance and factors affecting it HINDI - no English version saved

L लंबाई और R प्रतिरोध वाले एक तार को इस प्रकार पुनर्निर्मित किया जाता है कि इसकी लंबाई में 25% की वृद्धि होती है, और इसके आयतन में कोई परिवर्तन नहीं होता है। नए तार का प्रतिरोध _____ होगा।

A. $\left(\frac{4}{5}\right) R$

B. $\left(\frac{16}{25}\right) R$

C. $\left(\frac{5}{4}\right) R$

D. $\left(\frac{25}{16}\right) R$



Q305 Resistance and factors affecting it

Three wires, A, B and C, of the same length and the same thickness have resistances of 1Ω , 0.5Ω and 0.25Ω , respectively. Their resistivities are _____.

A. in the ratio of $4 : 2 : 1$



B. in the ratio of $1 : 2 : 4$

C. in the ratio of $2 : 4 : 1$

D. equal



Q306 Resistance and factors affecting it

Consider two wires, A and B, of same thickness but lengths L and $4L$, respectively. If the resistances of A and B are $0.5\ \Omega$ and $2.0\ \Omega$, respectively, the ratio of the resistivity of A to the resistivity of B is:

A. $\frac{1}{4}$

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

C. 1



D. 4

Q307 Resistance and factors affecting it

The resistance of a wire of length L and area of cross-section A is $1.0\ \Omega$. The resistance of a wire of the same material, but of length $4L$ and area of cross-section $5A$ will be:

A. $0.4\ \Omega$

B. $0.8\ \Omega$



C. $1.25\ \Omega$

D. $2.5\ \Omega$

Q308 Resistance and factors affecting it

Which of the following has NO effect on the resistance of a conductor?

A. Length

B. Thickness

C. Temperature

D. Shape



Q309 Resistance and factors affecting it

Resistivity of material depends on _____.

A. pressure

B. temperature



C. length

D. thickness



Q310 Resistance and factors affecting it

Three wires, A, B and C, of the same length and the same thickness have resistances of $0.5\ \Omega$, $0.2\ \Omega$ and $1.0\ \Omega$, respectively. Their resistivities are _____.

- A. equal
- B. in the ratio of 2 : 5 : 10
- C. in the ratio of 5 : 2 : 10
- D. in the ratio of 10 : 5 : 2



Q311 Resistance and factors affecting it

Consider two wires, A and B, of same thickness but lengths L and $5L$, respectively. If the resistances of A and B are $1.0\ \Omega$ and $2.5\ \Omega$, respectively, the ratio of the resistivity of A to the resistivity of B is:

- A. $\frac{1}{2}$
- B. 1
- C. 2
- D. 5

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q312 Resistance and factors affecting it

The tendency of conductor to oppose the flow of current is:

- A. Power
- B. resistance
- C. electric potential
- D. conductance



Q313 Resistance and factors affecting it

Wires of copper, silver, nichrome and glass are made having similar length and diameter. Which will have the highest resistance?

- A. Copper
- B. Silver
- C. Glass
- D. Nichrome



Q314 Resistance and factors affecting it

If the length of a conductor is increased five times, keeping material and thickness same, its resistance will

- A. become double
- B. remain same
- C. become one-fifth of the original
- D. become five times of the original



Q315 Resistance and factors affecting it

Resistance of a conducting wire is 15 ohm. If another wire of the same material and length but having one-third radius is taken, then the resistance of the second wire will be _____.

- A. 5 ohm
- B. 45 ohm
- C. 135 ohm
- D. 60 ohm



Q316 Resistance and factors affecting it

The resistance of a wire of length L and area of cross-section A is $0.4\ \Omega$. The resistance of a wire of the same material, of the same length (L) and area of cross-section $4A$ will be:

- A. $1.6\ \Omega$
- B. $0.8\ \Omega$
- C. $0.2\ \Omega$
- D. $0.1\ \Omega$



Q317 Resistance and factors affecting it

The resistance of a conductor remains almost unaffected by change in temperature. This conductor is made of:

- A. silver
- B. manganin
- C. nickel
- D. aluminium



Q318 Resistance and factors affecting it

If the length of the wire is doubled and cross section area of the wire is halved then the resistivity of the material is:

- A. doubled
- B. halved
- C. unchanged
- D. increased by 4 times



Q319 Resistance and factors affecting it

If three wires of tungsten, manganin and hard rubber are identical in dimension then resistance of _____.

- A. Tungsten is highest
- B. Manganin is highest
- C. Hard rubber is least
- D. Tungsten is least



Q320 Resistance and factors affecting it

Consider a wire of resistance $10\ \Omega$. If there is another wire of the same material and the same length as the previous one, but the cross-sectional area is double, then the resistance of the new wire is:

- A. $20\ \Omega$
- B. $10\ \Omega$
- C. $7.5\ \Omega$
- D. $5\ \Omega$



Q321 Resistance and factors affecting it

The resistance of a metal wire of length 1 m is $50\ \Omega$ at $30\ ^\circ\text{C}$. Suppose the diameter of the wire is 0.3 mm. Now another wire has the same material and the same length (at $30\ ^\circ\text{C}$), but the diameter is increased to 0.6 mm. The resistance of the new wire is:

- A. $120.5\ \Omega$
- B. $20.5\ \Omega$
- C. $12.5\ \Omega$
- D. $2.5\ \Omega$



Q322 Resistance and factors affecting it

The resistivity of the material of wire having resistance $0.7\ \Omega$, length 1 m and diameter 0.2 mm is:

- A. $0.22 \times 10^{-8}\ \Omega\text{m}$
- B. $22 \times 10^{-8}\ \Omega\text{m}$
- C. $220 \times 10^{-8}\ \Omega\text{m}$
- D. $2.2 \times 10^{-8}\ \Omega\text{m}$ ✓

Q323 Resistance and factors affecting it

Which of the following quantities affects the electrical resistivity of a given metallic wire?

- A. Thickness of the wire
- B. Shape of the wire
- C. Nature of the material of the wire ✓
- D. Number of turns of the wire

Q324 Resistance and factors affecting it

The value of resistance gets doubled if its length is _____ (keeping other parameters constant).

- A. doubled ✓
- B. halved
- C. squared
- D. unaltered

Q325 Resistance and factors affecting it

_____ is a device used for varying the resistance of an electrical circuit.

- A. Voltmeter
- B. Ammeter
- C. Rheostat ✓
- D. Galvanometer

Q326 Resistance and factors affecting it

Resistance is represented by _____.

A. $\text{work done} / (\text{charge} \times \text{current})$ ✓

B. $\text{work done} / \text{charge}$

C. $\text{work done} / \text{current} \times \text{time}$

D. $\text{work done} \times \text{time}$

Q327 Resistance and factors affecting it

The resistance of a wire of length l , radius r , and resistivity ρ is _____.

A. $R = \frac{\rho l}{\pi r^2}$ ✓

B. $R = \frac{\rho l}{4\pi r^2}$

C. $R = \frac{\rho l}{4\pi r}$

D. $R = \frac{\rho l}{2\pi r}$

Q328 Resistance and factors affecting it

A material of length l and area of cross section A has a resistance R . What should be changes in the area of cross section A if its length is tripled to produce the same resistance R ?

A. The area of cross section should be decreased by 3 times.

B. The area of cross section should be increased by 3 times. ✓

C. The area of cross section should be decreased by 9 times.

D. The area of cross section should be increased by 9 times.

Q329 Resistance and factors affecting it

The length of a conducting wire is 1 km and its radius of cross section is 7 mm. A resistor of resistance $10\ \Omega$ is made out of this wire. The resistivity of this conductor will be _____.

A. $2.22 \times 10^{-6}\ \Omega\text{-m}$

B. $1.54 \times 10^{-6}\ \Omega\text{-m}$ ✓

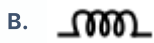
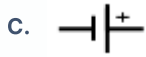
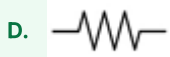
C. $7 \times 10^{-6}\ \Omega\text{-m}$

D. $1 \times 10^{-6}\ \Omega\text{-m}$



Q330 Resistance and factors affecting it

The symbol for resistance (R) is denoted with _____.



Q331 Resistance and factors affecting it

The resistance of a conductor is directly proportional to its _____.

A. area of cross section

B. length



C. temperature

D. volume

Q332 Resistance and factors affecting it

If the length of a conductor is doubled and the area of cross section is halved, the resistance will be _____.

A. four times of its original value



B. half of its original value

C. unaltered

D. eight times of its original value

Q333 Resistance and factors affecting it

Which of the following statements is true?

A. The resistance of a material is directly proportional to its length.



B. The resistance of a material is directly proportional to the area of cross section.

C. The resistance of a material is directly proportional to the radius of the wire.

D. The resistance of a material is inversely proportional to the length of the wire.



Q334 Resistance and factors affecting it

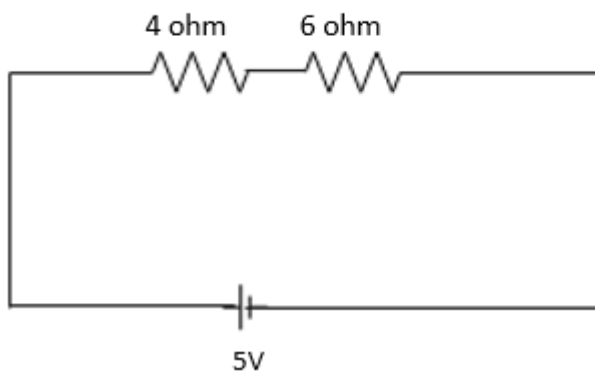
A copper wire has radius 0.5 mm and length 100 m. If the resistivity of the material is $2.5 \times 10^{-8} \text{ ohm-m}$, then the resistance of the wire is _____.

- A. $1000 / \pi \text{ ohm}$
- B. $10 \pi \text{ ohm}$
- C. $1000 \pi \text{ ohm}$
- D. $10 / \pi \text{ ohm}$



Q335 Series and parallel circuits

The potential drop across the 4Ω resistor in the given circuit is:

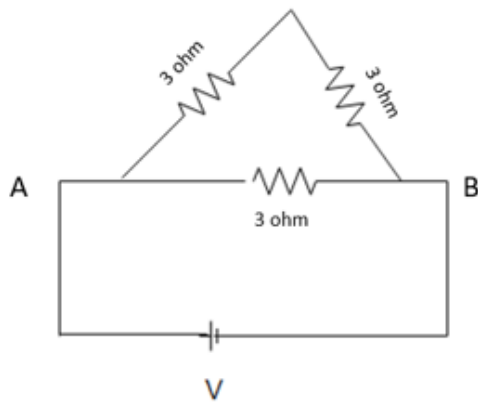


- A. 2 V
- B. 3 V
- C. 5 V
- D. 0.5 V



Q336 Series and parallel circuits

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



A. $2\ \Omega$



B. $9\ \Omega$

C. $4.5\ \Omega$

D. $6\ \Omega$

Q337 Series and parallel circuits

To connect a number of resistors in parallel can be considered equivalent to:

A. increasing cross sectional area of the conductor



B. decreasing cross sectional area of the conductor

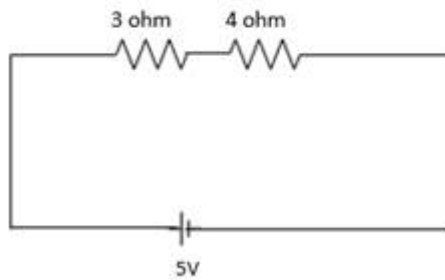
C. increasing length of the conductor

D. increasing resistance of the conductor



Q338 Series and parallel circuits

The current across the 3 ohm resistance in the given circuit is:



A. $7/5$ A

B. $5/7$ A



C. $3/5$ A

D. $5/3$ A

Q339 Series and parallel circuits

A metallic wire of resistance $100\ \Omega$ is bent into a circle having circumference equal to the length of the wire. The equivalent resistance between two diametrically opposite points of the circle is:

A. $25\ \Omega$



B. $50\ \Omega$

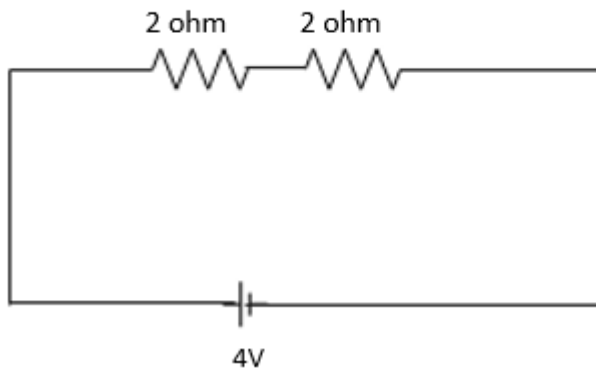
C. $75\ \Omega$

D. $100\ \Omega$



Q340 Series and parallel circuits

Calculate the total current in the circuit given below:



A. 1A



B. 2A

C. 4A

D. 8A

Q341 Series and parallel circuits

Two resistors of $4\ \Omega$ each are connected in parallel to a 5 V battery source. The total current in the circuit is:

A. 2.5 A



B. 5 A

C. 10 A

D. 20 A

Q342 Series and parallel circuits

A $2\ \Omega$ resistance is connected to a $4\ \Omega$ resistance in series. Their equivalent resistance will be:

A. $6\ \Omega$



B. $3/4\ \Omega$

C. $4/3\ \Omega$

D. $1\ \Omega$



Q343 Series and parallel circuits

Two resistors R_1 and R_2 with resistances $2\ \Omega$ and $3\ \Omega$, respectively, are connected in series to a 15V battery source. The current across R_2 (in A) is:

A. 3



B. 7.5

C. 5

D. 15

Q344 Series and parallel circuits

Three resistors of $9\ \Omega$ each are connected in parallel. Their equivalent resistance is:

A. $27\ \Omega$

B. $18\ \Omega$

C. $9\ \Omega$

D. $3\ \Omega$



Q345 Series and parallel circuits

Two resistors A and B have resistances $5\ \text{ohm}$ and $10\ \text{ohm}$, respectively. If they are connected in series to a voltage source of $5\ \text{V}$. The ratio of power developed in resistor A to that of power developed in resistor B will be:

A. 1 : 2



B. 1 : 4

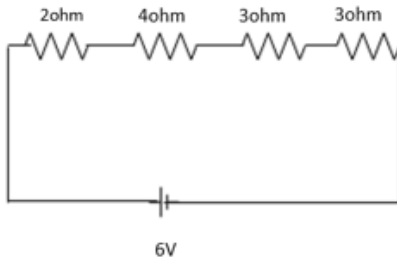
C. 2 : 1

D. 4 : 1



Q346 Series and parallel circuits

Which of the following options gives the current and equivalent resistance of the circuit in respective order?



A. 0.5 A, $12\ \Omega$



B. 5 A, $12\ \Omega$

C. 0.5 A, $6\ \Omega$

D. 5 A, $6\ \Omega$

Q347 Series and parallel circuits

Two resistances R_1 and R_2 are connected in parallel. Their equivalent resistance is:

A. $\frac{R_1 + R_2}{R_1 R_2}$

B. $\frac{R_1 R_2}{R_1 + R_2}$



C. $R_1 + R_2$

D. $R_1 R_2$

Q348 Series and parallel circuits HINDI - no English version saved

क्रमशः $10\ \Omega$ और $20\ \Omega$ के दो प्रतिरोध A और B, $6\ \text{V}$ की बैटरी के साथ समानांतर क्रम में संयोजित हैं। 1 सेकंड में बैटरी द्वारा परिपथ को आपूर्ति की गई कुल ऊर्जा _____ होगी।

A. 1.2 J

B. 1.8 J

C. 3.6 J

D. 5.4 J



Q349 Series and parallel circuits HINDI - no English version saved

क्रमशः $12\ \Omega$ और $24\ \Omega$ के दो प्रतिरोध A और B, 6 V की बैटरी के साथ श्रेणी क्रम में संयोजित हैं। 1 सेकंड में प्रतिरोधों में क्षय होने वाली कुल ऊष्मा _____ होगी।

A. 0.15 J

B. 0.30 J

C. 1.0 J



D. 4.5 J

Q350 Series and parallel circuits

Two resistors, A of $10\ \Omega$ and B of $30\ \Omega$, are connected in series to a battery of 6 V . The total heat dissipated in the resistors in 1 second is:

A. 0.45 J

B. 0.90 J



C. 2.4 J

D. 4.8 J

Q351 Series and parallel circuits

Two resistors, A of $6\ \Omega$ and B of $12\ \Omega$, are connected in parallel to a battery of 3 V . The total energy supplied by the battery to the circuit in 1 second is:

A. 0.75 J

B. 1.5 J

C. 2.25 J



D. 4.5 J

Q352 Series and parallel circuits

Two resistors, A ($10\ \Omega$) and B ($15\ \Omega$), are connected in parallel. The combination is connected to a 3 V battery. The current through the battery is:

A. 0.12 A

B. 0.25 A

C. 0.3 A

D. 0.50 A



Q353 Series and parallel circuits

A nichrome wire AB is made of three parts, AC, CD and DB of resistances in the ratio of 1 : 2 : 3. The wire is connected to a battery. If V_1 , V_2 and V_3 are the potential drops across AC, CD and DB, respectively, then which of the following is correct?

A. $V_1 : V_2 : V_3 = 1 : 2 : 3$



B. $V_1 : V_2 : V_3 = 2 : 3 : 1$

C. $V_1 : V_2 : V_3 = 3 : 2 : 1$

D. $V_1 : V_2 : V_3 = 1 : 1 : 1$

Q354 Series and parallel circuits HINDI - no English version saved

दो प्रतिरोध, A ($20\ \Omega$) और B ($40\ \Omega$) समानांतर क्रम में संयोजित हैं। इसके बाद संयोजन को 6 V की बैटरी से संयोजित किया गया है। A और B में प्रवाहित होने वाली धाराएं क्रमशः _____ हैं।

A. 0.1 A और 0.1 A

B. 0.3 A और 0.3 A

C. 0.3 A और 0.15 A



D. 0.15 A और 0.3 A

Q355 Series and parallel circuits

Two resistors, A ($20\ \Omega$) and B ($30\ \Omega$), are connected in parallel. The combination is connected to a 3 V battery. The current through the battery is:

A. 0.15 A

B. 0.25 A



C. 0.30 A

D. 0.50 A

Q356 Series and parallel circuits

When resistors are connected in series combination, then potential difference across each resistor will be:

A. Equally divided

B. Proportional to thickness

C. Proportional to resistance



D. Similar



Q357 Series and parallel circuits

Three resistors of $10\ \Omega$, $15\ \Omega$ and $30\ \Omega$ are connected in parallel. The resistance of the combination is:

- A. $55\ \Omega$
- B. $7.5\ \Omega$
- C. $6\ \Omega$
- D. $5\ \Omega$



Q358 Series and parallel circuits

When $6\ \Omega$, $9\ \Omega$ and $6\ \Omega$ resistors are connected in parallel combination then the resultant resistance will be:

- A. $2.40\ \Omega$
- B. $2.75\ \Omega$
- C. $2.25\ \Omega$
- D. $2.50\ \Omega$



Q359 Series and parallel circuits

Two resistors, A ($10\ \Omega$) and B ($20\ \Omega$), are connected in parallel. The combination is connected to a $6\ \text{V}$ battery. The currents in A and B are respectively _____.

- A. $0.3\ \text{A}$ and $0.6\ \text{A}$
- B. $0.6\ \text{A}$ and $0.3\ \text{A}$
- C. $0.2\ \text{A}$ and $0.2\ \text{A}$
- D. $0.6\ \text{A}$ and $0.6\ \text{A}$



Q360 Series and parallel circuits

How many resistors of $12\ \Omega$ must be connected in parallel combination to obtain $4\ \Omega$ resistance?

- A. 2 resistors
- B. 4 resistors
- C. 8 resistors
- D. 3 resistors



Q361 Series and parallel circuits

Two resistors, A of $10\ \Omega$ and B of $20\ \Omega$, are connected in series with a battery of 6 V. If V_1 and V_2 are the potential drops across A and B and I_1 and I_2 are the currents through them, respectively, then (V_1/V_2) and (I_1/I_2) are respectively _____.

A. $(\frac{1}{2})$ and $(\frac{1}{2})$

B. 2 and 1

C. $(\frac{1}{2})$ and 1



D. 2 and $(\frac{1}{2})$

Q362 Series and parallel circuits

Four wires of the same material are connected like beads of a garland. The equivalent resistance of the garland will:

A. remain same

B. become four times



C. become one-fourth

D. become double

Q363 Series and parallel circuits

Three resistors of $8\ \Omega$, $12\ \Omega$ and $24\ \Omega$ are connected in parallel. The resistance of the combination is:

A. $4\ \Omega$



B. $4.8\ \Omega$

C. $8\ \Omega$

D. $44\ \Omega$

Q364 Series and parallel circuits

Three resistors of $2\ \Omega$, $3\ \Omega$ and $6\ \Omega$ are connected in series. The resistance of the combination is:

A. $11\ \Omega$



B. $8\ \Omega$

C. $5\ \Omega$

D. $1\ \Omega$



Q365 Series and parallel circuits

Two identical resistors are connected in parallel to a 6 V battery. The total power dissipated in the circuit is 12 W. The current in each resistor is:

- A. 0.5 A
- B. 1.0 A
- C. 2.0 A
- D. 4.0 A



Q366 Series and parallel circuits

A $4\ \Omega$ resistor, A, is connected in series to a $6\ \Omega$ resistor, B, and a 2 V battery. The potential drops across A and B are respectively _____.

- A. 1.2 V and 0.8 V
- B. 0.8 V and 1.2 V
- C. 1.4 V and 0.6 V
- D. 0.6 V and 1.4 V



Q367 Series and parallel circuits

Two resistors, each of $10\ \Omega$, are connected in parallel. The combination, in turn, is connected in series to a third resistor of $10\ \Omega$ and a battery of 6 V. The power supplied by the battery is:

- A. 10.8 W
- B. 5.4 W
- C. 2.4 W
- D. 1.2 W



Q368 Series and parallel circuits

In series combination, the current passing through each resistor is:

- A. Proportional to their resistance
- B. Proportional to their thickness
- C. Equal in all resistors
- D. Increases gradually



Q369 Series and parallel circuits

The formula for resultant resistance of three resistors connected in parallel combination is:

A. $R = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$

B. $\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$ ✓

C. $R = R_1 + R_2 + R_3$

D. $\frac{1}{R} = R_1 + R_2 + R_3$

Q370 Series and parallel circuits

A $10\ \Omega$ resistor, A, is connected in series to a $20\ \Omega$ resistor, B, and a $6\ \text{V}$ battery. The potential drops across A and B are respectively _____.

A. $2\ \text{V}$ and $4\ \text{V}$ ✓

B. $4\ \text{V}$ and $2\ \text{V}$

C. $3\ \text{V}$ and $3\ \text{V}$

D. $1\ \text{V}$ and $5\ \text{V}$

Q371 Series and parallel circuits

For series combination the correct relation between R , R_1 , R_2 is:

A. $R = R_1 \times R_2$

B. $\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2}$

C. $R = R_1 + R_2$ ✓

D. $R = \frac{1}{R_1} + \frac{1}{R_2}$

Q372 Series and parallel circuits

When resistors are connected in parallel combination, then resultant resistance will be:

A. More than largest resistance

B. Less than least resistance ✓

C. Equal to highest resistance

D. Equal to least resistance



Q373 Series and parallel circuits

Three resistors of $4\ \Omega$, $8\ \Omega$ and $6\ \Omega$ are connected in parallel combination with a $9\ \text{V}$ battery. The total current drawn from the battery is:

A. $4.2\ \text{A}$

B. $4.8\ \text{A}$



C. $6.4\ \text{A}$

D. $8.4\ \text{A}$

Q374 Series and parallel circuits

Two resistors, each of $20\ \Omega$, are connected in parallel. The combination, in turn, is connected in series to a third resistor of $20\ \Omega$ and a battery of $3\ \text{V}$. The power supplied by the battery is:

A. $0.15\ \text{W}$

B. $0.30\ \text{W}$



C. $0.675\ \text{W}$

D. $1.35\ \text{W}$

Q375 Series and parallel circuits

Effective resistance of the series combination of three resistors each with resistance $2\ \Omega$ is:

A. $2\ \Omega$

B. $0.66\ \Omega$

C. $1.5\ \Omega$

D. $6\ \Omega$



Q376 Series and parallel circuits

Electric power consumed by two electric bulbs (each with $5\ \Omega$ resistance) connected in series with a $3\ \text{V}$ battery is:

A. $0.9\ \text{W}$



B. $0.3\ \text{W}$

C. $1\ \text{W}$

D. $3\ \text{W}$



Q377 Series and parallel circuits

Consider two circuits, A and B, each of which has 12 resistors each of resistance R_A and R_B , respectively. In each circuit the resistors are in such a way that the net resistance of each circuit is the minimum. Now a 30 V battery with negligible internal resistance is connected across each circuit separately, and the current drawn by circuit A and circuit B are 10 A and 18 A, respectively. Then R_A and R_B will be:

A. $R_A = 26 \Omega$ and $R_B = 20 \Omega$

B. $R_A = 26 \Omega$ and $R_B = 25 \Omega$

C. $R_A = 36 \Omega$ and $R_B = 15 \Omega$

D. $R_A = 36 \Omega$ and $R_B = 20 \Omega$ ✓

Q378 Series and parallel circuits

Three resistors of 5Ω are connected in series, and a battery of 10 V is connected to the two end of the series combination of resistors. Calculate the current drawn from the battery.

A. 0.57 A

B. 0.67 A ✓

C. 0.77 A

D. 0.87 A

Q379 Series and parallel circuits

A circuit consists of three resistors, R_1 , R_2 and R_3 , and they have the values 5Ω , 10Ω and 30Ω , respectively, which have been connected to a battery of 10 V (with negligible internal resistance). Each of the resistors is in parallel with each other. The total resistance of the circuit is:

A. 1Ω

B. 3Ω ✓

C. 5Ω

D. 6Ω

Q380 Series and parallel circuits

If three resistors of 3Ω , 2Ω and 6Ω are connected in series combination with a 9 V battery, then the potential difference across the 6Ω resistor will be:

A. 9 V

B. 4.9 V ✓

C. 2.4 V

D. 1.6 V



Q381 Series and parallel circuits

An electric bulb of $40\ \Omega$ resistance and a conductor of $10\ \Omega$ resistance are connected to a $10\ \text{V}$ battery. The total resistance of the circuit is:

- A. $30\ \Omega$
- B. $40\ \Omega$
- C. $50\ \Omega$
- D. $60\ \Omega$



Q382 Series and parallel circuits

In an electric circuit, where 3 lamps A, B and C of resistances $10\ \Omega$, $20\ \Omega$ and $30\ \Omega$, respectively, are in parallel and a battery of $60\ \text{V}$ is applied across them, the total power dissipation in the circuit is:

- A. $560\ \text{W}$
- B. $620\ \text{W}$
- C. $660\ \text{W}$
- D. $700\ \text{W}$



Q383 Series and parallel circuits

An electric lamp of $30\ \Omega$ resistance and a conductor of $6\ \Omega$ resistance are connected in series to a $6\ \text{V}$ battery. The total resistance of the circuit is:

- A. $24\ \Omega$
- B. $30\ \Omega$
- C. $36\ \Omega$
- D. $42\ \Omega$



Q384 Series and parallel circuits

In a house, bulbs A, B and C of rating $30\ \text{W}$, $60\ \text{W}$ and $75\ \text{W}$, respectively, are connected in parallel with an electric source. Which of the following is true?

- A. Brightness of bulb A is the maximum
- B. Brightness of bulb C is the maximum
- C. Brightness of all the bulbs is the same
- D. Brightness of bulb B is the minimum



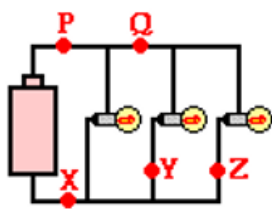
Q385 Series and parallel circuits

In a circuit, there are five resistors each of $5\ \Omega$, and they are connected in such a way that the resistance of the circuit is the maximum. Now this circuit is connected to a battery of 15 V . The current flowing through the circuit is:

- A. 0.4 A
- B. 0.6 A
- C. 0.8 A
- D. 0.9 A

Q386 Series and parallel circuits

Three identical light bulbs are connected to a battery as shown below. P, Q, X, Y and Z represent several points in the circuit. Which of the following holds true for this circuit?



- A. The current at P is greater than the current at Q.
- B. The current at Q is greater than the current at P.
- C. The current is the same at all locations.
- D. Only the currents at P and Q are the same.

Q387 Series and parallel circuits

In an electrical circuit four identical bulbs are connected in parallel to each other to a battery of 10 V (negligible internal resistance). When all the four bulbs glow, a current of 4 A is recorded. Then the power dissipated in the circuit and the resistance of each bulb are _____ and _____, respectively.

- A. 22.4 W , $1.4\ \Omega$
- B. 24 W , $1.5\ \Omega$
- C. 25.6 W , $1.6\ \Omega$
- D. 27.2 W , $1.7\ \Omega$



Q388 Series and parallel circuits

Suppose in a circuit, several electric lamps are required to be used on a 220 V electric supply line, and they are rated as 20 W. If the maximum allowable current is 10 A, then the number of lamps that can be connected in parallel with each other across the two wires of the 220 V line is:

- A. 55
- B. 110
- C. 165
- D. 220

**Q389** Series and parallel circuits

Consider two circuits, A and B, each of which has six resistors and each Circuit of resistance R_A and R_B respectively. In each circuit, the resistors are in such a way that the net resistance of each circuit is the minimum. Now a 20 V battery with negligible internal resistance is connected across each circuit separately, and the current drawn by circuit A and circuit B are 6 A and 8 A, respectively. Then R_A and R_B will be:

- A. $R_A = 15 \Omega$ and $R_B = 20 \Omega$
- B. $R_A = 20 \Omega$ and $R_B = 15 \Omega$
- C. $R_A = 30 \Omega$ and $R_B = 15 \Omega$
- D. $R_A = 15 \Omega$ and $R_B = 30 \Omega$

**Q390** Series and parallel circuits

Two resistors of 6Ω and 4Ω in series combination are connected to a 12 V battery. The effective current of the circuit will be:

- A. 2 Amp
- B. 0.5 Amp
- C. 1.2 Amp
- D. 0.8 Amp

**Q391** Series and parallel circuits

The maximum and minimum total resistance that can be obtained by the combination of 5 coils of resistances 2Ω , 3Ω , 4Ω , 6Ω and 12Ω will be _____.

- A. 27Ω , 0.75Ω
- B. 27Ω , 0.65Ω
- C. 28Ω , 0.65Ω
- D. 28Ω , 0.75Ω



Q392 Series and parallel circuits

The minimum resistance of a circuit which can be constructed using seven resistors, each of $\frac{1}{6} \Omega$, is:

A. $\frac{7}{6} \Omega$

B. $\frac{7}{5} \Omega$

C. $\frac{6}{7} \Omega$ ✓

D. $\frac{5}{7} \Omega$

Q393 Series and parallel circuits

Consider several electric bulbs designed to be used on a 240 V electric supply line. The bulbs are rated as 10 W. How many bulbs can be connected in parallel with each other across the two wires of the 240 V line if the maximum allowable current is 8 A?

A. 156

B. 174

C. 192 ✓

D. 212

Q394 Series and parallel circuits

What is the net resistance of two resistors 10 ohm and 40 ohm connected in parallel?

A. 60 ohm

B. $\frac{1}{60}$ ohm

C. 8 ohm ✓

D. $\frac{1}{8}$ ohm

Q395 Series and parallel circuits

If the current flowing through a resistance of 5 ohm is 6 amp, then the current flowing through another resistance of 10 ohm connected in series to it is _____.

A. 12 amp

B. 3 amp

C. 6 amp ✓

D. 0 amp



Q396 Series and parallel circuits

In an electrical circuit, five identical bulbs are connected in parallel to each other to a battery of 20 V (negligible internal resistance). When all the five bulbs glow, a current of 5 A is recorded. Then the power dissipated in the circuit and the resistance of each bulb are ____ and ____, respectively.

A. 31.25 W, 1.25 Ω



B. 56.25 W, 2.25 Ω

C. 38.75 W, 1.55 Ω

D. 46.25 W, 1.85 Ω

Q397 Series and parallel circuits

Three resistors, each of resistance 2 Ω , 3 Ω and 5 Ω , are connected in series to a battery of voltage V. If the current through the 2 Ω resistor is 4 A, then V is _____.

A. 20 V

B. 40 V



C. 60 V

D. 80 V

Q398 Series and parallel circuits

Festival lights in buildings are an example of _____.

A. a series circuit



B. electromagnetic induction

C. a parallel circuit

D. magnetic effect

Q399 Series and parallel circuits

Which of the following statements for a parallel circuit is true?

A. The net resistance of a parallel circuit is always less than the sum of individual resistances.



B. The net resistance of a parallel circuit is always greater than the sum of individual resistances.

C. The potential difference across individual resistances of a parallel circuit is always unequal.

D. The net current of a parallel circuit is always less than that of individual currents.



Q400 Series and parallel circuits

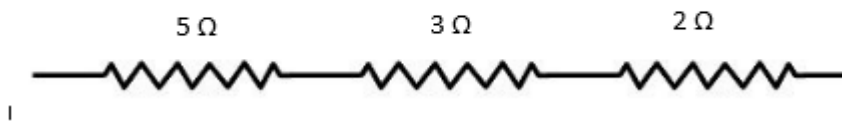
Three resistors of 12 ohm, 16 ohm and 48 ohm are connected in parallel. What is the net resistance?

- A. 6 ohm
- B. 76 ohm
- C. $1/6$ ohm
- D. $1/76$ ohm



Q401 Series and parallel circuits

The resistance of the given circuit in ohm is:



- A. 5
- B. 3
- C. 2
- D. 10



Q402 Series and parallel circuits

Consider a circuit in which three resistors of $10\ \Omega$, $20\ \Omega$ and $30\ \Omega$ are connected in parallel to each other to a cell of 220 V. The effective resistance and the current in the $20\ \Omega$ resistor are _____ and _____, respectively.

- A. $\frac{60}{11}\ \Omega$, 22 A
- B. $\frac{60}{11}\ \Omega$, 11 A
- C. $\frac{30}{11}\ \Omega$, 22 A
- D. $\frac{30}{11}\ \Omega$, 11 A



Q403 Series and parallel circuits

The net resistance of two resistors R_1 and R_2 connected in series is 8 ohm and their net resistance in parallel is 2 ohm. What are the values of individual resistances R_1 and R_2 , respectively?

- A. 6 ohm; 2 ohm
- B. 4 ohm; 4 ohm
- C. 2 ohm; 6 ohm
- D. 8 ohm; 0 ohm



Q404 Series and parallel circuits

The net resistance of the two resistors connected in series is 6 ohm. If one of the resistances is 2 ohm, what is the other resistance if the current flowing through them is 4 amp?

- A. 8 ohm
- B. 3 ohm
- C. 4 ohm
- D. 12 ohm



Q405 Series and parallel circuits

When two resistors are connected in series, their total effective resistance is 120 Ω . When the same two resistors are connected in parallel then their effective resistance is 30 Ω . The resistances of the two resistors are:

- A. 90 Ω and 30 Ω
- B. 60 Ω and 60 Ω each
- C. 70 Ω and 50 Ω
- D. 80 Ω and 40 Ω



Q406 Series and parallel circuits

An electric lamp of 40 Ω , a toaster of resistance 200 Ω and a water filter of resistance 400 Ω are connected in parallel to a 220 V source. Suppose an electric iron when connected to a 220 V source draws the same current as that of the three appliances in the above, then the resistance and current flowing through the iron are:

- A. 30.77 Ω and 7.15 A, respectively
- B. 20.77 Ω and 9.15 A, respectively
- C. 40.77 Ω and 5.15 A, respectively
- D. 50.77 Ω and 4.15 A, respectively



Q407 Series and parallel circuits

An example of a series circuit is _____.

- A. car head lights
- B. the wiring system at home
- C. Street lights
- D. decoration lights



Q408 Series and parallel circuits

Effective resistance of the parallel combination of two resistors with 2Ω and 3Ω resistance, respectively, is:

- A. 5Ω
- B. 1.2Ω ✓
- C. 0.83Ω
- D. 8.3Ω

Q409 Series and parallel circuits

The voltages across three resistances R_1 , R_2 and R_3 connected in series are V_1 , V_2 and V_3 , respectively. What is the net voltage V across them if I represents the net current flowing through them?

- A. $V = (1/V_1) + (1/V_2) + (1/V_3)$
- B. $V = (1/R_1) + (1/R_2) + (1/R_3)$
- C. $V = R_1 + R_2 + R_3$
- D. $V = V_1 + V_2 + V_3$ ✓

Q410 Transformer (step up/down) and AC/DC

An electric transformer works on the principle of:

- A. electromagnetic induction ✓
- B. photoelectric effect
- C. Joule's heating effect
- D. Ohm's law

Q411 Transformer (step up/down) and AC/DC

In case of an alternating current, _____.

- A. the direction of current as well as magnitude of current does not change with time
- B. the direction of current as well as magnitude changes with time ✓
- C. the direction of current changes but magnitude is constant
- D. the direction of current is same but the magnitude changes with time



Q412 Transformer (step up/down) and AC/DC

The frequency of AC supply for house-hold purpose is _____.

A. 50 Hz



B. 100 Hz

C. 150 Hz

D. 200 Hz

Q413 Units (volt/ampere/ohm/coulomb/watt)

The S.I unit of induced potential difference is:

A. A

B. mA

C. V



D. mV

Q414 Units (volt/ampere/ohm/coulomb/watt)

The S.I unit of resistivity is:

A. ohm

B. mho

C. ohm m



D. ohm/m

Q415 Units (volt/ampere/ohm/coulomb/watt)

The S.I unit of resistance is equivalent to:

A. volt/ampere



B. ampere/volt

C. joule/coulomb

D. coulomb/joule



Q416 Units (volt/ampere/ohm/coulomb/watt)

The physical quantity having a unit of volt/ampere is _____.

A. current

B. charge

C. work

D. resistance



Q417 Units (volt/ampere/ohm/coulomb/watt)

The unit of resistance is _____.

A. Coulomb

B. Ohm

C. Volt

D. Ampere



Q418 Units (volt/ampere/ohm/coulomb/watt)

The unit Watt can be expressed as _____.

A. $1 \text{ Watt} = 1 \text{ Volt}/1 \text{ Ampere}$

B. $1 \text{ Watt} = 1 \text{ Volt} \times 1 \text{ Ampere}$

C. $1 \text{ Watt} = 1 \text{ Volt}/1 \text{ Coulomb}$

D. $1 \text{ Watt} = 1 \text{ Volt} \times 1 \text{ Coulomb}$



Q419 Units (volt/ampere/ohm/coulomb/watt)

The SI unit of electric power is _____.

A. Joule

B. Calorie

C. Newton

D. Watt



Q1 Dispersion and spectrum / rainbow

The component of white light that deviates the most on passing through a glass prism is:

- A. red
- B. violet
- C. blue
- D. green



Q2 Dispersion and spectrum / rainbow

The splitting up of white light into seven components as it enters a glass prism is called:

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



Q3 Dispersion and spectrum / rainbow

The component of white light that has maximum refractive index is:

- A. violet
- B. red
- C. yellow
- D. green



Q4 Dispersion and spectrum / rainbow

A beam of white light undergoes dispersion through a triangular glass prism forming a band of seven colours. Which of the statements is/are correct?

- (a) The red-coloured component has minimum refractive index.
- (b) The violet-coloured component deviates the least.
- (c) All components of white light have same speed in glass.

A. Only (a)



B. Only (b)

C. Both (a) and (b)

D. Both (b) and (c)

Q5 Dispersion and spectrum / rainbow

A ray of white light is incident on a refracting surface AB of a glass prism and emerges out of the other refracting surface AC. Consider the following statements:

- (a) The angle of refraction at surface AB is different for different colours of white light.
- (b) The angle of refraction at the surface AC is the same for different colours.

Which of the above statements is/are correct?

A. Only (a)



B. Only (b)

C. Both (a) and (b)

D. Neither (a) nor (b)

Q6 Dispersion and spectrum / rainbow

It is found that during dispersion of white light by a glass prism, the more a colour component is bent, the more is the refractive index of the glass for that colour component. If μ_Y , μ_V and μ_G are refractive indices for yellow, violet and green lights, respectively, then which of the following relations between them is correct?

A. $\mu_G > \mu_Y > \mu_V$

B. $\mu_Y > \mu_V > \mu_G$

C. $\mu_V > \mu_G > \mu_Y$



D. $\mu_Y = \mu_V = \mu_G$



Q7 Dispersion and spectrum / rainbow

A beam of white light passes through a glass prism and a spectrum is obtained. The colour component that bends the least is _____.

A. yellow

B. red



C. green

D. violet

Q8 Dispersion and spectrum / rainbow

It is found that during dispersion of white light by a glass prism, the more a colour component is bent, the more is the refractive index of the glass for that colour component. If μ_B , μ_Y and μ_G are refractive indices for blue, yellow and green lights, respectively, then which of the following relations between them is correct?

A. $\mu_Y > \mu_G > \mu_B$

B. $\mu_Y = \mu_G = \mu_B$

C. $\mu_G > \mu_B > \mu_Y$

D. $\mu_B > \mu_G > \mu_Y$



Q9 Dispersion and spectrum / rainbow

Which of the following phenomena is NOT involved during the formation of a rainbow?

A. refraction

B. dispersion

C. scattering



D. Total internal reflection

Q10 Dispersion and spectrum / rainbow

It is found that during dispersion of white light by a glass prism, the more a colour component is bent, the more is the refractive index of the glass for that colour component. If μ_R , μ_V and μ_Y are refractive indices for red, violet and yellow lights, respectively, then which of the following relations between them is correct?

A. $\mu_R > \mu_V > \mu_Y$

B. $\mu_V > \mu_Y > \mu_R$



C. $\mu_Y > \mu_R > \mu_V$

D. $\mu_R = \mu_V = \mu_Y$



Q11 Dispersion and spectrum / rainbow

When blue and orange lights, which are parallel to each other, are passed through prism then:

- A. both emergent rays will be parallel
- B. blue ray will bend towards the top
- C. orange ray will bend more
- D. blue ray will bend more



Q12 Dispersion and spectrum / rainbow

During dispersion of light through a triangular prism white light will split into _____ bands of colour.

- A. three
- B. five
- C. eight
- D. seven



Q13 Dispersion and spectrum / rainbow

A beam of white light passes through a glass prism and a spectrum is obtained. Which of the following colour components bends the least?

Yellow, Orange, Blue, Violet

- A. Yellow
- B. Orange
- C. Blue
- D. Violet



Q14 Dispersion and spectrum / rainbow

A rainbow is observed due to refraction of the sunlight through rain drops. This implies that:

- A. sunlight is monochromatic
- B. sunlight is polychromatic
- C. refractive index of rain drop is 1
- D. rain drops are not spherical in shape



Q15 Dispersion and spectrum / rainbow

When white light is passed through a prism it undergoes dispersion. The angle of deviation is:

- A. directly proportional to the wavelength
- B. inversely proportional to the wavelength ✓
- C. independent of the wavelength
- D. maximum for red colour

Q16 Dispersion and spectrum / rainbow

Most ordinary gases do not show dispersion with visible light. This is because the velocities of propagation of waves of different wavelengths of visible light are _____.

(Velocity of light in vacuum is c)

- A. very much different
- B. almost the same as c ✓
- C. always much greater than c
- D. always much less than c

Q17 Dispersion and spectrum / rainbow

A ray of white light is incident on a refracting surface AB of a glass prism and emerges out of the other refracting surface AC. Consider the following statements:

- (a) The angle of refraction at surface AB is different for different colours of white light.
- (b) The angle of refraction at the surface AC is different for different colours.

Which of the above statements is/are correct?

- A. Only (a)
- B. Only (b)
- C. Both (a) and (b) ✓
- D. Neither (a) nor (b)



Q18 Dispersion and spectrum / rainbow

Consider the dispersion of a medium as D for a wavelength λ . The dispersion of the same medium for wavelength 3λ will be:

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

B. $\frac{D}{16}$

C. $\frac{D}{27}$ ✓

D. $\frac{D}{81}$

Q19 Dispersion and spectrum / rainbow

A rainbow is formed by water droplets suspended in the atmosphere after the rain shower. The phenomenon responsible for occurring of rainbow consists of:

A. Reflection only

B. Refraction only

C. A combination of refraction, dispersion and total internal reflection ✓

D. A combination of refraction, scattering and dispersion

Q20 Dispersion and spectrum / rainbow

When a thin beam of white light is passed through a prism then:

A. light will converge

B. light will reflect

C. light will disperse ✓

D. light will twinkle

Q21 Dispersion and spectrum / rainbow

Rays of which of the following colours show the highest deviation by a prism?

A. Red

B. Green

C. Yellow

D. Violet ✓



Q22 Dispersion and spectrum / rainbow

When Blue light and Red light are mixed in equal amounts, they will produce light of colour:

- A. Cyan
- B. Yellow
- C. Magenta
- D. White



Q23 Dispersion and spectrum / rainbow

The splitting of light of the sun into various colours of the rainbow is called _____.

- A. scattering of light
- B. Reflection of light
- C. Total internal reflection
- D. Dispersion of light



Q24 EM spectrum (IR/UV/X-ray/gamma) uses

Exposure to excessive amounts of UV rays results in _____.

- A. lung cancer
- B. skin cancer
- C. blood cancer
- D. liver cancer



Q25 Human Eye & Defects

In the normal eye, the distance of the retina from the eye lens is 2.5 cm. The power of the eye lens when it is focussed at its near point 25 cm from the eye is :

- A. 4 D
- B. 44 D
- C. 40 D
- D. 22 D



Q26 Lenses (convex/concave, uses)

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

A. $6/5$

B. $-6/5$ ✓

C. $5/6$

D. $-5/6$

Q27 Lenses (convex/concave, uses)

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

A. Real and enlarged

B. Real and diminished

C. Virtual and enlarged

D. Virtual and highly diminished ✓

Q28 Lenses (convex/concave, uses)

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

A. f ✓

B. $f/2$

C. $f/3$

D. $2f$



Q29 Lenses (convex/concave, uses)

Which of the following statements are correct?

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

A. Both (a) and (b)

B. Both (b) and (c)

C. Both (a) and (c)



D. Both (b) and (d)

Q30 Lenses (convex/concave, uses)

An optical device Y has positive focal length. Y is:

A. either a concave lens or a concave mirror

B. either a convex lens or a convex mirror



C. either a convex lens or a concave mirror

D. either concave lens or a convex mirror

Q31 Lenses (convex/concave, uses)

Magnification produced by a lens is equal to:

A. $-v/u$

B. v/u



C. $-u/v$

D. u/v



Q32 Lenses (convex/concave, uses)

The focal length of a diverging lens is 50 cm. The power of the lens is:

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



Q33 Lenses (convex/concave, uses)

The magnification 'm' produced by a convex lens when the object is placed at a distance $2f$ from the lens is given by:

- A. $m = +1$
- B. $m = -1$
- C. $m = +2$
- D. $m = -2$



Q34 Lenses (convex/concave, uses)

A convex lens having power 5 D is placed in contact with a concave lens having power -3 D. The focal length of the combination will be:

- A. 50 cm
- B. -50 cm
- C. 0.5 cm
- D. -0.5 cm



Q35 Lenses (convex/concave, uses)

A convex lens produces a magnification of -3 for an object placed at 1.5 m from the lens. Find the image distance (with correct sign).

- A. 4.5 m
- B. -4.5 m
- C. 0.5 m
- D. -0.5 m



Q36 Lenses (convex/concave, uses)

An object placed 30 cm from a concave lens forms a virtual erect image at a distance of 10 cm from the lens. The magnification produced by the lens is:

- A. 3
- B. -3
- C. $1/3$
- D. $-1/3$



Q37 Lenses (convex/concave, uses)

A convex lens forms a real and inverted image twice the size of the object. The magnification produced by the lens is equal to:

- A. $1/2$
- B. $-1/2$
- C. 2
- D. -2



Q38 Lenses (convex/concave, uses)

The magnification produced by a lens is $1/2$. The nature and the relative size of the image formed by the lens in the respective order is:

- A. real, inverted and diminished
- B. real, inverted and enlarged
- C. virtual, erect and diminished
- D. virtual, erect and enlarged



Q39 Lenses (convex/concave, uses)

A convex lens forms a real, inverted and diminished image. The position of the object is:

- A. beyond $2F$
- B. between F and $2F$
- C. at infinity
- D. between O and F



Q40 Lenses (convex/concave, uses)

An object is placed on the principal axis of a concave lens of focal length 20 cm, at a distance of 10 cm. The magnification produced by the lens is _____ and the image is _____.

- A. more than 1, erect
- B. less than 1, erect
- C. more than 1, inverted
- D. less than 1, inverted

Q41 Lenses (convex/concave, uses)

An object is placed on the principal axis of a convex lens of focal length 12 cm, at a distance of 18 cm. The magnification produced by the lens is _____ and the image is _____.

- A. less than 1, erect
- B. less than 1, inverted
- C. more than 1, erect
- D. more than 1, inverted

Q42 Lenses (convex/concave, uses)

The power of a concave lens of focal length 25 cm is _____.

- A. -0.04 D
- B. 0.04 D
- C. -4.0 D
- D. 4.0 D

Q43 Lenses (convex/concave, uses) HINDI - no English version saved

किसी 1.0-cm लंबी वस्तु को एक 8 cm फोकस दूरी वाले उत्तल लेंस के मुख्य अक्ष पर 12 cm की दूरी पर रखा गया है। निर्मित प्रतिबिंब की ऊंचाई _____ होगी।

- A. 1 cm
- B. 1.5 cm
- C. 2.0 cm
- D. 3.0 cm



Q44 Lenses (convex/concave, uses)

A lens having power 8 D is kept in contact with another lens having power -4 D. The lens combination will act as a:

- A. convex lens having focal length 25 cm ☒
- B. concave lens having focal length 25 cm
- C. convex lens having focal length 50 cm
- D. concave lens having focal length 50 cm

Q45 Lenses (convex/concave, uses)

A 2.5-cm-tall object is placed on the principal axis of a concave lens of focal length 16 cm, at a distance of 24 cm. The height of the image formed is _____.

- A. 1.0 cm ☒
- B. 1.5 cm
- C. 2.0 cm
- D. 2.5 cm

Q46 Lenses (convex/concave, uses)

An object is placed on the principal axis of a convex lens, at a point between F_1 and $2F_1$. Its image formed is _____.

- A. real and of the same size
- B. real and enlarged ☒
- C. virtual and of the same size
- D. virtual and enlarged

Q47 Lenses (convex/concave, uses)

An object is placed on the principal axis of a lens of power 4.0 D, at a distance of 30 cm. The image formed is _____.

- A. real and erect
- B. virtual and erect
- C. real and inverted ☒
- D. virtual and inverted



Q48 Lenses (convex/concave, uses)

The power of a lens is -5 D . Its focal length is:

A. 50 cm

B. -50 cm

C. 20 cm

D. -20 cm



Q49 Lenses (convex/concave, uses)

The power of a convex lens of focal length 40 cm is _____.

A. 0.25 D

B. -0.25 D

C. 2.5 D



D. -2.5 D

Q50 Lenses (convex/concave, uses)

An object is placed on the principal axis of a lens of power -10 D , at a distance of 15 cm . The image formed is _____.

A. virtual and erect



B. real and erect

C. virtual and inverted

D. real and inverted

Q51 Lenses (convex/concave, uses)

A converging lens having focal length 50 cm is kept in contact with a diverging lens having focal length 20 cm . The power of combination of the two lenses is:

A. -3 D



B. $+3\text{ D}$

C. 8 D

D. -8 D



Q52 Lenses (convex/concave, uses)

An optical device X has a focal length of -30 cm. X can be:

- A. either a concave lens or a concave mirror
- B. either a convex lens or a convex mirror
- C. either a convex lens or a concave mirror
- D. either concave lens or a convex mirror

Q53 Lenses (convex/concave, uses)

Which of the following point(s) always lie(s) on the principal axis of a lens?

- (i) Point of refraction
- (ii) Optical Centre
- (iii) Point of incidence

- A. Only (i)
- B. Only (ii)
- C. Both (i) and (ii)
- D. Both (i) and (iii)

Q54 Lenses (convex/concave, uses)

The power of a convex lens of focal length 20 cm is _____.

- A. -0.05 D
- B. 0.05 D
- C. -5.0 D
- D. 5.0 D

Q55 Lenses (convex/concave, uses)

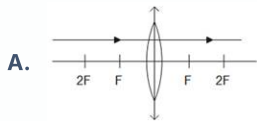
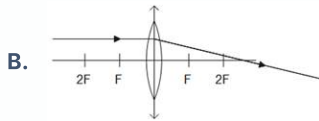
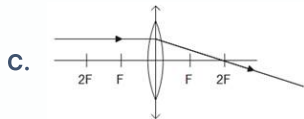
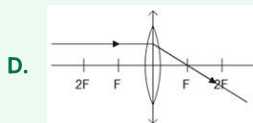
An object is placed at a distance of 40 cm from a convex lens having focal length 20 cm. Which option given below, correctly describes the nature and the relative size of the image formed in the respective order?

- A. Real, inverted and same sized
- B. Real, inverted and diminished
- C. Virtual, erect and enlarged
- D. Virtual, erect and diminished



Q56 Lenses (convex/concave, uses)

Which of the following diagrams correctly represents the path of a light ray incident parallel to the principal axis after refraction through the lens?



Q57 Lenses (convex/concave, uses)

An object is placed on the principal axis of a concave lens of focal length 15 cm, at a distance of 30 cm. Its image formed is at a distance of _____.

A. 10 cm



B. 15 cm

C. 20 cm

D. 30 cm

Q58 Lenses (convex/concave, uses)

The S.I unit of focal length is:

A. metre



B. centimetre

C. millimetre

D. decimetre



Q59 Lenses (convex/concave, uses)

An object is placed on the principal axis of a convex lens of focal length 16 cm, at a distance of 8 cm. Its image formed is at a distance of _____.

A. $\frac{16}{3}$ cm

B. 8 cm

C. -16 cm



D. 24 cm

Q60 Lenses (convex/concave, uses)

A beam of parallel rays close to the principal axis are incident on a convex lens. At which point will they converge:

A. At F



B. Beyond 2F

C. At 2F

D. Between F and 2F

Q61 Lenses (convex/concave, uses)

An object is placed on the principal axis of a concave lens, at a point between infinity and its optical centre O. Its image formed is _____.

A. real and enlarged

B. virtual and enlarged

C. real and diminished

D. virtual and diminished



Q62 Lenses (convex/concave, uses)

If the power of a convex lens is 3 dioptre, then its focal length will be:

A. +3 m

B. -3 m

C. +0.33 m



D. -0.33 m



Q63 Lenses (convex/concave, uses)

A real image of equal size is obtained at a distance of 48 cm from the lens. The type of the lens and its focal length is:

- A. concave lens of focal length of 48 cm
- B. convex lens of focal length 24 cm
- C. convex lens of focal length 48 cm
- D. concave lens of focal length 24 cm

Q64 Lenses (convex/concave, uses)

An object is placed on the principal axis of a convex lens, at a point beyond $2F_1$. Its image formed is _____.

- A. real and diminished
- B. virtual and diminished
- C. real and enlarged
- D. virtual and enlarged

Q65 Lenses (convex/concave, uses)

If m , v and u , respectively, represent magnification, image distance and object distance, then the correct relation between m , v and u for a lens will be:

- A. $m = u + v$
- B. $m = v \times u$
- C. $m = \frac{v}{u}$
- D. $m = \frac{u}{v}$

Q66 Lenses (convex/concave, uses)

An object is placed on the principal axis of a lens of power 2.0 D, at a distance of 10 cm. The image formed is _____.

- A. real and erect
- B. virtual and erect
- C. real and inverted
- D. virtual and inverted

Q67 Lenses (convex/concave, uses)

A convex lens forms a sharp image of a distant object on a screen placed at 20 cm from the lens. The power of the lens is nearly equal to:

A. 5 D



B. -5 D

C. 0.05 D

D. -0.05 D

Q68 Lenses (convex/concave, uses)

A 12 cm long object is placed at a distance of 15 cm from a concave lens. Its virtual image of 8 cm is obtained at a distance of _____.

A. +10 cm

B. -10 cm



C. +22.5 cm

D. -22.5 cm

Q69 Lenses (convex/concave, uses)

An object of diameter 6 cm is placed at a distance of 10 cm in front of a lens with a power of +5.0 D. The diameter of the image of the object will be:

A. 8 cm

B. 10 cm

C. 12 cm



D. 14 cm

Q70 Lenses (convex/concave, uses)

If an object is kept at a distance of 50 cm from a convex lens of focal length 20 cm, then the image distance is:

A. 0.333 cm

B. 3.33 cm

C. 333 cm

D. 33.3 cm



Q71 Lenses (convex/concave, uses)

If a pin is placed in front of the converging lens at a distance of 20 cm, the converging lens forms an image that is real, inverted and equal to the size of the object. Then the power of the lens is:

A. +10 D



B. -10 D

C. -5D

D. +5D

Q72 Lenses (convex/concave, uses)

A ball of diameter 10 cm is placed at a distance of 40 cm in front of a lens with a power of +5.0 D. The diameter of the image of the ball will be:

A. 6 cm

B. 8 cm

C. 10 cm



D. 12 cm

Q73 Lenses (convex/concave, uses)

A needle of height 4 cm is placed at a distance of 45 cm in front of a concave lens of focal length 30 cm. The height of the image of the needle will be:

A. 1.6 cm



B. 1.9 cm

C. 2.2 cm

D. 2.5 cm

Q74 Lenses (convex/concave, uses)

An object is placed at a distance of 10 cm from a projector to obtain an image with magnification of -60. The screen, to receive the projected image, should be placed at a distance of:

A. 4.5 metres

B. 6.0 metres



C. 5.5 metres

D. 5.0 metres



Q75 Lenses (convex/concave, uses)

Suppose a point source is incident on a system and it produces a parallel beam of light with respect to the principal axis of the system. The system is:

- A. either a convex mirror or a convex lens
- B. either a concave mirror or a convex lens
- C. either a concave mirror or a concave lens
- D. Two plane mirrors perpendicular to each other

Q76 Lenses (convex/concave, uses)

When a ray is incident parallel to the principal axis of a convex lens then the refracted ray will pass through:

- A. optical centre
- B. principal axis
- C. centre of curvature
- D. principal focus

Q77 Lenses (convex/concave, uses)

An object of height 3 cm is placed at a distance $1.5f$ in front of a convex lens of focal length f . The magnification will be:

- A. 1.5
- B. 2.0
- C. 2.5
- D. 3.0

Q78 Lenses (convex/concave, uses)

A needle of height 6 cm is placed at a distance of 20 cm in front of a lens with a power of -2.5 D. The height of the image of the needle will be:

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



Q79 Lenses (convex/concave, uses)

A concave lens of focal length 30 cm forms an image of an object placed at 60 cm from it. The position and nature of the image formed will be :

A. 20 cm, real and Inverted

B. -20 cm, real and inverted

C. -20 cm, virtual and erect



D. 20 cm, virtual and erect

Q80 Lenses (convex/concave, uses)

An object of height 3 cm is placed at a distance 30 cm in front of a convex lens of focal length 20 cm. The height of the image will be:

A. 4 cm

B. 6 cm



C. 8 cm

D. 10 cm

Q81 Lenses (convex/concave, uses)

When an object is placed at a distance of 60 cm from a concave lens of focal length 30 cm then the magnification of the image is:

A. +1.33

B. -0.33

C. -1.33

D. +0.33



Q82 Lenses (convex/concave, uses)

The correct relation between the focal length of a lens and its power is:

A. $P = f$

B. $P \propto f$

C. $P = \frac{1}{f}$



D. $P = -1/f$



Q83 Lenses (convex/concave, uses)

An object of size 3.0 cm is placed at a distance of 50 cm from a concave lens of focal length 25 cm. The size of the image formed will be :

- A. 1.5 cm
- B. 1.2 cm
- C. 1.0 cm
- D. 0.33 cm



Q84 Lenses (convex/concave, uses)

The emergent ray from the optical centre of the lens will be _____.

- A. deviated
- B. reflected
- C. bent
- D. un-deviated



Q85 Lenses (convex/concave, uses)

Focal length of the concave lens of power 10 D is:

- A. -0.1 m
- B. 0.1 m
- C. -10 m
- D. 10 m

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q86 Lenses (convex/concave, uses)

An object is placed in front of a concave lens of focal length 15 cm and an image is formed at 7.5 cm. Then the magnification of the lens is:

- A. 1.25
- B. 0.50
- C. 0.75
- D. 1.5



Q87 Lenses (convex/concave, uses)

A beam of light after passing through a concave lens appears to diverge from a point 25 cm behind the lens. The power of the lens is

- A. + 4 D
- B. - 0.25 D
- C. - 4 D
- D. + 0.25 D



Q88 Lenses (convex/concave, uses)

A light ray passing through the _____ of a lens passes without any deviation.

- A. edges
- B. 2F (twice of focal length)
- C. Focus
- D. optical centre



Q89 Lenses (convex/concave, uses)

A convex lens has the radius of curvature as 40 cm. The power of the lens is:

- A. +2.5 D
- B. -2.5 D
- C. +5.0 D
- D. -5.0 D



Q90 Lenses (convex/concave, uses)

If one sees some marbles that are immersed in water, he/she will observe them as enlarged. This is because water acts as a:

- A. plano-concave lens
- B. concave lens
- C. convex lens
- D. plane mirror



Q91 Lenses (convex/concave, uses)

The line joining the two foci of a lens is called _____.

A. principal axis



B. Focal length

C. radius of curvature

D. paraxial ray

Q92 Lenses (convex/concave, uses)

Suppose a doctor has prescribed a corrective lens of power $+2.5$ D. The focal length of the lens is:

A. $+30$ cm

B. -30 cm

C. $+40$ cm



D. -40 cm

Q93 Lenses (convex/concave, uses)

Ram has a corrective lens of power -6.5 D. The focal length of the lens is:

A. -15.38 cm



B. 15.38 cm

C. -13.76 cm

D. $+13.76$ cm

Q94 Lenses (convex/concave, uses)

The effective diameter of the circular outline of a spherical lens is called _____.

A. radius of curvature

B. focus

C. centre of curvature

D. aperture



Q95 Lenses (convex/concave, uses)

The SI unit of power of a lens is:

- A. newton
- B. joule
- C. dioptre
- D. metre



Q96 Mirrors & Lenses

Which of the following types of images can be obtained on a screen?

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

- A. Both (a) and (b)
- B. Both (b) and (c)
- C. Both (c) and (d)
- D. Both (a) and (d)



Q97 Mirrors (plane/concave/convex, uses)

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

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

- A. Only (i)
- B. Only (ii)
- C. Both (i) and (ii)
- D. Both (i) and (iii)



Q98 Mirrors (plane/concave/convex, uses)

The distance between the pole and centre of curvature of a spherical mirror, in terms of its focal length f , is equal to:

A. f

B. $2f$



C. $f/2$

D. $f/4$

Q99 Mirrors (plane/concave/convex, uses)

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

A. R

B. $R/2$



C. $2R$

D. $R/4$

Q100 Mirrors (plane/concave/convex, uses)

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

(a) It is concave spherical mirror

(b) It has positive focal length

(c) It is a converging mirror

A. Both (a) and (b)

B. Both (b) and (c)

C. Both (a) and (c)



D. (a), (b) and (c)



Q101 Mirrors (plane/concave/convex, uses)

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

A. 1.2 m behind the mirror



B. 1.2 m in front of the mirror

C. 0.83 m in front of the mirror

D. 0.83 m behind the mirror

Q102 Mirrors (plane/concave/convex, uses)

A spherical mirror forms an erect and diminished image. Identify the correct statement(s) about the spherical mirror.

(A) The mirror is concave.

(B) The mirror forms a virtual image.

(C) The mirror has positive focal length.

A. Only A

B. Only B

C. Both A and B

D. Both B and C



Q103 Mirrors (plane/concave/convex, uses)

The magnification produced by a spherical mirror is -0.5 . The image formed by the mirror is:

A. real, inverted and enlarged

B. real, inverted and diminished



C. virtual, erect and enlarged

D. virtual, erect and diminished



Q104 Mirrors (plane/concave/convex, uses)

Which of the following line(s) act as a normal to a spherical mirror?

- (i) Line joining the pole and centre of curvature
- (ii) Line joining the centre of curvature and point of incidence
- (iii) Line joining focus and point of incidence

A. Both (i) and (ii)



B. Both (ii) and (iii)

C. Both (i) and (iii)

D. (i), (ii) and (iii)

Q105 Mirrors (plane/concave/convex, uses)

A concave mirror forms a real, inverted and same sized image of an object. Where is the object placed?

A. At C



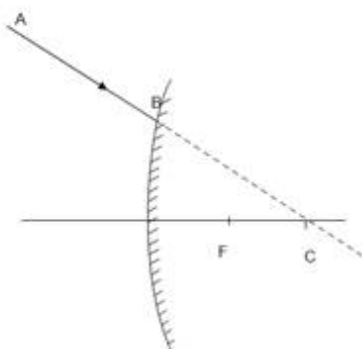
B. Between f and C

C. Between f and pole

D. At infinity

Q106 Mirrors (plane/concave/convex, uses)

A light ray AB is incident on a convex mirror as shown in the figure. What will be the angle of reflection?



A. 0°



B. 30°

C. 45°

D. 90°



Q107 Mirrors (plane/concave/convex, uses)

A concave mirror having focal length of magnitude 20 cm forms a real image at a distance of 60 cm from it. The object distance (in cm) is:

A. -30



B. +30

C. -15

D. +15

Q108 Mirrors (plane/concave/convex, uses)

A spherical mirror converges a beam of light, at a given point on the principal axis. Which of the following statement(s) about the mirror is/are true?

(a) The mirror used is concave

(b) The mirror has positive focal length

(c) The point of convergence is the principal focus of the mirror

A. Only (a)

B. Only (b)

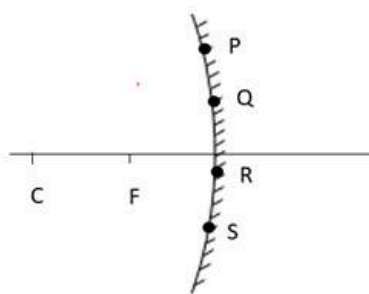
C. Both (a) and (c)



D. Both (a) and (b)

Q109 Mirrors (plane/concave/convex, uses)

P, Q, R and S are four points on the surface of a concave mirror as shown in the figure. If r_1 , r_2 , r_3 and r_4 are the distance of centre of curvature from points P, Q, R and S, respectively, then the correct relation between r_1 , r_2 , r_3 and r_4 is:



A. $r_1 = r_2 = r_3 = r_4$



B. $r_1 > r_2 > r_3 > r_4$

C. $r_1 < r_2 < r_3 < r_4$

D. $r_1 = r_2, r_3 = r_4, r_2 \neq r_3$



Q110 Mirrors (plane/concave/convex, uses)

At which position on principal axis does a concave mirror forms a highly diminished, real and inverted image of an object?

A. F



B. $2F$

C. between F and $2F$

D. beyond $2F$

Q111 Mirrors (plane/concave/convex, uses)

What is the distance between the pole and focus of a spherical mirror?

A. R

B. $R/2$



C. $2R$

D. $R/4$

Q112 Mirrors (plane/concave/convex, uses)

The sign of the magnification produced by a concave mirror is:

A. always positive

B. always negative

C. positive when the image is real and negative when the image is virtual

D. positive when the image is virtual and negative when the image is real



Q113 Mirrors (plane/concave/convex, uses)

A boy standing in front of a magic mirror combination finds his head enlarged, body of same size and legs smaller in size. The mirrors used in the top, middle and bottom of the magic mirror arrangement in the respective order are:

A. concave, plane, convex



B. convex, plane, concave

C. concave, convex, plane

D. convex, concave, plane



Q114 Mirrors (plane/concave/convex, uses)

Which of the following relations correctly represents magnification m produced by a convex mirror?

A. $0 < m < 1$



B. $m = 1$

C. $m < 0$

D. $m > 1$

Q115 Mirrors (plane/concave/convex, uses)

Which among the following mirror(s) always forms virtual and erect image?

(A) Convex mirror

(B) Plane mirror

(C) Concave mirror

A. Only A

B. Only B

C. Both A and B



D. Both B and C

Q116 Mirrors (plane/concave/convex, uses)

Identify the correct relation between radius of curvature ' R ', object distance ' u ' and image distance ' v ' for a spherical mirror.

A. $R = \frac{2uv}{u + v}$



B. $R = \frac{uv}{2(u + v)}$

C. $R = \frac{2(u + v)}{uv}$

D. $R = \frac{(u + v)}{2uv}$



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Q117 Mirrors (plane/concave/convex, uses)

An object, 1.0 cm in height, is placed at a distance of 18.0 cm in front of a concave mirror of focal length 10.0 cm, on its principal axis. Its image has a height of _____ and is _____.

- A. more than 1.0 cm, erect
- B. more than 1.0 cm, inverted
- C. less than 1.0 cm, erect
- D. less than 1.0 cm, inverted

Q118 Mirrors (plane/concave/convex, uses)

A concave mirror forms a real, inverted and diminished image of an object. Where is the object placed?

- A. Between focus and centre of curvature
- B. Between pole and focus
- C. Beyond centre of curvature
- D. At focus

Q119 Mirrors (plane/concave/convex, uses)

An object, 3.0 cm in height, is placed at a distance of 20.0 cm in front of a convex mirror of focal length 6.0 cm, on its principal axis. Its image has a height of _____ and is _____.

- A. less than 3.0 cm, erect
- B. more than 3.0 cm, erect
- C. less than 3.0 cm, inverted
- D. more than 3.0 cm, inverted

Q120 Mirrors (plane/concave/convex, uses)

An object is placed at a distance of 30 cm in front of a concave mirror of focal length 15 cm. The image formed is:

- A. real and erect
- B. real and inverted
- C. virtual and erect
- D. virtual and inverted



Q121 Mirrors (plane/concave/convex, uses)

Which of the following optical devices can be used to produce a parallel beam of rays from a point source of light?

- (A) Convex lens
- (B) Concave lens
- (C) Concave mirror
- (D) Convex mirror

A. Both (A) and (B)

B. Both (A) and (C)



C. Both (B) and (C)

D. Both (A) and (D)

Q122 Mirrors (plane/concave/convex, uses)

An object of size 3.0 cm is placed in front of a concave mirror of focal length 18 cm, at a distance of 54 cm. The image formed is _____ and its height is _____.

- A. erect, 0.75 cm
- B. inverted, 0.75 cm
- C. erect, 1.5 cm
- D. inverted, 1.5 cm



Q123 Mirrors (plane/concave/convex, uses)

An object is placed in front of a convex mirror at a point between infinity and the pole of the mirror. The image formed is:

- A. real and erect
- B. real and inverted
- C. virtual and erect
- D. virtual and inverted



Q124 Mirrors (plane/concave/convex, uses)

A ray of light, passing through the centre of curvature, is incident on a concave mirror. It is reflected by an angle of _____.

A. 30°

B. 20°

C. 10°

D. 0°



Q125 Mirrors (plane/concave/convex, uses)

An object is placed at a distance of 24 cm in front of a convex mirror. Its image is formed at a distance at 12 cm behind the mirror. The focal length of the mirror is:

A. -8 cm

B. 8 cm

C. -24 cm

D. 24 cm



Q126 Mirrors (plane/concave/convex, uses) HINDI - no English version saved

एक अवतल दर्पण ,16.0 cm त्रिज्या वाले किसी गोले के पृष्ठ के एक भाग से बनाया गया है। इसका मुख्य फोकस, इसके ध्रुव से _____ की दूरी पर होगा।

A. 4.0 cm

B. 8.0 cm

C. 16.0 cm

D. 32.0 cm



Q127 Mirrors (plane/concave/convex, uses) HINDI - no English version saved

एक प्रकाश किरण, एक 20 cm वक्रता त्रिज्या वाले उत्तल दर्पण (ध्रुव P) के बिंदु M पर आपतित होती है। यह समान पथ के अनुदिश वापस परावर्तित होती है, और इसके वक्रता केंद्र C से आती हुई प्रतीत होती है। नई कार्तीय चिह्न परिपाटी का पालन करते हुए, PC = _____ होगा।

A. -10 cm

B. 10 cm

C. -20 cm

D. 20 cm



Q128 Mirrors (plane/concave/convex, uses)

An object is placed in front of a concave mirror of focal length 12 cm, at a distance of 8 cm. Its image is formed at a distance of:

- A. 24 cm
- B. 12 cm
- C. 8 cm
- D. 4.8 cm

Q129 Mirrors (plane/concave/convex, uses)

A concave mirror converges light rays from the sun at 10 cm from the mirror. If an object is placed 20 cm from the mirror, the image is formed:

- A. 20 cm in front of the mirror
- B. 20 cm behind the mirror
- C. 10 cm in front of the mirror
- D. 10 cm behind the mirror

Q130 Mirrors (plane/concave/convex, uses)

The radius of curvature of a convex mirror is 15 cm. Following New Cartesian Sign Convention, the principal focus is located at $x =$ _____.

- A. -7.5 cm
- B. 7.5 cm
- C. -15 cm
- D. 15 cm

Q131 Mirrors (plane/concave/convex, uses)

A convex mirror is made from a section of the surface of a sphere of radius 10.0 cm. Its principal focus is at a distance of _____ from its pole.

- A. 40.0 cm
- B. 20.0 cm
- C. 10.0 cm
- D. 5.0 cm



Q132 Mirrors (plane/concave/convex, uses)

An object is placed at 40 cm in front of a converging mirror having focal length 20 cm. The magnification of the image is:

A. -1



B. +1

C. -0.5

D. +0.5

Q133 Mirrors (plane/concave/convex, uses)

An object is placed in front of a concave mirror at a point between its focus F and pole P. The image is formed at a point _____ and is _____.

A. behind the mirror, diminished

B. behind the mirror, enlarged



C. between F and C, diminished

D. between F and C, enlarged

Q134 Mirrors (plane/concave/convex, uses)

An object is placed in front of a concave mirror of focal length 15 cm and its image is formed on the same side as the object, at a distance of 45 cm. The distance of the object from the mirror is:

A. 11.25 cm

B. 22.5 cm



C. 33.75 cm

D. 45 cm

Q135 Mirrors (plane/concave/convex, uses)

An object is placed in front of a convex mirror of focal length 10 cm, at a distance of 15 cm. Its image is formed at a distance of _____ and is _____.

A. 6 cm, real

B. 6 cm, virtual



C. 30 cm, real

D. 30 cm, virtual



Q136 Mirrors (plane/concave/convex, uses)

The radius of curvature of a concave mirror is 12 cm. Following New Cartesian Sign Convention, the principal focus is located at $x =$ _____.

- A. 6 cm
- B. 12 cm
- C. -6 cm
- D. -12 cm



Q137 Mirrors (plane/concave/convex, uses)

The focus of a concave mirror is at a distance of 16 cm from its pole. Its centre of curvature will be at a distance of _____ from the pole.

- A. 8 cm
- B. 16 cm
- C. 24 cm
- D. 32 cm



Q138 Mirrors (plane/concave/convex, uses)

An object is placed in front of a concave mirror at a distance thrice its focal length ($3f$). The image is formed at:

- A. C
- B. a point between F and C
- C. a point beyond C
- D. a point behind the mirror



Q139 Mirrors (plane/concave/convex, uses)

The focal length of a concave mirror is 24 cm. Following New Cartesian Sign Convention, its centre of curvature is located at:

- A. -24 cm
- B. 24 cm
- C. -48 cm
- D. 48 cm



Q140 Mirrors (plane/concave/convex, uses)

The focal length of a convex mirror is 15 cm. Following New Cartesian Sign Convention, its centre of curvature is located at:

- A. 15 cm
- B. -15 cm
- C. 30 cm
- D. -30 cm



Q141 Mirrors (plane/concave/convex, uses)

An object is placed in front of a concave mirror at a distance twice its focal length ($2f$). The image is formed at a distance of:

- A. f
- B. $1.5f$
- C. $2f$
- D. $4f$



Q142 Mirrors (plane/concave/convex, uses)

According to mirror formula, the focal length of a spherical mirror is equal to:

- A. $\frac{u+v}{uv}$
- B. $\frac{uv}{u+v}$
- C. $\frac{u-v}{uv}$
- D. $\frac{uv}{u-v}$



Q143 Mirrors (plane/concave/convex, uses)

An object is placed at a distance of 10 cm in front of a concave mirror. Its image is formed at a distance at 15 cm on the same side. The focal length of the mirror is:

- A. 6 cm
- B. -6 cm
- C. 30 cm
- D. -30 cm



Q144 Mirrors (plane/concave/convex, uses)

In which of the following cases does a concave mirror form a real image?

- (i) Object placed between focus and pole
- (ii) Object placed at infinity
- (iii) Object placed at focus

A. Both (i) and (ii)

B. Both (ii) and (iii)



C. Both (i) and (iii)

D. (i), (ii) and (iii)

Q145 Mirrors (plane/concave/convex, uses)

An object of size 1.0 cm is placed in front of a concave mirror of focal length 16 cm, at a distance of 24 cm. The image formed is _____ and its height is _____.

A. inverted, 2.0 cm



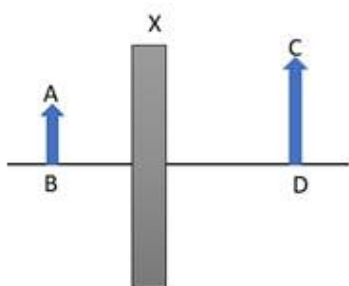
B. erect, 2.0 cm

C. inverted, 0.4 cm

D. erect, 0.4 cm

Q146 Mirrors (plane/concave/convex, uses)

An optical device X forms an image CD for an object AB as shown in the figure. The device X is a:



A. convex mirror

B. concave mirror



C. convex lens

D. concave lens



Q147 Mirrors (plane/concave/convex, uses)

An object is placed in front of a concave mirror at a distance equal to its focal length. The image is formed at:

- A. infinity ✓
- B. a point between F and C
- C. C
- D. a point between P and F

Q148 Mirrors (plane/concave/convex, uses)

A concave mirror is made from a section of the surface of a sphere of radius 18.0 cm. According to New Cartesian Sign Convention, its principal focus is located at $x =$ _____.

- A. -18 cm
- B. -9 cm ✓
- C. 18 cm
- D. 9 cm

Q149 Mirrors (plane/concave/convex, uses)

The centre of curvature of a convex mirror is located at +18 cm, as per New Cartesian Sign convention. Its focus is at

- A. 9 cm ✓
- B. -9 cm
- C. 18 cm
- D. -18 cm

Q150 Mirrors (plane/concave/convex, uses)

An object is placed in front of a concave mirror of focal length 6 cm, at a distance of 24 cm. The magnification produced by the mirror is _____.

- A. $\frac{1}{3}$
- B. $-\frac{1}{3}$ ✓
- C. 3
- D. -3



Q151 Mirrors (plane/concave/convex, uses)

An object, 2.0 cm in height, is placed at a distance of 6.0 cm in front of a concave mirror of focal length 8.0 cm, on its principal axis. Its image has a height of _____ and is _____.

- A. less than 2.0 cm, erect
- B. more than 2.0 cm, erect
- C. less than 2.0 cm, inverted
- D. more than 2.0 cm, inverted

Q152 Mirrors (plane/concave/convex, uses)

An object is placed in front of a concave mirror of focal length 20 cm, at a distance of 30 cm. Its image is formed at a distance of _____ and is _____.

- A. 12 cm, real
- B. 12 cm, virtual
- C. 60 cm, real
- D. 60 cm, virtual

Q153 Mirrors (plane/concave/convex, uses)

If P, F and C represent the pole, principal focus and centre of curvature, respectively, of a concave mirror, then PC is equal to:

- A. $\left(\frac{1}{4}\right)$ PF
- B. $\left(\frac{1}{2}\right)$ PF
- C. 2PF
- D. 4PF

Q154 Mirrors (plane/concave/convex, uses)

A ray of light is incident on a convex mirror (pole P) of radius of curvature 12 cm, parallel to its principal axis. After reflection, it appears to come from a point Q on its principal axis. Following New Cartesian Sign Convention, PQ = _____.

- A. 12 cm
- B. -12 cm
- C. 6 cm
- D. -6 cm

Q155 Mirrors (plane/concave/convex, uses)

A ray of light is incident on a concave mirror (pole P) of radius of curvature 8 cm, parallel to its principal axis. After reflection, it passes through a point Q on its principal axis. Following New Cartesian Sign Convention, PQ = _____.

A. 4 cm

B. -4 cm



C. 8 cm

D. -8 cm

Q156 Mirrors (plane/concave/convex, uses)

A diverging mirror of focal length 20 cm forms an image one-third the size of the object. At what distance from the mirror is the object located?

A. -40 cm



B. -20 cm

C. -10 cm

D. -5 cm

Q157 Mirrors (plane/concave/convex, uses)

A concave mirror is made from a section of the surface of a sphere of radius 8.0 cm. Its principal focus is at a distance of _____ from its pole.

A. 4.0 cm



B. 8.0 cm

C. 12.0 cm

D. 16.0 cm

Q158 Mirrors (plane/concave/convex, uses)

An object is placed in front of a concave mirror at a point beyond its centre of curvature C. The image is formed at a point _____ and is _____.

A. between F and C, diminished



B. between F and C, enlarged

C. beyond C, enlarged

D. beyond C, diminished



Q159 Mirrors (plane/concave/convex, uses)

An object is placed in front of a concave mirror at a point between its pole P and focus F. The image formed is:

- A. virtual and inverted
- B. virtual and erect
- C. real and erect
- D. real and inverted

Q160 Mirrors (plane/concave/convex, uses)

An object is placed in front of a concave mirror of focal length 12 cm, at a distance of 6 cm. Its image is formed at a distance of _____ and is _____.

- A. 4 cm, virtual
- B. 4 cm, real
- C. 12 cm, virtual
- D. 12 cm, real

Q161 Mirrors (plane/concave/convex, uses)

The focal length of a convex mirror is:

- A. positive
- B. negative
- C. infinite
- D. zero

Q162 Mirrors (plane/concave/convex, uses)

An object is placed in front of a convex mirror of focal length 9 cm, at a distance of 18 cm. The magnification produced by the mirror is _____.

- A. $-\frac{1}{3}$
- B. $\frac{1}{3}$
- C. 1
- D. -1



Q163 Mirrors (plane/concave/convex, uses)

To obtain a virtual and erect image by reflection from a concave mirror of focal length 20 cm, the object should be placed:

- A. at 20 cm
- B. between 20-40 cm
- C. between 0-20 cm ✓
- D. at zero

Q164 Mirrors (plane/concave/convex, uses)

A point on the principal axis which is at double the distance between P and F for a spherical mirror is:

- A. infinity
- B. centre of curvature ✓
- C. pole
- D. principal focus

Q165 Mirrors (plane/concave/convex, uses)

The focal length of a spherical mirror is the distance between _____.

- A. focal plane and centre of curvature
- B. pole and principal focus ✓
- C. centre of curvature and infinity
- D. infinity and principal focus

Q166 Mirrors (plane/concave/convex, uses)

The focal length of a concave mirror is:

- A. positive or negative
- B. always negative ✓
- C. always positive
- D. zero



Q167 Mirrors (plane/concave/convex, uses)

A tree is 10 m in front of a convex mirror of focal length 2.5 m. Its image is formed:

- A. 1.25 m behind mirror
- B. 2.0 m behind mirror
- C. 2.0 m in front of mirror
- D. 1.25 m in front of mirror

Q168 Mirrors (plane/concave/convex, uses)

Which of the following points always lie(s) on the principal axis of a spherical mirror?

- (i) Centre of curvature
- (ii) Point of incidence
- (iii) Pole

- A. Only (i)
- B. Only (ii)
- C. Both (i) and (ii)
- D. Both (i) and (iii)

Q169 Mirrors (plane/concave/convex, uses)

An object is placed at a distance of 30 cm in front of a convex mirror of focal length 10 cm, on its principal axis. Its image is formed at:

- A. a point between 0 cm and 10 cm
- B. a point between 10 cm and 20 cm
- C. 20 cm
- D. a point between 20 cm and infinity (∞)

Q170 Mirrors (plane/concave/convex, uses)

The light from a point source is rendered parallel by a concave mirror. What is the position of the light source?

- A. At Focus
- B. Between focus and centre of curvature
- C. At centre of curvature
- D. At infinity



Q171 Mirrors (plane/concave/convex, uses)

A concave mirror has a _____ towards the centre of sphere with polish _____ the centre of curvature.

- A. bulge, towards
- B. depression, opposite to
- C. bulge, opposite
- D. depression, towards

Q172 Mirrors (plane/concave/convex, uses)

A 5 cm long pin is placed 50 cm far from a concave mirror of focal length 40 cm. Its image will be formed at _____.

- A. 1 m behind the mirror
- B. 2 m in front of the mirror
- C. 1 m in front of the mirror
- D. 2 m behind the mirror

Q173 Mirrors (plane/concave/convex, uses)

A point on the principal axis of a concave mirror, from where a ray of light reflects back without any deviation, is:

- A. pole
- B. principal focus
- C. centre of curvature
- D. infinity

Q174 Mirrors (plane/concave/convex, uses)

To obtain sharp signals from a dish antenna, the receiver of the dish antenna should be placed _____.

- A. behind the dish
- B. in front of the dish at C
- C. in front of the dish at F
- D. in front of the dish between C and F

Q175 Mirrors (plane/concave/convex, uses)

A beam of light parallel to the _____ of a concave mirror, after reflection, will pass through the principal focus.

- A. surface of mirror
- B. principal axis
- C. object on the principal axis
- D. focal plane

Q176 Mirrors (plane/concave/convex, uses)

If an object is placed at 20 cm from a convex mirror of focal length 30 cm, the image will be formed at _____.

- A. -16 cm
- B. -12 cm
- C. +6 cm
- D. +12 cm

Q177 Mirrors (plane/concave/convex, uses)

If the size of a spherical mirror increases in such a way that its radius of curvature gets doubled, then its focal length will _____.

- A. become infinite
- B. increase to double
- C. decrease by its half
- D. remain same

Q178 Mirrors (plane/concave/convex, uses)

If the magnification of an image is -0.65 , then the nature of the image is:

- A. virtual, erect and enlarged
- B. real, erect and smaller
- C. real, inverted and smaller
- D. real, inverted and enlarged



Q179 Mirrors (plane/concave/convex, uses)

_____ is a suitable mirror that can be used to focus sunlight to a point.

A. A concave mirror



B. A convex mirror

C. A plane mirror

D. A glass plate

Q180 Mirrors (plane/concave/convex, uses)

If an object is placed 36 cm in front of a concave mirror of focal length 18 cm, then its image will be formed _____.

A. at 18 cm in front of the mirror

B. at 18 cm behind the mirror

C. at 36 cm in front of the mirror



D. at 36 cm behind the mirror

Q181 Mirrors (plane/concave/convex, uses)

An object must be placed _____ to obtain a real and inverted image of the same size as that of the object after reflection.

A. at infinity from a concave mirror

B. between P and F of a convex mirror

C. at C of a convex mirror

D. at C of a concave mirror



Q182 Mirrors (plane/concave/convex, uses)

We can obtain an image that is real and of equal size when an object is placed _____ of a _____ mirror.

A. at F, convex

B. at C, concave



C. at F, concave

D. between P and F, concave



Q183 Mirrors (plane/concave/convex, uses)

For a spherical mirror, the distance between the pole and the centre of the curvature is:

- A. equal to the focal length
- B. twice the distance between pole and F
- C. equal to the distance between C and F
- D. half of the radius of curvature

Q184 Mirrors (plane/concave/convex, uses)

The height of the image of an object below principal axis of a spherical mirror _____.

- A. is positive
- B. is negative
- C. depends on position of object
- D. depends on position of image

Q185 Mirrors (plane/concave/convex, uses)

The focal length of a spherical mirror is the distance between:

- A. infinity and C
- B. C and pole
- C. F and pole
- D. infinity and F

Q186 Mirrors (plane/concave/convex, uses)

The nature of the image produced by the side mirror of an automobile is:

- A. real and erect
- B. real and inverted
- C. virtual and erect
- D. virtual and inverted



Q187 Mirrors (plane/concave/convex, uses)

An incident ray passes through the focus of a concave mirror. The reflected ray:

- A. passes through the focus of the mirror
- B. is parallel to the principal axis
- C. is normal to the mirror
- D. passes through the centre of curvature

Q188 Mirrors (plane/concave/convex, uses)

When parallel beam of light rays are incident on the convex mirror of focal length 1 m, reflected rays:

- A. appear to diverge from a point at a distance 0.5 m behind the mirror
- B. appear to diverge from a point at a distance 1 m behind the mirror
- C. converge to a point at a distance 0.5 m from the convex surface
- D. converge to a point at a distance 1 m from the convex surface

Q189 Mirrors (plane/concave/convex, uses)

A beam of light parallel to the principal axis of a convex mirror will:

- A. converge at F
- B. appear to converge at F
- C. diverge from pole
- D. appear to diverge from F

Q190 Mirrors (plane/concave/convex, uses)

A reflected ray will follow the same path but in reverse direction when it passes through pole and _____.

- A. focal plane
- B. surface of mirror
- C. is parallel to the focal plane
- D. is perpendicular to the focal plane



Q191 Mirrors (plane/concave/convex, uses)

The image of a star is obtained at F of a concave mirror when the incident ray is:

- A. perpendicular to principal axis
- B. parallel to principal axis
- C. inclined to principal axis
- D. along the focal plane

Q192 Mirrors (plane/concave/convex, uses)

A needle is placed at a distance $2.5f$ from the pole of a convex mirror of focal length f . The linear magnification is:

- A. $\frac{1}{7}$
- B. $\frac{2}{7}$
- C. $\frac{3}{7}$
- D. $\frac{4}{7}$

Q193 Mirrors (plane/concave/convex, uses)

Suppose a human hair is $30.0 \mu\text{m}$ thick. If Reshmi uses a concave mirror of focal length 25 cm and obtains an image of the hair of 60 cm thickness, then the hair should be placed in front of the mirror at:

- A. 25 cm
- B. 50 cm
- C. 40 cm
- D. 60 cm

Q194 Mirrors (plane/concave/convex, uses)

The magnification produced by a concave mirror is found to be -2 when an object of height 1 cm is placed at a suitable distance from the pole. Here, image height is equal to:

- A. 2 cm
- B. 1 cm
- C. 3 cm
- D. 0.2 cm



Q195 Mirrors (plane/concave/convex, uses)

The principal focus of a convex mirror is located:

- A. in front of the mirror
- B. behind the mirror
- C. above the principal axis
- D. below the principal axis

Q196 Mirrors (plane/concave/convex, uses)

If the magnification of an image from a spherical mirror is -1.38 , then the nature of the image will be:

- A. virtual, erect and smaller
- B. virtual, erect and enlarged
- C. real, inverted and smaller
- D. real, inverted and enlarged

Q197 Mirrors (plane/concave/convex, uses)

An object is placed in front of a concave mirror of focal length 18 cm, at a distance of 12cm. The magnification produced by the mirror is _____.

- A. -0.6
- B. $+0.6$
- C. -3
- D. $+3$

Q198 Mirrors (plane/concave/convex, uses)

For a given concave mirror of focal length 0.1 m, if an object is kept at a distance 0.2 m, then the image distance will be:

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



Q199 Mirrors (plane/concave/convex, uses)

The position of an object placed in front of a concave mirror that gives a real, inverted image at infinity is:

- A. at pole
- B. at focus F
- C. at centre of curvature C
- D. between pole P and focus F

Q200 Mirrors (plane/concave/convex, uses)

If the radius of curvature of a given convex mirror is 0.3 m, then the distance between the principal focus and the centre of curvature is:

- A. 0.15 m
- B. 0.3 m
- C. 0.45 m
- D. 0.6 m

Q201 Mirrors (plane/concave/convex, uses)

A child is looking at a reflecting surface of a Christmas tree ball which has a diameter of 10.0 cm, and the child observes an image of his face that is half the real size. How far is the child's face from the ball?

- A. +5.0 cm
- B. -5.0 cm
- C. +2.5 cm
- D. -2.5 cm

Q202 Mirrors (plane/concave/convex, uses)

An object is placed at a distance of 0.5 m in front of a converging mirror. If the focal length of the mirror is 0.2 m, then the magnification of the image is:

- A. $\frac{3}{2}$
- B. $\frac{2}{3}$
- C. $\frac{1}{3}$
- D. $\frac{4}{3}$



Q203 Mirrors (plane/concave/convex, uses)

When parallel beam of light rays are incident on the concave mirror of radius of curvature 0.8 m, reflected rays:

- A. appear to diverge from a point at a distance 0.8 m behind the mirror
- B. appear to diverge from a point at a distance 0.4 m behind the mirror
- C. converge to a point at a distance 0.8 m from the concave surface
- D. converge to a point at a distance 0.4 m from the concave surface



Q204 Mirrors (plane/concave/convex, uses)

Suppose Sita has kept a needle in front of a concave mirror of focal length f at a distance $(f + x)$ and a real image of the needle is seen on a screen at a distance $(f + y)$. Then the focal length f can be expressed as:

- A. $f = -2\sqrt{xy}$
- B. $f = 2\sqrt{xy}$
- C. $f = \sqrt{xy}$
- D. $f = -\sqrt{xy}$



Q205 Mirrors (plane/concave/convex, uses)

The radius of curvature of a spherical mirror is the distance between:

- A. pole and principal focus
- B. principal focus and centre of curvature
- C. centre of curvature and pole
- D. centre of curvature and infinity



Q206 Mirrors (plane/concave/convex, uses)

A student measured the magnification of a spherical lens and a spherical mirror. He found that both are +3.0. He would conclude that:

- A. the lens and the mirror both are concave
- B. the lens and the mirror both are convex
- C. the lens is concave but the mirror is convex
- D. the lens is convex but the mirror is concave



Q207 Mirrors (plane/concave/convex, uses)

The correct relation between v , u , and f for a spherical mirror is:

A. $v = u + f$

B. $\frac{1}{f} = \frac{1}{v} - \frac{1}{u}$

C. $\frac{1}{f} = \frac{1}{u} + \frac{1}{v}$ ✓

D. $\frac{1}{f} + \frac{1}{u} = \frac{1}{v}$

Q208 Mirrors (plane/concave/convex, uses)

Suppose a ball is placed in front of a concave mirror and a real image that is twice the size of the ball is formed on a screen. The ball and the screen are then moved until the image is five times the size of the object. If the shift of the screen is d , then the shift in the object is:

A. $\frac{d}{10}$ ✓

B. $\frac{d}{12}$

C. $\frac{d}{15}$

D. $\frac{d}{18}$

Q209 Mirrors (plane/concave/convex, uses)

When an object is placed at a point 21 cm in front of a convex mirror, the image is formed at 7 cm behind the mirror. Now, someone moves the object to a distance of 14 cm in front of the mirror. The distance of the image from the mirror (in cm) now is:

A. +6 ✓

B. -6

C. -3

D. +3



Q210 Mirrors (plane/concave/convex, uses)

If the focal length of a spherical mirror increases to double, then the radius of curvature of the mirror will:

- A. remain the same
- B. increase to double
- C. decrease to half
- D. increase to four times

Q211 Mirrors (plane/concave/convex, uses)

In order to obtain an inverted and magnified image of an object by a spherical mirror of radius of curvature 40 cm, the object should be placed:

- A. 20 cm from a convex mirror
- B. between 20 cm and 40 cm from a concave mirror
- C. between 20 cm and 40 cm from a convex mirror
- D. at infinity from a Convex mirror

Q212 Mirrors (plane/concave/convex, uses)

The magnification of an image is +1.5 and the object distance is 30 cm from a spherical mirror. The image is formed at _____.

- A. 20 cm behind the mirror
- B. 45 cm behind the mirror
- C. 45 cm in front of the mirror
- D. 20 cm in front of the mirror

Q213 Mirrors (plane/concave/convex, uses)

Suppose a dentist uses a spherical mirror which can result in an upright image that is magnified five times. Then the radius of curvature in terms of the object distance d_o is given by:

- A. $+\frac{5}{4}d_o$
- B. $-\frac{5}{4}d_o$
- C. $-\frac{5}{2}d_o$
- D. $+\frac{5}{2}d_o$



Q214 Mirrors (plane/concave/convex, uses)

Suppose a pin is placed in front of a concave mirror and a real image that is thrice the size of the pin is formed on a screen. The pin and the screen are then moved until the image is six times the size of the object. If the shift of the screen is 24 cm, then the shift in the object is:

A. $\frac{2}{3} \text{ cm}$

B. $\frac{4}{3} \text{ cm}$ ✓

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

D. $\frac{7}{3} \text{ cm}$

Q215 Mirrors (plane/concave/convex, uses)

Suppose Raghu has kept an object in front of a concave mirror of focal length (f) at various distances (u) and he has measured the corresponding image distances (v). From the values of u and v , Raghu is able to plot a graph of magnification m against v . Which of the following options is true?

A. It is a straight line with slope $+f$, and x intercept -1 and y intercept $1/f$

B. It is a straight line with slope $+1/f$, and x intercept $+f$ and y intercept -1

C. It is a straight line with slope $-1/f$, and x intercept -1 and y intercept $+f$

D. It is a straight line with slope $-f$, and x intercept -1 and y intercept $-f$

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q216 Mirrors (plane/concave/convex, uses)

A point on the principal axis which is equidistant from the curved surface of a spherical mirror is:

A. principal focus ✓

B. centre of curvature

C. pole

D. infinity



Q217 Mirrors (plane/concave/convex, uses)

The correct relation between the radius of curvature R and focal length f for a spherical mirror is:

A. $R = \frac{f}{2}$

B. $R = f$

C. $\frac{R}{2} = f$ ✓

D. $\frac{1}{R} = \frac{2}{f}$

Q218 Mirrors (plane/concave/convex, uses)

The position of the image produced by a concave mirror when an object is placed at a distance such that light rays from the object are parallel to the principal axis is:

A. at the principal focus ✓

B. at a point between the principal focus and pole

C. at a point between the principal focus and the centre of curvature

D. at the position of the object itself

Q219 Mirrors (plane/concave/convex, uses)

Consider that a mature blue whale is 30.0 m long. On the other hand a baby whale is 10.0 m long. Where should the baby whale be placed in front of a concave mirror of focal length 15.0 m so that one can observe a real image of the baby whale as that of the size of a mature whale?

A. 10 m

B. 15 m

C. 20 m ✓

D. 25 m

Q220 Mirrors (plane/concave/convex, uses)

The distance between the pole and centre of curvature of a concave mirror of radius of curvature 100 cm is:

A. 100 cm ✓

B. 50 cm

C. 200 cm

D. 25 cm



Q221 Mirrors (plane/concave/convex, uses)

A stalactite of size 10.0 m is found in Brazil. If this stalactite is placed at a distance of 20.0 m from a concave mirror and a real image of size 30.0 m is formed, then the principal focus of the mirror is at:

- A. -30.0 m
- B. +30.0 m
- C. -15.0 m
- D. +15.0 m



Q222 Mirrors (plane/concave/convex, uses)

The radius of curvature of a spherical mirror is 40 cm. Its focal length is _____ cm.

- A. 20
- B. 40
- C. 30
- D. 10



Q223 Mirrors (plane/concave/convex, uses)

An imaginary line passing through principal focus, centre of curvature and pole of a Spherical Mirror is known as _____.

- A. radius of curvature
- B. focal length
- C. principal axis
- D. focal plane



Q224 Mirrors (plane/concave/convex, uses)

Magnification produced by a spherical mirror is equal to:

- A. height of an object – height of an image
- B. height of an image – height of an object
- C. $\frac{\text{height of an object}}{\text{height of an image}}$
- D. $\frac{\text{height of an image}}{\text{height of an object}}$



Q225 Mirrors (plane/concave/convex, uses)

If an image formed after reflection from a mirror is virtual and highly diminished, then the position of the object and type of mirror is:

- A. infinity and concave mirror
- B. infinity and convex mirror
- C. centre of curvature and concave mirror
- D. Between C and F and concave mirror

Q226 Mirrors (plane/concave/convex, uses)

A coin of diameter 10 cm is placed at a distance $3.5f$ from the pole of a concave mirror of focal length f . The linear magnification and the diameter of the image are:

- A. $\frac{1}{5}$ and 2 cm, respectively
- B. $\frac{2}{5}$ and 4 cm, respectively
- C. $\frac{3}{5}$ and 5 cm, respectively
- D. $\frac{4}{5}$ and 8 cm, respectively

Q227 Mirrors (plane/concave/convex, uses)

Which of the following statements is correct with regard to the reflection of light by a spherical mirror?

- (a) A convex mirror converges the light rays incident parallel to its principal axis.
- (b) A concave mirror converges the light rays incident parallel to its principal axis.
- (c) Convex mirror can form both, real and virtual images.
- (d) Concave mirror can form both, real and virtual images.

- A. Only (a) and (c)
- B. Only (b) and (d)
- C. Only (a) and (d)
- D. Only (b) and (c)



Q228 Mirrors (plane/concave/convex, uses)

An ice-ball of 6 cm diameter is placed 30 cm in front of a concave mirror and its principal focus is double the distance of the object. Following the new Cartesian sign convention, the diameter of the image is:

A. 10 cm

B. 12 cm

C. 14 cm

D. 16 cm

Q229 Mirrors (plane/concave/convex, uses)

Suppose Ram has placed a ball in front of a concave mirror of focal length (f) at various distances (u) and he has measured the corresponding image distances (v). From the values of u and v , Ram is able to plot a graph of $1/v$ against $1/u$. From the graph, Ram has observed that x intercept and y intercept are 0.1 cm and 0.11 cm, respectively. Then the focal length of the mirror is:

A. 9.55 cm

B. 11.25 cm

C. 8.5 cm

D. 12.65 cm

Q230 Mirrors (plane/concave/convex, uses)

In the Leviathan telescope in Ireland, a concave mirror of focal length 3.0 m is used. If an image of height 80 cm is formed at a distance of 4.0 m, then the object height, object distance and magnification are (the object is placed in front of the mirror):

A. 1.2 m, 12 m and $\frac{1}{3}$ respectively

B. 2.4 m, 12 m and $\frac{1}{3}$ respectively

C. 2.4 m, 12 m and $\frac{1}{2}$ respectively

D. 2.4 m, 6 m and $\frac{1}{3}$ respectively



Q231 Mirrors (plane/concave/convex, uses)

A concave mirror forms a real image of three times the size of an object on a screen. The object and screen are then moved until the image is six times the size of the object. If the shift of the screen is 39 cm, then the focal length of the mirror is:

A. 10 cm

B. 13 cm



C. 26 cm

D. 39 cm

Q232 Mirrors (plane/concave/convex, uses)

Which of the following is/are correct with respect to the reflection by spherical mirrors?

(a) A concave mirror will diverge the rays of light if the object is placed between the pole and the focus.

(b) A convex mirror can converge a beam of rays.

A. (a) is only correct



B. (b) is only correct

C. (a) and (b) both are correct

D. Both (a) and (b) are incorrect

Q233 Mirrors (plane/concave/convex, uses)

Which of the following statements with regard to the principal axis of a spherical mirror is/are correct?

(a) The pole on the principal axis is similar to the origin of a Cartesian coordinate axes plane.

(b) Distances measured from the pole, along the principal axis opposite to the direction of incident light are negative.

(c) Heights of objects or images above the principal axis and perpendicular to it are considered negative.

A. Only (a) and (b)



B. Only (b) and (c)

C. Only (a) and (c)

D. (a), (b) and (c)



Q234 Mirrors (plane/concave/convex, uses)

A concave mirror of focal length f produces a real image at a distance v from the pole, when an object is kept at the distance u from the pole. Here, focal length of the given mirror is:

A. $(u v) / (u + v)$ ✓

B. $(u + v) / (u v)$

C. $(1/u) - (1/v)$

D. $(1/v) - (1/u)$

Q235 Mirrors (plane/concave/convex, uses)

Identify the correct statement(s) with respect to the reflection of light by a spherical mirror from among the following.

(a) A convex mirror can only form real and inverted images.

(b) A concave mirror can form real, inverted and virtual, erect images.

(c) Images formed by convex mirrors are either diminished, same size or enlarged depending on the position of object.

(d) Images formed by concave mirrors are either diminished, same size or enlarged depending on the position of the object.

A. (a) and (c) are only correct

B. (b) and (d) are only correct ✓

C. (a) and (d) are only correct

D. (b) and (c) are only correct

Q236 Mirrors (plane/concave/convex, uses)

The centre of curvature of a concave mirror lies _____.

A. in front of the mirror ✓

B. behind the mirror

C. above the mirror

D. below the mirror



Q237 Mirrors (plane/concave/convex, uses)

Which of the following statements is/are true regarding the centre of curvature of a spherical mirror?

(S - I) Rays of light passing in any direction through the centre of curvature are normal to the mirror,

(S - II) A ray of light passing through the centre of curvature, and the principal focus is also normal to the mirror.

(S - III) The angle of incidence of the ray of light passing through the centre of curvature on to the mirror is 90° .

A. (S - I) only



B. (S - I) and (S - II) only

C. (S - I) and (S - III) only

D. (S - I), (S - II) and (S - III)

Q238 Mirrors (plane/concave/convex, uses)

What is the relation between m , v , and u for a spherical mirror?

A. $m = v \times u$

B. $m = \frac{v}{u}$

C. $m = -v \times u$

D. $m = \frac{-v}{u}$

**Q239** Mirrors (plane/concave/convex, uses)

In the following table, mirror, its application and the justification for the application are given. Identify the rows in which the information is completely correct, with regard to given spherical mirrors in column 2.

	Mirror	Application	Justification
1	Concave	Dentist Mirror	Virtual, Erect and Magnified Image
2	Convex	Street Lights	Diverges the light rays hence wider field of view is possible
3	Concave	Solar Furnace	Converges light rays from a distant source like sun
4	Convex	Rearview Mirrors	Virtual erect and enlarged images are formed

A. Only 1

B. Only 1 and 2

C. Only 1, 2 and 3



D. 1, 2, 3 and 4



Q240 Mirrors (plane/concave/convex, uses)

For a concave mirror, the position of the image for an object placed at infinity is _____.

- A. pole
- B. focus
- C. centre of curvature
- D. Between focus and centre of curvature

Q241 Mirrors (plane/concave/convex, uses)

If a parallel beam of light is not parallel to the principal axis of a concave mirror, then such rays will converge at the _____.

- A. principal focal plane
- B. centre of curvature
- C. pole
- D. infinity

Q242 Mirrors (plane/concave/convex, uses)

The radius of curvature of a convex mirror of focal length 2 m is:

- A. 0.5 m
- B. 2.0 m
- C. 4.0 m
- D. 1.0 m

Q243 Mirrors (plane/concave/convex, uses)

The nature of the image formed behind the mirror, in case of a convex mirror is _____.

- A. real and inverted
- B. virtual and inverted
- C. real and erect
- D. virtual and erect



Q244 Mirrors (plane/concave/convex, uses)

The correct sign conventions for focal length (f) and radius of curvature (R) for the formation of images by spherical mirrors is:

- A. for convex mirror f is negative, R is positive
- B. for concave mirror f is positive, R is negative
- C. for convex mirror f is negative, R is negative
- D. for concave mirror f is negative, R is negative



Q245 Mirrors (plane/concave/convex, uses)

In the case of reflection from a concave mirror, if the object distance is 5 cm and the image distance is 2 cm then magnification produced by the mirror is:

- A. $-2/5$
- B. $2/5$
- C. $-5/2$
- D. $5/2$



Q246 Mirrors (plane/concave/convex, uses)

The following is the data for an image formed by a convex mirror:

Object distance = 30 cm,

Size of object = 10 cm,

Size of image = 2.5 cm,

The focal length of this mirror is _____.

- A. 10 cm
- B. 20 cm
- C. 15 cm
- D. 30 cm



Q247 Mirrors (plane/concave/convex, uses)

Which of the following statements is/are true regarding the centre of curvature of a spherical mirror?

(S - I) The centre of curvature (C) of a spherical mirror is the centre of the sphere of which the mirror is a cut part.

(S - II) The aperture (D) of a spherical mirror is the diameter of the sphere of which the mirror is a cut part.

(S - III) The principal focus (F) is strictly the mid-point between the pole (P) and the centre of curvature (C) of a spherical mirror.

A. (S - I) only

B. (S - I) and (S - II) only

C. (S - I) and (S - III) only



D. (S - I), (S - II) and (S - III)

Q248 Mirrors (plane/concave/convex, uses)

If a 10.0-cm-tall object is kept at a distance 40.0 cm from a 20.0-cm-radius concave mirror, and all the distances are measured on the principal axis from the pole as origin, then the image position and image height, respectively, are:

A. -13.3 cm and 0.33 cm

B. +13.3 cm and 0.33 cm

C. +26.6 cm and 0.66 cm

D. -26.6 cm and 0.66 cm

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q249 Mirrors (plane/concave/convex, uses)

At what position of an object placed in front of a concave mirror is a diminished image formed?

A. Beyond centre of curvature



B. Between focus and centre of curvature

C. Between pole and focus

D. At focus



Q250 Mirrors (plane/concave/convex, uses)

Suppose Raghu has kept an object in front of a concave mirror of focal length (f) at various distances (u) and he has measured the corresponding image distances (v). From such an experiment, Raghu is able to plot a graph of u against $1/\text{magnification}$, i.e. u vs. $1/m$. Which of the following options is true?

- A. It is a straight line with slope $+f$, and x intercept -1 and y intercept $+f$ ✓
- B. It is a straight line with slope $+f$, and x intercept $+1$ and y intercept $-f$
- C. It is a straight line with slope $1/f$, and x intercept -1 and y intercept $+f$
- D. It is a straight line with slope $-1/f$, and x intercept $+1$ and y intercept $-f$

Q251 Mirrors (plane/concave/convex, uses)

For a given concave mirror of focal length 0.5 m if the object distance is 0.6 m, then the magnification produced is:

- A. 0.5
- B. -0.5
- C. 5
- D. -5 ✓

Q252 Mirrors (plane/concave/convex, uses)

The image produced by a concave mirror when an object is kept at the centre of the curvature of the mirror is:

- A. real and erect
- B. real and inverted ✓
- C. virtual and erect
- D. virtual and inverted

Q253 Mirrors (plane/concave/convex, uses)

Suppose a magic mirror is placed in front of a boy. As a result, the boy observes that the image of his head is of the same size, the middle portion of his body is smaller and that of his legs is bigger. Hence, from top to bottom, the magic mirror displays which of the following images?

- A. Plane, concave and convex
- B. Plane, convex and concave ✓
- C. Concave, plane and convex
- D. Convex, concave and plane



Q254 Mirrors (plane/concave/convex, uses)

As the object is moved from the pole towards the focus of a concave mirror, the corresponding image moves from _____ and the image is _____.

- A. pole to infinity, virtual and erect
- B. infinity to pole, real and inverted
- C. pole to Infinity, real and inverted
- D. infinity to pole, virtual and erect

Q255 Mirrors (plane/concave/convex, uses)

Which of the following statements is/are true regarding the center of curvature of a spherical mirror?

- (I) A ray of light passing through the center of curvature of a spherical mirror retraces its path in opposite direction.
- (II) An image formed at the center of curvature of a spherical mirror is of the same size as that of the object.
- (III) An image formed at the center of curvature of a spherical mirror is real and inverted.

- A. Only (I)
- B. Only (I) and (II)
- C. Only (I) and (III)
- D. (I), (II) and (III)

Q256 Mirrors (plane/concave/convex, uses)

If an object is placed at a distance of 5 cm from the pole of a given concave mirror of focal length 2.5 cm, then the magnification produced is:

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

Q257 Mirrors (plane/concave/convex, uses)

For a spherical mirror, when a ray is passed through the centre of curvature C, the angle formed between the reflected ray and incident ray will be:

- A. 0°
- B. 90°
- C. 180°
- D. 270°



Q258 Mirrors (plane/concave/convex, uses)

Suppose an object of height 5 cm is placed in front of a concave mirror and a real and inverted image of the same size is formed at a distance of 20.0 cm. Then the centre of curvature of the mirror is at:

- A. 5 cm
- B. 10 cm
- C. 15 cm
- D. 20 cm



Q259 Mirrors (plane/concave/convex, uses)

Focal length of the concave mirror which can produce magnification of -2 and real image at a distance 1.5 m from the pole is:

- A. 0.5 m
- B. 5 m
- C. 1.5 m
- D. 2 m



Q260 Mirrors (plane/concave/convex, uses)

object is placed _____ to obtain an inverted and enlarged image.

- A. at infinity from concave mirror
- B. at infinity from convex mirror
- C. between C and F of concave mirror
- D. between C and F of convex mirror



Q261 Reflection and laws of reflection

What will be the angle of incidence for a ray of light incident along the principal axis of a convex mirror?

- A. 0°
- B. 30°
- C. 60°
- D. 90°



Q262 Reflection and laws of reflection

A ray of light is incident on the pole of a concave mirror. The acute angle between the incident ray and the principal axis will be called:

- A. angle of reflection
- B. angle of incidence
- C. angle of deviation
- D. angle of emergence



Q263 Reflection and laws of reflection

The laws of reflection hold true for which of the following mirror(s)?

- (A) Concave mirror
- (B) Convex mirror
- (C) Plane mirror

- A. Only A and B
- B. Only B and C
- C. Only A and C
- D. A, B and C



Q264 Reflection and laws of reflection

A ray of light is incident on a concave mirror at point M. The ray makes an angle of 10° with a line joining M to the centre of curvature. The ray is reflected at an angle of _____.

- A. 10°
- B. 20°
- C. 30°
- D. 40°



Q265 Reflection and laws of reflection

When a ray of light is incident obliquely at the pole, of a concave mirror then the reflected ray will:

- A. pass straight
- B. return without deviation
- C. return with Angle $i = \text{Angle } r$** ✓
- D. become perpendicular to incident ray

Q266 Reflection and laws of reflection

Select the correct property/properties from among the following, with respect to the reflection of light by a concave mirror.

- (a) Light does not obey the laws of reflection as the concave surface is a curved surface.
- (b) A light ray directed on to the pole of a concave mirror retraces the path of incidence in the opposite direction.

- A. Only (a) is correct
- B. Only (b) is correct
- C. Both (a) and (b) are correct
- D. Both (a) and (b) are incorrect** ✓

Q267 Reflection and laws of reflection

In the following table, the direction of incident ray of light and the direction of reflected ray of light are given in two different columns: Choose the correct match of column I to column II.

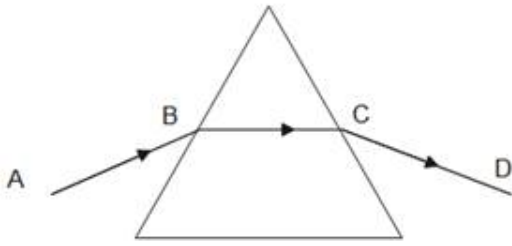
<u>Column I</u> Direction of ray of light before reflection	<u>Column II</u> Direction of ray of light after reflection
A) Incident ray passing through or directed on to the principal focus	P) Will pass through or appear to diverge from the principal focus
B) Incident ray passing through or directed on to the center of curvature	Q) Reflected ray is on the other side of the principal axis making same angle with respect to the incident ray
C) Incident ray passing parallel to principal axis	R) Reflected ray will propagate parallel to the principal axis
D) Incident ray directed on to the pole of the mirror making an angle with the principal axis	S) Reflected ray will retrace the path of incidence in the opposite direction

- A. A–P, B–S, C–Q, D–R
- B. A–R, B–S, C–P, D–Q** ✓
- C. A–R, B–S, C–Q, D–P
- D. A–R, B–Q, C–P, D–S



Q268 Refraction and refractive index

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



- A. AB and BC
- B. BC and CD
- C. AB and CD
- D. CD and AB

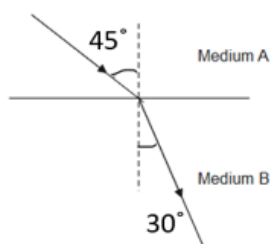
Q269 Refraction and refractive index

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

- A. 0°
- B. 30°
- C. 45°
- D. 90°

Q270 Refraction and refractive index

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



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



Q271 Refraction and refractive index

The refractive index of a given transparent medium is 1.5. The speed of light in the medium is equal to:

A. $2 \times 10^8 \text{ m/sec}$



B. $3 \times 10^8 \text{ m/sec}$

C. $4.5 \times 10^8 \text{ m/sec}$

D. $0.5 \times 10^8 \text{ m/sec}$

Q272 Refraction and refractive index

For a ray of light undergoing refraction through a triangular glass prism, the angle of deviation is the angle between:

A. the incident ray and the refracted ray

B. the incident ray and the normal at the point of incidence

C. the incident ray and the emergent ray



D. the refracted ray and the emergent ray

Q273 Refraction and refractive index

Lemons placed inside a beaker filled with water appear relatively larger in size due to:

A. refraction of light



B. reflection of light

C. scattering of light

D. dispersion of light



Q274 Refraction and refractive index

A ray of light travelling in air enters a glass slab. Which of the following statements is/are correct?

- (i) Angle of incidence is greater than the angle of refraction.
- (ii) Angle of incidence is equal to angle of emergence.
- (iii) The emergent ray is parallel to the incident ray.

A. Both (i) and (ii)

B. Both (ii) and (iii)

C. Both (i) and (iii)

D. (i), (ii) and (iii)



Q275 Refraction and refractive index

The value of absolute refractive index of a medium is always:

A. less than 1

B. more than 1



C. equal to 1

D. equal to 0

Q276 Refraction and refractive index

A light ray is travelling from air medium to water medium (refractive index = 1.3) such that angle of incidence is x degree and angle of refraction is y degree. The value of ratio $(\sin y)/(\sin x)$ is:

A. $1/1.3$



B. 1.3

C. 1

D. 0.3



Q277 Refraction and refractive index

A ray of light is incident on an interface separating two media at an angle of incidence equal to 45° , for which the angle of refraction is 30° . The refractive index of the second medium with respect to first, is equal to:

A. $\sqrt{2}$



B. $\frac{1}{\sqrt{2}}$

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

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

Q278 Refraction and refractive index

The refractive indices of turpentine oil and glass are 1.47 and 1.52, respectively. A ray of light passes from turpentine oil to glass. The refractive index of glass with respect to turpentine oil is _____ and the ray bends _____ the normal in glass.

A. 0.97, away from

B. 0.97, towards

C. 1.03, away from

D. 1.03, towards

**Q279** Refraction and refractive index

A ray of light bends towards the normal while travelling from medium A to medium B. Which of the following statements is/are correct?

(A) Medium A is optically denser than medium B.

(B) Speed of light is more in medium A than medium B.

(C) Refractive index of medium B is more than refractive index of medium A.

A. Both A and B

B. Both B and C



C. Both A and C

D. A, B and C



Q280 Refraction and refractive index

Rays coming from the sun are refracted by the atmosphere. Due to this, the apparent sunrise is about _____ the actual sunrise.

- A. 2 minutes after
- B. 2 minutes before
- C. 1 minute after
- D. 1 minute before

Q281 Refraction and refractive index HINDI - no English version saved

निम्नलिखित में से कौन सी प्रकाशीय परिघटना सूर्योदय और सूर्यास्त के समय सूर्य की चक्रीका के चपटी प्रतीत होने को परिभाषित कर सकती है?

- A. वायुमंडलीय अपवर्तन
- B. प्रकाश का प्रकीर्णन
- C. पूर्ण आंतरिक परावर्तन
- D. प्रकाश का वर्ण-विक्षेपण

Q282 Refraction and refractive index

The refractive indices of mediums 1, 2 and 3 are 1.46, 1.65 and 1.31, respectively. If the speed of light in the mediums are v_1 , v_2 and v_3 , respectively, which of the following relations between them is correct?

- A. $v_1 = v_2 = v_3$
- B. $v_1 > v_2 > v_3$
- C. $v_2 > v_3 > v_1$
- D. $v_3 > v_1 > v_2$

Q283 Refraction and refractive index

The refractive indices of ice and glass are 1.31 and 1.52, respectively. A ray of light passes from ice to glass. The refractive index of glass with respect to ice is _____ and the ray bends _____ the normal in glass.

- A. 0.86, towards
- B. 0.86, away from
- C. 1.16, towards
- D. 1.16, away from



Q284 Refraction and refractive index

Rays coming from the sun are refracted by the atmosphere. Due to this, the apparent sunset is about _____ the actual sunset.

- A. 1 minute after
- B. 1 minute before
- C. 2 minutes after
- D. 2 minutes before



Q285 Refraction and refractive index

A ray of light is incident on a refracting surface AB of a glass prism, kept in air, and emerges out of the other refracting surface AC. Consider the following statements:

- (a) The angle of refraction at surface AB is less than the angle of incidence.
- (b) The angle of refraction at the surface AC is more than the angle of incidence.

Which of the above statements is/are correct?

- A. Only (a)
- B. Only (b)
- C. Both (a) and (b)
- D. Neither (a) nor (b)



Q286 Refraction and refractive index

A ray of light in air is incident at an angle of 45° on the surface separating air from a medium of refractive index $\sqrt{2}$. The ray is refracted in the medium at an angle of ____.

- A. 15°
- B. 30°
- C. 45°
- D. 60°



Q287 Refraction and refractive index

The angle of incidence for a ray of light incident on a glass slab along its normal, is:

A. 0°



B. 30°

C. 45°

D. 90°

Q288 Refraction and refractive index

Which of the following optical phenomena can explain the visibility of the sun, two minutes prior to actual sunrise?

A. Scattering of light

B. Atmospheric refraction



C. Dispersion of light

D. Total Internal reflection

Q289 Refraction and refractive index

For a ray of light undergoing refraction through a triangular glass prism, which of the following statements is/are always correct?

(a) Angle of incidence is the angle between the incident ray and normal at the point of incidence.

(b) Angle of incidence is equal to angle of emergence.

(c) Angle of deviation is the angle between incident ray and emergent ray.

A. Only (a)

B. Only (b)

C. Both (a) and (c)



D. Both (b) and (c)



Q290 Refraction and refractive index

A ray of light in air is incident at an angle of 30° on the surface of water in a jar. The ray is refracted in the water at an angle of _____ and _____ in the plane of the incident ray.

- A. more than 30° , lies
- B. more than 30° , does not lie
- C. less than 30° , lies ☒
- D. less than 30° , does not lie

Q291 Refraction and refractive index

A ray of light in glass is incident at an angle of 30° on the surface separating glass from air. The ray is refracted in the air at an angle of _____ and the refracted ray _____ in the plane of the incident ray.

- A. more than 30° , lies ☒
- B. less than 30° , lies
- C. more than 30° , does not lie
- D. less than 30° , does not lie

Q292 Refraction and refractive index

A ray of light is incident on a refracting surface AB of a glass prism and emerges out of the other refracting surface AC. Consider the following statements:

- (a) The angle of refraction at surface AB is more than the angle of incidence.
- (b) The angle of refraction at the surface AC is less than the angle of incidence.

Which of the above statements is/are correct?

- A. Both (a) and (b)
- B. Neither (a) nor (b) ☒
- C. Only (a)
- D. Only (b)



Q293 Refraction and refractive index

A ray of light in air is incident at an angle of 60° on the surface separating air from a medium of refractive index $\sqrt{3}$. The ray is refracted in the medium at an angle of _____.

A. 60°

B. 45°

C. 30° ✓

D. 15°

Q294 Refraction and refractive index

Value of refractive index can be calculated by using:

A. Ohm's law

B. Maxwell's law

C. Snell's law ✓

D. Newton's law

Q295 Refraction and refractive index

A ray of light is incident on a refracting surface AB of glass prism, kept in air, and emerges out of the other refracting surface AC. Consider the following statements:

(a) The angle of refraction at surface AB is less than the angle of incidence.

(b) The angle of refraction at the surface AC is less than the angle of incidence.

Which of the above statements is/are correct?

A. Only (a) ✓

B. Only (b)

C. Both (a) and (b)

D. Neither (a) nor (b)

Q296 Refraction and refractive index

When light travels from one medium to another medium then:

A. incident ray, normal at the point of incidence and reflected ray are in two planes

B. incident ray, normal at the point of incidence and reflected ray are in the same plane

C. incident ray, normal at the point of incidence and refracted ray all are in the same plane ✓

D. incident ray, normal at the point of incidence and emerged ray, all are in the separate plane



Q297 Refraction and refractive index

A ray of light undergoes refraction through a triangular glass prism. The angle between the incident ray and emergent ray is called:

- A. angle of incidence
- B. angle of emergence
- C. angle of deviation
- D. angle of refraction



Q298 Refraction and refractive index

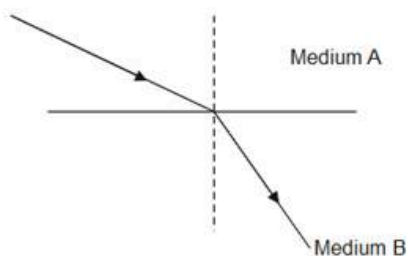
When a ray of light travels from a denser to a rarer medium, it will:

- A. bend towards the normal
- B. bend away from the normal
- C. have similar angles of incidence and refraction
- D. not hold the phenomenon of refraction



Q299 Refraction and refractive index

The path of a ray of light incident on an interface separating two transparent media is shown in the figure. The refractive index (n) of medium B with respect to medium A is given by:



- A. $n > 1$
- B. $n = 1$
- C. $0 < n < 1$
- D. $n = 0$



Q300 Refraction and refractive index

What happens when a pencil is immersed in water?

- A. Colour of pencil changes
- B. Pencil appears bright
- C. Pencil appears bent
- D. Pencil looks curved



Q301 Refraction and refractive index

Out of indigo, green, orange and yellow colours, which colour has the least refractive index?

- A. Yellow
- B. Green
- C. Indigo
- D. Orange



Q302 Refraction and refractive index

When light is passed through a prism, refraction of light occurs:

- A. one time
- B. two times
- C. zero times
- D. three times



Q303 Refraction and refractive index

The refractive indices of dense flint glass and water are 1.65 and 1.33, respectively. A ray of light passes from dense flint glass to water. The refractive index of water with respect to dense flint glass is _____ and the ray bends _____ the normal in water.

- A. 0.81, towards
- B. 1.24, towards
- C. 0.81, away from
- D. 1.24, away from



Q304 Refraction and refractive index

When we observe the floor of a swimming pool filled with water we notice that the pool looks:

- A. More wider than it actually is
- B. less wide than it actually is
- C. deeper than it actually is
- D. less deep than it actually is



Q305 Refraction and refractive index

If the value of the refractive index increases then:

- A. deviation decreases
- B. there is no deviation in direction of light
- C. deviation in direction of light increases
- D. light will follow curved path



Q306 Refraction and refractive index

The refractive indices of mediums 1, 2 and 3 are 1.50, 1.36 and 1.54, respectively. If the speed of light in the mediums are v_1 , v_2 and v_3 , respectively, which of the following relations between them is correct?

- A. $v_1 > v_3 > v_2$
- B. $v_2 > v_1 > v_3$
- C. $v_3 > v_2 > v_1$
- D. $v_1 = v_2 = v_3$



Q307 Refraction and refractive index

A light ray enters from medium A to medium B, and as a result, it bends away from the normal in the medium B. The refractive index of medium B relative to medium A is:

- A. less than unity
- B. greater than unity
- C. equal to unity
- D. equal to 2



Q308 Refraction and refractive index

When light is incident along the normal and passes from air to water, then the direction of light will _____.

- A. change before entering water
- B. change after entering water
- C. change at the boundary
- D. not be changed



Q309 Refraction and refractive index

Which of the following instruments use the principle of refraction?

- A. Radio
- B. Spectacles
- C. Clock
- D. Mobile



Q310 Refraction and refractive index

A light ray travels from air into an optical fibre with an index of refraction of 1.45. If the angle of incidence on the end of the fibre is 22° , the angle of refraction inside the fibre is:

- A. 20.99°
- B. 14.99°
- C. 25.69°
- D. 22.69°

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q311 Refraction and refractive index

Suppose a beam of light of average wavelength 600 nm is incident on a glass prism from air, and on entering into the prism, it splits into different colours. One of the colours has wavelength 380 nm. The refractive index of the medium for this particular wavelength is:

- A. 1.33
- B. 1.42
- C. 1.58
- D. 1.73



Q312 Refraction and refractive index

Consider an equilateral glass prism on which a ray of light incident at an angle θ and passes through the prism in such a way that the refracted ray inside the prism is parallel to its base and emerges at an angle of emergence β . Which of the following is true?

A. $\theta = -\beta$

B. $\theta = \beta$ ✓

C. $\theta = -2\beta$

D. $\theta = 2\beta$

Q313 Refraction and refractive index

Suppose you are given three mediums, A, B, and C, with refractive indexes 1.47, 1.33, and 1.44 respectively. If the velocity of light in A, B, and C are V_A , V_B , and V_C respectively, then which of the following is true?

A. $V_A > V_B > V_C$

B. $V_C > V_B > V_A$

C. $V_B > V_C > V_A$ ✓

D. $V_A > V_C > V_B$

Q314 Refraction and refractive index

If light enters from air to some medium A having a refractive index of 1.33, then what is the speed of light in the medium A?

A. $2.67 \times 10^8 \frac{\text{m}}{\text{s}}$

B. $1.67 \times 10^8 \frac{\text{m}}{\text{s}}$

C. $2.26 \times 10^8 \frac{\text{m}}{\text{s}}$ ✓

D. $1.97 \times 10^8 \frac{\text{m}}{\text{s}}$

Q315 Refraction and refractive index

A light ray is travelling from air medium to water medium (refractive index = 1.3) such that angle of incidence is x degree and angle of refraction is y degree. The value of ratio $(\sin y) / (\sin x)$ is:

A. $1/1.3$ ✓

B. 1.3

C. 1

D. 0.3



Q316 Refraction and refractive index

The appearance of a stick at the interface when immersed in water is an example of _____.

- A. reflection of light
- B. refraction of light
- C. transmission of light
- D. displacement of light



Q317 Refraction and refractive index

When light passes from water to air then _____ changes.

- A. its frequency
- B. Wave length
- C. its speed
- D. its colour

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q318 Refraction and refractive index

A ray of light is travelling from medium A to medium B. The incident ray makes an angle 75° with respect to the normal, and the refracted ray makes an angle 40° with respect to the normal. The refractive index of the medium A relative to the medium B is:

- A. 1.50
- B. 0.67
- C. 1.34
- D. 0.87

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q319 Refraction and refractive index

Light travels from air into water with an index of refraction of 1.33. The light ray will:

- A. bend towards the normal
- B. bend away from the normal
- C. go parallel to the normal
- D. go perpendicular to the normal



Q320 Refraction and refractive index

The refractive index of a material can be linked with relative _____ of propagation of light in different media.

- A. acceleration
- B. displacement
- C. speed
- D. force



Q321 Refraction and refractive index

The refractive index of a diamond is 2.42. Then the speed of light in the diamond is:

- A. 3×10^8 m/s
- B. 2.48×10^8 m/s
- C. 1.72×10^8 m/s
- D. 1.24×10^8 m/s



Q322 Refraction and refractive index

The correct relation between refractive index (μ), speed of light in air (c) and speed of light in the medium (v) is:

- A. $c = \frac{\mu}{v}$
- B. $v = \frac{\mu}{c}$
- C. $\mu = \frac{c}{v}$
- D. $\frac{1}{\mu} = \frac{c}{v}$



Q323 Refraction and refractive index

Ratio of Sin i and Sin r is known as:

- A. magnification
- B. dispersion
- C. refraction
- D. refractive index



Q324 Scattering (blue sky, red sunset)

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

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



Q325 Scattering (blue sky, red sunset)

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

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



Q326 Scattering (blue sky, red sunset)

Consider the following statements:

- (a) The particles in clouds are larger than the wavelength of different colours in white light coming from the sun.
- (b) All colours of white light are scattered by approximately the same amount.

Which of the above statements help(s) us to understand the white colour of clouds during sunshine?

- A. Only (a)
- B. Only (b)
- C. Both (a) and (b)
- D. Neither (a) nor (b)



Q327 Scattering (blue sky, red sunset)

The colour of scattered light depends on the size of the scattering particles. Very fine particles scatter mainly the _____ light.

- A. green
- B. blue
- C. red
- D. yellow



Q328 Scattering (blue sky, red sunset)

Red colour is scattered the _____ by fog or smoke because its wavelength is _____ than the wavelength of other colour components of white light.

- A. most, less
- B. most, more
- C. least, more
- D. least, less



Q329 Scattering (blue sky, red sunset)

In the absence of atmosphere, the colour of the sky would be:

- A. blue
- B. white
- C. black
- D. red



Q330 Scattering (blue sky, red sunset)

Which of the following CANNOT be explained using the phenomenon of scattering of light?

- A. Red colour used for danger signals
- B. Reddening of sun during sunrise
- C. Blue colour of sky
- D. Twinkling of stars



Q331 Scattering (blue sky, red sunset)

Clouds appear white during sunshine because the particles in clouds are _____ than the wavelength of different colours in white light coming from the sun and all colours of white light are scattered by _____ amount(s).

- A. smaller, about the same
- B. larger, about the same
- C. smaller, different
- D. larger, different



Q332 Scattering (blue sky, red sunset)

What would be the colour of the sky as viewed by an astronaut at the International Space Station?

- A. Red
- B. Black
- C. Blue
- D. White



Q333 Scattering (blue sky, red sunset)

The Outer space looks black because of:

- A. scattering of light by large particles
- B. scattering of light by smaller particle
- C. no refraction of light takes place
- D. no scattering of light takes place



Q334 Scattering (blue sky, red sunset)

The reddish appearance of the sun at the time of sunrise is due to:

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



Q335 Scattering (blue sky, red sunset)

When a photograph of Earth is taken from space its background looks dark because of:

- A. no reflection of light
- B. no refraction of light
- C. no dispersion of light
- D. no scattering of light



Q336 Scattering (blue sky, red sunset)

Smaller particles scatter the light of _____ and _____ colour the most; on the other hand, larger particles scatter the light of _____ and _____ colour the most.

- A. red, orange; violet, blue
- B. violet, blue; red, orange
- C. red, orange; green, yellow
- D. violet, blue; green, yellow

Q337 Scattering (blue sky, red sunset)

An astronaut from the moon's surface will observe the sky as:

- A. blue
- B. white
- C. red
- D. black

Q338 Scattering (blue sky, red sunset)

When sunlight passes through a canopy of a dense forest, tiny water droplets in the mist _____ light and Tyndall effect is observed.

- A. reflect
- B. refract
- C. reflect and refract
- D. scatter

Q339 Scattering (blue sky, red sunset)

Due to _____ phenomena, when light is passed through suspended particles in a medium, some portion of light is absorbed and emitted in all directions.

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



Q340 Scattering (blue sky, red sunset)

The sky appears blue due to:

- A. scattering of light of higher wave length
- B. scattering of light of lower wave length ✓
- C. dispersion of light of higher wave length
- D. dispersion of light of lower wave length

Q341 Scattering (blue sky, red sunset)

When a car is moving through a dusty road during night, a path of beam from the headlight is clearly visible due to _____ effect.

- A. dispersion
- B. immersion
- C. refraction
- D. scattering ✓

Q342 Scattering (blue sky, red sunset)

The colour of the clear sky is blue due to _____ of light by particles in the atmosphere of size _____ than the wavelength of visible light.

- A. refraction, larger
- B. scattering, larger
- C. refraction, smaller
- D. scattering, smaller ✓

Q343 Scattering (blue sky, red sunset)

The photographs taken from a satellite show the sky as dark. This is because:

- A. no refraction occurs
- B. no reflection occurs
- C. no scattering occurs ✓
- D. no dispersion occurs



Q344 Scattering (blue sky, red sunset)

The phenomena of scattering of light by colloidal particles gives rise to _____.

- A. refraction of light
- B. Tyndall effect
- C. dispersion
- D. Total internal reflection

Q345 Scattering (blue sky, red sunset)

Clouds can be seen as white because the small water droplets of the cloud _____.

- A. do not scatter any one of the wavelengths of visible light
- B. scatter very less amount of red and blue wavelength of visible light
- C. scatter all the wavelengths of the visible light with almost equal intensity
- D. scatter very high amount of red and blue wavelength of visible light

Q346 Scattering (blue sky, red sunset)

From the following, identify the applications of scattering of light.

- (a) Danger signals being red
- (b) Advanced sun rise and delayed sun set
- (c) Twinkling of stars
- (d) Tyndall effect
- (e) Redness of sun and blueness of sky

- A. (a), (b), (c)
- B. (b), (c), (d)
- C. (c), (d), (e)
- D. (d), (e), (a)



Q347 Total internal reflection (mirage/fibre)

Refractive index of flint glass is 1.56. Then the critical angle(I_c) for glass air interface can also be expressed as $\sin I_c$ equals :

A. 0.64

B. 0.74

C. 0.84

D. 0.94

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).



Q1 Commercial unit of energy (kWh)

Which of the following is the commercial unit of electric energy?

- A. Joule
- B. Kilowatt hour
- C. Calorie
- D. Watt second

**Q2** Commercial unit of energy (kWh)

An electric heater rated 1000 W and an electric geyser rated 2000 W are used for 4 hours daily. The energy consumed in 10 days (in kWh) is:

- A. 12
- B. 120
- C. 1200
- D. 12000

**Q3** Commercial unit of energy (kWh)

An electric oven is rated 2500 W. The energy used by it in 5 hours will be:

- A. 12.5 J
- B. 12.5 kWh
- C. 12500 J
- D. 12500 kWh

**Q4** Commercial unit of energy (kWh)

In a house, a TV set rated as 150 W is operated for 4 hours, and a 1500 W electric heater is operated for 25 minutes. The energy consumption values per day for the TV set and the electric heater are:

- A. 625 W h and 600 W h, respectively
- B. 600 W h and 625 W h, respectively
- C. 525 W h and 500 W h, respectively
- D. 500 W h and 525 W h, respectively



Q5 Commercial unit of energy (kWh)

The rate of electricity in a state is Rs5.00 per unit. The cost of running an 100 W fan for 10 hours a day for the whole month of May will be rupees:

A. 250

B. 200

C. 150



D. 300

Q6 Commercial unit of energy (kWh)

1 commercial unit of electrical energy is equal to _____ joules.

A. 3.6×10^8

B. 3.6×10^7

C. 3.6×10^6



D. 3.6×10^5

Q7 Commercial unit of energy (kWh)

Suppose an electric refrigerator of 500 W operates 12 hour/day. What is the cost of the energy to operate it for 30 days at ₹5.00 per kW h?

A. ₹500/-

B. ₹700/-

C. ₹900/-



D. ₹1,000/-

Q8 Commercial unit of energy (kWh)

The commercial unit of electrical energy is _____.

A. Joule

B. Watt

C. Calorie

D. Kilowatt hour



Q9 Commercial unit of energy (kWh)

The total energy consumed for 30 days by an air cooler rated 300 watt operating 12 hours per day is _____.

- A. 108 Wh
- B. 108 KWh
- C. 108 joule
- D. 108 joule-second

Q10 Energy transformations (examples)

Energy conversion in water pump is from _____ to _____.

- A. mechanical, electrical
- B. electrical, mechanical
- C. light, electrical
- D. electrical, heat

Q11 Energy transformations (examples)

Energy conversion in electromagnet is from _____ to _____.

- A. Electric, heat energy
- B. Electric energy, magnetic energy
- C. Electrical energy, light
- D. Magnetic energy, heat energy

Q12 Energy transformations (examples)

The device which converts chemical energy to electrical energy is called _____.

- A. ammeter
- B. voltmeter
- C. resistor
- D. voltaic cell



Q13 Mirage and looming

The random wavering of objects seen through a turbulent stream of hot air rising above a fire can be explained using:

- A. scattering of light
- B. atmospheric refraction
- C. dispersion of light
- D. Total internal reflection

Q14 Power and SI unit (watt) / horsepower

1 horsepower equals:

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

Q15 Power and SI unit (watt) / horsepower

Which of the following is NOT a unit of power?

- A. watt
- B. joule/second
- C. kilowatt hour
- D. horsepower

Q16 Power and SI unit (watt) / horsepower

Electric energy consumed in one second is:

- A. work
- B. current
- C. power
- D. potential energy



Q17 Twinkling of stars

The apparent position of a star keeps on changing slightly because:

- A. the physical conditions of the atmosphere keep changing ✓
- B. the physical conditions of the atmosphere are stationary
- C. the atmosphere consists of a mixture of gases
- D. the atmosphere scatters star light

Q18 Twinkling of stars

Planets do not twinkle because

- A. they scatter less light
- B. they act as extended source of light ✓
- C. they act as a point source of light
- D. they scatter more light

Q19 Twinkling of stars

Due to atmospheric refraction, the apparent position of a star is slightly _____ than its actual position, when viewed from near the horizon, and this apparent position _____. This results in twinkling of stars.

- A. higher, is stationary
- B. higher, keeps on changing ✓
- C. lower, is stationary
- D. lower, keeps on changing

Q20 Twinkling of stars

Twinkling of stars occurs because:

- A. change in the density of different layers of air causes change in Tyndall effect continuously
- B. change in the density of different layers of air causes change in scattering intensity continuously
- C. change in the density of different layers of air causes change in refractive index continuously ✓
- D. change in the density of different layers of air causes change in colour of the sky continuously



Q21 Twinkling of stars

Stars twinkle at night due to:

- A. atmospheric dispersion
- B. atmospheric scattering of starlight
- C. atmospheric refraction of starlight ☒
- D. atmospheric reflection of starlight



Q1 Measuring instruments and what they measure

A galvanometer when connected in a circuit, detects the presence of :

- A. Current ✓
- B. Potential difference
- C. Resistance
- D. Frequency

Q2 Units of physical quantities (match)

Which of the following is NOT a unit of heat energy?

- A. Joule
- B. Watt second
- C. Calorie
- D. Kilowatt ✓

Q3 Units of physical quantities (match)

What is the unit of magnification?

- A. Dioptre
- B. cm
- C. Newton
- D. It has no unit ✓



Q1 Acids and bases (properties/examples)

Metal oxides are generally _____ in nature.

A. acidic

B. basic



C. neutral

D. sweet

Q2 Acids and bases (properties/examples)

Match the following:

Natural source	Acid
i. Vinegar	a. Oxalic acid
ii. Tomato	b. Citric acid
iii. Orange	c. Acetic acid

A. i-a, ii-b, iii-c

B. i-c, ii-b, iii-a

C. i-c, ii-a, iii-b



D. i-a, ii-c, iii-b

Q3 Acids and bases (properties/examples) HINDI - no English version saved

किस यौगिक को निर्जलन अभिकर्मक माना जा सकता है?

A. एथेनॉल

B. सांद्र सल्फ्यूरिक अम्ल



C. एथेनोइक अम्ल

D. एथीन



Q4 Acids and bases (properties/examples)

Which of the following is NOT an alkali?

A. NH_4OH

B. $\text{Ba}(\text{OH})_2$

C. $\text{Cu}(\text{OH})_2$



D. LiOH

Q5 Acids and bases (properties/examples)

In general, the oxides of non-metals are _____ in nature.

A. neutral

B. basic

C. acidic



D. amphoteric

Q6 Acids and bases (properties/examples)

In general, the oxides of metals are _____ in nature.

A. acidic

B. basic



C. neutral

D. amphoteric

Q7 Acids and bases (properties/examples)

Which of the following is a natural source of lactic acid?

A. Tomato

B. Sour milk



C. Tamarind

D. Ant sting



Q8 Acids and bases (properties/examples)

Which of the following statements is INCORRECT?

- a) Methanoic acid is secreted by Nettle plant leaves.
- b) Acetic acid is found in vinegar.
- c) Tooth decay starts when mouth pH is lower than 5.5.
- d) Bacteria present in the mouth produces base by degradation of the remaining food particles present in the mouth.

A. a

B. b

C. c

D. d



Q9 Acids and bases (properties/examples)

Which acid is produced by the human stomach?

A. HCl

B. CH_3COOH

C. H_2SO_4

D. Lactic acid



Q10 Acids and bases (properties/examples)

One of the natural sources of lactic acid is:

A. Curd

B. Orange

C. Tomato

D. Vinegar



Q11 Acids and bases (properties/examples)

Which of the following statements is/are INCORRECT?

- A) Oxides of metals are basic and that of non-metals are acidic in nature.
- B) Oxides of metals are acidic and that of non-metals are basic in nature.
- C) Non-metals are electronegative in nature while metals are electropositive in nature.

- A. Only A
- B. Both A and B
- C. Only B
- D. Both A and C



Q12 Acids and bases (properties/examples)

A student performed a reaction with zinc and sulphuric acid. zinc sulphate is formed along with a gas. Which gas is evolved?

- A. Oxygen
- B. Hydrogen
- C. Carbon monoxide
- D. Carbon dioxide



Q13 Antacids and everyday acid-base

Substance X, which is used as an antacid, reacts with dilute hydrochloric acid to produce a gas Y, which is used in one type of fire-extinguisher. The substance X and gas Y, respectively, are:

- A. NaHCO_3 , CO_2
- B. NaOH , CO_2
- C. NaCl , CO_2
- D. NaHCO_3 , CO



Q14 Antacids and everyday acid-base

If any person is affected by a bee-sting attack, which chemical would be helpful for him to get some relief from pain?

- A. Curd
- B. Common salt
- C. Baking soda
- D. Vinegar



Q15 Antacids and everyday acid-base

Toothpaste is generally _____ in nature.

- A. acidic
- B. basic
- C. harmful
- D. neutral



Q16 Antacids and everyday acid-base

Consider the below statements and identify the correct answer.

Statement- I: The stinging hair of nettle leaves injects methanoic acid causing burning pain.

Statement-II: Use of a mild base like baking soda on the stung area gives relief.

- A. Both statements are correct. Statement II is not related to Statement I.
- B. Both Statements are correct. Statement II is related to Statement I.
- C. Only Statement I is correct.
- D. Only Statement II is correct.



Q17 Antacids and everyday acid-base

Which of the following statements is NOT correct for antacids?

- A. Antacids are useful to neutralise excess stomach acid.
- B. $\text{Mg}(\text{OH})_2$ is an antacid.
- C. Antacids are strong acids.
- D. NaHCO_3 is an antacid.



Q18 Antacids and everyday acid-base

Which of the following chemicals can be applied to get relief from pain due to bee-sting?

A. CaSO_4

B. Na_2CO_3

C. CaCO_3

D. NaHCO_3



Q19 Antacids and everyday acid-base

To get rid of pain in the stomach during indigestion, people use:

A. gastric juice

B. lemon juice

C. milk of magnesia



D. tomato juice

Q20 Antacids and everyday acid-base

Which of the following salts is an active ingredient in antacids?

A. Na_2CO_3

B. NaHCO_3



C. CaOCl_2

D. CaCl_2

Q21 Baking soda, washing soda, bleaching pdr

When chlorination of dry slaked lime takes place, _____ will form as the main product.

A. quicklime

B. acetic acid

C. hydrochloric acid

D. calcium oxychloride



Q22 Baking soda, washing soda, bleaching pdr

Consider the below statements and identify the correct answer.

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

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

- A. Both the statements are true.
- B. Both the statements are false.
- C. Statement-I is true, and Statement-II is false.
- D. Statement-II is true, and Statement-I is false. ✓

Q23 Baking soda, washing soda, bleaching pdr

Which of the following is not the use of bleaching powder?

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

- A. i
- B. iii
- C. iv ✓
- D. ii

Q24 Baking soda, washing soda, bleaching pdr

Identify the correct chemical reaction involved in bleaching powder preparation

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



Q25 Baking soda, washing soda, bleaching pdr

To cook some foods faster we can use _____.

A. baking powder



B. ammonium chloride

C. sodium chloride

D. bleaching powder

Q26 Baking soda, washing soda, bleaching pdr

Consider the statements given below and identify the correct answer.

Statement-I: Washing soda is produced from sodium chloride.

Statement-II: It attacks dirt and grease to form water soluble products, which are then washed away on rinsing with water.

A. Both the statements are true.



B. Both the statements are false.

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

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

Q27 Baking soda, washing soda, bleaching pdr

A compound X is transparent crystalline solid. It has cleansing properties and used in manufacture of glass. Compound X is:

A. baking soda

B. washing soda



C. sodium hydroxide

D. bleaching powder

Q28 Baking soda, washing soda, bleaching pdr

Which gas is utilised during the preparation of bleaching powder?

A. Hydrogen

B. Oxygen

C. Chlorine



D. Carbon dioxide



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Q29 Baking soda, washing soda, bleaching pdr

_____ is the chemical name of washing soda.

- A. Sodium carbonate trihydrate
- B. Sodium carbonate pentahydrate
- C. Sodium carbonate tetrahydrate
- D. Sodium carbonate decahydrate



Q30 Baking soda, washing soda, bleaching pdr

Consider the below statements and identify the correct answer.

Statement-I: The chemical formula for baking soda is $\text{CaSO}_4 \frac{1}{2} \text{H}_2\text{O}$.

Statement-II: Baking soda is used for making toys, materials for decoration and for making surfaces smooth

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



Q31 Baking soda, washing soda, bleaching pdr

Which of the following is not the use of washing soda?

- (i) Manufacture of glass, soap and paper
- (ii) As a cleaning agent for domestic purposes
- (iii) For removing permanent hardness of water
- (iv) Baking cake

- A. i
- B. ii
- C. iii
- D. iv



Q32 Baking soda, washing soda, bleaching pdr

Which of the following is the correct set of raw materials for washing soda preparation?

A. NaCl , NH_3 , CO_2



B. NaCl , CO_2

C. NaCl , NH_3

D. NaCl and H_2O

Q33 Baking soda, washing soda, bleaching pdr HINDI - no English version saved

नीचे दिए गए कथनों पर विचार कीजिए, और सही उत्तर का चयन कीजिए।

कथन-I: ब्लीचिंग पाउडर का रासायनिक सूत्र CaOCl_2 है।

कथन-II: ब्लीचिंग पाउडर तनु अम्लों के साथ अभिक्रिया करके क्लोरीन उत्पन्न करता है।

A. दोनों कथन सत्य हैं।



B. दोनों कथन असत्य हैं।

C. कथन-I सत्य है, और कथन-II असत्य है।

D. कथन-II सत्य है, और कथन-I असत्य है।

Q34 Baking soda, washing soda, bleaching pdr

Which compounds are required to manufacture baking soda?

A. Sodium hydroxide and water

B. Water and bleaching powder

C. Water and sodium carbonate

D. Common salt, carbon dioxide and ammonia



Q35 Baking soda, washing soda, bleaching pdr

Consider the below statements and identify the correct answer.

Statement-I: The chemical formula for washing soda is Na_2CO_3 .

Statement-II: It is used for removing permanent hardness of water.

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

Q36 Baking soda, washing soda, bleaching pdr

Which of the following is/are NOT use(s) of washing soda?

- (i) Manufacture of glass, soap and paper
- (ii) In soda-acid fire extinguisher
- (iii) For removing permanent hardness of water

- A. Only i
- B. Only ii
- C. Only iii
- D. i and iii

Q37 Baking soda, washing soda, bleaching pdr

Baking powder is a mixture of:

- A. baking soda and mild edible acid
- B. sodium carbonate and tartaric acid
- C. baking soda and washing soda
- D. baking soda and bleaching powder



Q38 Baking soda, washing soda, bleaching pdr

Washing soda is _____ in nature.

- A. acidic
- B. basic
- C. edible
- D. sour

Q39 Baking soda, washing soda, bleaching pdr

Which of the following are uses of bleaching powder?

- (i) For disinfecting drinking water supply.
- (ii) For the manufacture of chloroform.
- (iii) For making wool unshrinkable.

- A. i, ii and iii
- B. i and ii
- C. i and iii
- D. ii and iii

Q40 Baking soda, washing soda, bleaching pdr

Which of the following is the chemical reaction involved in the baking soda preparation?

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



Q41 Baking soda, washing soda, bleaching pdr

Consider the below statements and identify the correct answer.

Statement-I: The chemical formula for baking soda is NaHCO_3 .

Statement-II: It is used in soda-acid fire extinguisher.

- A. Both the statements are true. ✓
- B. Both the statements are false.
- C. Statement-I is true, and Statement-II is false.
- D. Statement-II is true, and Statement-I is false.

Q42 Baking soda, washing soda, bleaching pdr

When baking soda is heated it converts into _____, water, and carbon dioxide.

- A. sodium chloride
- B. sodium acetate
- C. sodium hydroxide
- D. sodium carbonate ✓

Q43 Baking soda, washing soda, bleaching pdr

Compound X is used in glass and soap industry. Ten molecules of water of crystallisation are present in this compound. The pH value of its solution is higher than 7. Identify compound X.

- A. Baking soda
- B. Washing soda ✓
- C. Sodium hydroxide
- D. Bleaching powder



Q44 Baking soda, washing soda, bleaching pdr

Which of the following is NOT a use of baking soda?

- (i) to make drinking water free from germs
- (ii) in soda-acid fire extinguishers
- (iii) an ingredient in antacids

A. only ii

B. only iii

C. only i



D. ii and iii

Q45 Baking soda, washing soda, bleaching pdr

Washing soda is used in the manufacture of which of the following compounds?

A. Blue vitriol

B. Green vitriol

C. Bleaching powder

D. Borax



Q46 Baking soda, washing soda, bleaching pdr

Which of the following properties is NOT shown by bleaching powder?

A. Reducing agent



B. For bleaching cotton fibre

C. Oxidising agent

D. In water purification



Q47 Baking soda, washing soda, bleaching pdr

Consider the below statements and identify the correct answer.

Statement-I: Bleaching powder is used to make drinking water free from germs.

Statement-II: Bleaching powder is used as an oxidising agent in many chemical industries.

- A. Both the statements are true. ✓
- B. Both the statements are false.
- C. Statement-I is true, and Statement-II is false.
- D. Statement-II is true, and Statement-I is false.

Q48 Baking soda, washing soda, bleaching pdr

Consider the below statements and identify the correct answer.

Statement-I: The chemical formula of bleaching powder is CaOCl_2 .

Statement-II: It is used to make drinking water free from germs.

- A. Both the statements are true. ✓
- B. Both the statements are false.
- C. Statement-I is true, and Statement-II is false.
- D. Statement-II is true, and Statement-I is false.

Q49 Baking soda, washing soda, bleaching pdr

Which of the following compounds is used in the manufacture of borax?

- A. Chlorine water
- B. Washing soda ✓
- C. Brine water
- D. Bleaching powder



Q50 Baking soda, washing soda, bleaching pdr

During the preparation of NaOH by chlor-alkali process, which of the following ions migrates toward the cathode?

A. CO_3^{2-}

B. OH^-

C. Na^+



D. Cl^-

Q51 Baking soda, washing soda, bleaching pdr

Which compound is used for faster cooking?

A. CaOCl_2

B. NaOH

C. Na_2CO_3

D. NaHCO_3



Q52 Baking soda, washing soda, bleaching pdr

Which chemical can be used for making germ-free drinking water?

A. NaOH

B. CaOCl_2



C. Ca(OH)_2

D. NH_4OH

Q53 Baking soda, washing soda, bleaching pdr

Which of the following industries does NOT use washing soda?

A. Soap

B. Glass

C. Cosmetic



D. Paper



Q54 Baking soda, washing soda, bleaching pdr

Baking powder is a mixture of:

- A. baking soda + mild edible acid ✓
- B. baking soda + strong acid
- C. baking soda + weak base
- D. baking soda + strong base

Q55 Baking soda, washing soda, bleaching pdr

Washing soda is:

- A. an acidic salt
- B. a basic salt ✓
- C. a neutral salt
- D. a base

Q56 Baking soda, washing soda, bleaching pdr

The compound 'X' is produced when baking soda is heated. Recrystallization of X gives compound 'Y'. Select the compounds X and Y, respectively.

- A. Sodium carbonate and washing soda ✓
- B. Sodium bicarbonate and washing soda
- C. Sodium carbonate and bleaching powder
- D. Sodium bicarbonate and bleaching powder

Q57 Baking soda, washing soda, bleaching pdr

Which of the following statements is correct for washing soda?

- A. Washing soda is used for the preparation of glass. ✓
- B. Washing soda is used for the production of H_2 and Cl_2 .
- C. Washing soda is a decolorising agent.
- D. Washing soda is Na_2CO_3 .



Q58 Baking soda, washing soda, bleaching pdr

Which of the following is produced when baking powder is heated?

- A. Carbon monoxide and sodium salt of tartaric acid is produced.
- B. Carbon dioxide and sodium carbonate is produced. ✓
- C. Carbon dioxide and sodium salt of tartaric acid is produced.
- D. Carbon monoxide and sodium carbonate is produced.

Q59 Baking soda, washing soda, bleaching pdr

Which of the following is a hydrate of sodium carbonate containing ten molecules of water of crystallisation?

- A. Baking soda
- B. Baking powder
- C. Washing soda ✓
- D. Bleaching powder

Q60 Baking soda, washing soda, bleaching pdr

Which of the following compounds is prepared when sodium chloride reacts with carbon dioxide in the presence of ammonia and water?

- A. NaCO_3
- B. NaHCO_3 ✓
- C. Na_2SO_4
- D. CaCO_3

Q61 Baking soda, washing soda, bleaching pdr

Baking soda is NOT generally used:

- A. as an antacid
- B. as a disinfectant ✓
- C. as baking powder
- D. in fire extinguishers



Q62 Baking soda, washing soda, bleaching pdr

The correct chemical formula of washing soda is:

- A. $\text{Na}_2\text{CO}_3 \cdot 6\text{H}_2\text{O}$
- B. $\text{Na}_2\text{CO}_3 \cdot 8\text{H}_2\text{O}$
- C. $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ ✓
- D. $\text{Na}_2\text{CO}_3 \cdot 12\text{H}_2\text{O}$

Q63 Baking soda, washing soda, bleaching pdr

Bleaching powder is represented as:

- A. CaCO_3
- B. $\text{Ca}(\text{OH})_2$
- C. CaCl_2
- D. CaOCl_2 ✓

Q64 Baking soda, washing soda, bleaching pdr

What is the nature of washing soda?

- A. Mild acidic
- B. Basic ✓
- C. Neutral
- D. Amphoteric

Q65 Baking soda, washing soda, bleaching pdr

Which of the following is not the use of baking soda?

- A. bleaching action ✓
- B. making of baking powder
- C. in soda-acid fire extinguishers
- D. as an ingredient in antacids



Q66 Baking soda, washing soda, bleaching pdr

Bleaching powder is produced by the action of chlorine on?

- A. Caustic soda
- B. Slaked lime
- C. Quick lime
- D. Sodium chloride

Q67 Baking soda, washing soda, bleaching pdr

A mixture of sodium bicarbonate and a mild edible acid is known as _____.

- A. baking soda
- B. baking powder
- C. bleaching powder
- D. washing soda

Q68 Baking soda, washing soda, bleaching pdr

Which of the following mild non-corrosive basic salts is prepared by the reaction of aqueous sodium chloride solution with ammonia and carbon dioxide?

- A. Baking soda
- B. Baking powder
- C. Bleaching powder
- D. Washing soda

Q69 Baking soda, washing soda, bleaching pdr

What is the chemical behaviour of washing soda?

- A. It is neutral in nature.
- B. It is basic in nature.
- C. It is acidic in nature.
- D. It is amphoteric in nature.



Q70 Baking soda, washing soda, bleaching pdr

Which of the following compounds is formed when baking soda is heated?

- A. Sodium oxide
- B. Calcium oxide
- C. Sodium carbonate ✓
- D. Sodium hydroxide

Q71 Baking soda, washing soda, bleaching pdr

Bleaching powder is produced by the action of chlorine on:

- A. Ca(OH)_2 ✓
- B. NaOH
- C. CaCO_3
- D. CaO

Q72 Baking soda, washing soda, bleaching pdr

Which of the following raw materials is used to make washing soda?

- A. NaOH
- B. NaHCO_3
- C. NaCl ✓
- D. MgCO_3

Q73 Baking soda, washing soda, bleaching pdr

Which of the following compounds on treatment with chlorine produces bleaching powder?

- A. Slaked lime ✓
- B. Quicklime
- C. Calcium carbonate
- D. Calcium bicarbonate



Q74 Baking soda, washing soda, bleaching pdr

By which process do we get washing soda?

- A. By heating of NaHCO_3
- B. By mixing NaHCO_3 with an edible acid
- C. By recrystallisation of Na_2CO_3 ✓
- D. By reaction between NaCl(aq) , NH_3 and CO_2

Q75 Baking soda, washing soda, bleaching pdr

What is the scientific name of baking soda?

- A. Sodium carbonate (NaCO_3)
- B. Sodium bicarbonate (NaHCO_3) ✓
- C. Sodium chloride (NaCl)
- D. Sodium sulphate (Na_2SO_4)

Q76 Baking soda, washing soda, bleaching pdr

Bleaching powder is formed when dry slaked lime reacts with _____.

- A. nitrogen
- B. hydrogen
- C. chlorine ✓
- D. bromine

Q77 Common salts and their uses (formula)

Three products, _____, _____ and _____ are produced in chlor-alkali process.

- A. Hydrogen, Chlorine, NaOH ✓
- B. Chlorine, Hydrogen, Na_2CO_3
- C. Oxygen, Hydrogen, NaOH
- D. Chlorine, Oxygen, Na_2CO_3



Q78 Common salts and their uses (formula)

In chlor-alkali process, chlor represents chlorine gas and alkali represents:

- A. ZnO
- B. CaCO_3
- C. NaOH ✓
- D. Ca(OH)_2

Q79 Common salts and their uses (formula)

Shreya adds some calcium hydroxide in a test tube containing concentrated sulphuric acid. The main product of the reaction will be:

- A. calcium chloride
- B. calcium acetate
- C. calcium hydroxide
- D. calcium sulphate ✓

Q80 Common salts and their uses (formula)

Consider the below statements and identify the correct answer.

Statement-I: Sodium hydroxide is prepared by chlor-alkali process.

Statement-II: Three products chlorine gas, hydrogen gas and sodium hydroxide are produced in this process.

- A. Both the statements are true. ✓
- B. Both the statements are false.
- C. Statement-I is true, and Statement-II is false.
- D. Statement-II is true, and Statement-I is false.

Q81 Common salts and their uses (formula)

Which of the following salts is used in black and white photography?

- A. KBr
- B. AgBr ✓
- C. AgNO_3
- D. NaBr



Q82 Common salts and their uses (formula)

In preparation of NaOH by electrolytic method, which solution is used?

- A. Lime water
- B. Brine
- C. Bromine water
- D. Chlorine water



Q83 Common salts and their uses (formula)

The acid and base which form sodium hydrogen carbonate are:

- A. H_2CO_3 and NaOH
- B. HCl and NaOH
- C. H_2CO_3 and Na_2CO_3
- D. HCl and NaCl



Q84 Common salts and their uses (formula)

What is the main product when calcium oxide reacts vigorously with water?

- A. Slaked lime
- B. Lime stone
- C. Quick lime
- D. Hydrogen gas



Q85 Common salts and their uses (formula)

Which of the following compounds reacts with carbon dioxide to form lime stone?

- A. Calcium carbide
- B. Calcium
- C. Calcium oxide
- D. Calcium hydroxide



Q86 Common salts and their uses (formula)

Compound 'A' reacts with dilute hydrochloric acid to produce effervescence. The gas evolved turns lime water milky. Select the compound A.

A. NaOH

B. Zn metal

C. Na_2CO_3



D. NaCl

Q87 Common salts and their uses (formula)

Which of the following products is formed when calcium carbonate is heated?

A. Limestone

B. Slaked lime

C. Marble

D. Quick lime



Q88 Common salts and their uses (formula)

An aqueous solution of sodium chloride is known as?

A. lime

B. brine



C. Caustic soda

D. Lime stone

Q89 Common salts and their uses (formula)

After 2 to 3 days of whitewashing of walls with a solution of slaked lime, which of the following compounds is produced that gives a shiny finish to the walls?

A. Calcium carbonate



B. Calcium hydroxide

C. Calcium bicarbonate

D. Calcium dioxide



Q90 Common salts and their uses (formula)

Which of the following is the correct chemical formula of bleaching powder?

A. CaOCl_2



B. Ca(OH)_2

C. CaO

D. CaCl_2

Q91 Common salts and their uses (formula)

Which of the following acid-base pairs will produce a salt of ammonium chloride?

A. $\text{HCl} - \text{NaOH}$

B. $\text{HCl} - \text{NH}_4\text{OH}$



C. $\text{HNO}_3 - \text{NH}_4\text{OH}$

D. $\text{H}_2\text{SO}_4 - \text{NH}_4\text{OH}$

Q92 Common salts and their uses (formula)

Which of the following products is formed by the electrolytic decomposition of brine?

A. Calcium hydroxide

B. Sodium hydroxide

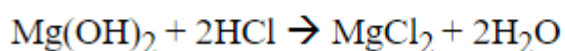


C. Bleaching powder

D. Potassium hydroxide

Q93 Neutralization reaction

The following reaction is an example of _____.



A. decomposition reaction

B. combination reaction

C. neutralisation reaction

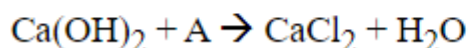


D. precipitate reaction



Q94 Neutralization reaction

Which of the following reactants will come in place of A and give a neutralisation reaction?



A. Hydrochloric acid

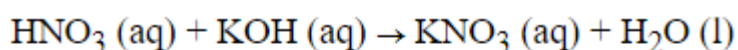


B. Sulphuric acid

C. Acetic acid

D. Nitric acid

Q95 Neutralization reaction



The above reaction is an example of:

A. decomposition reaction

B. neutralisation reaction



C. redox reaction

D. combination reaction

Q96 Neutralization reaction

During neutralisation reaction H^+ ion comes from _____ and OH^- ion comes from _____, respectively, to form a water molecule.

A. acid; salts

B. salts; base

C. base; acid

D. acid; base



Q97 Neutralization reaction

Which of the following are neutralisation reactions?

- (i) $\text{NaOH (aq)} + \text{HCl (aq)} \rightarrow \text{NaCl (aq)} + \text{H}_2\text{O (l)}$
- (ii) $\text{HNO}_3 \text{ (aq)} + \text{KOH (aq)} \rightarrow \text{KNO}_3 \text{ (aq)} + \text{H}_2\text{O (l)}$
- (iii) $\text{HCl (aq)} + \text{NaOH (aq)} \rightarrow \text{NaCl (aq)} + \text{H}_2\text{O (l)}$

A. i, ii and iii



B. i and ii

C. i and iii

D. ii and iii

Q98 Neutralization reaction

Predict the reactants for neutralisation reaction where the products are lithium sulphate and water.

A. Hydrochloric acid and lithium nitrate

B. Sulphuric acid and lithium carbonate

C. Hydrochloric acid and lithium carbonate

D. Sulphuric acid and lithium hydroxide



Q99 Neutralization reaction

5 ml of a solution of NaOH is found to be completely neutralised by 5 ml of a given solution of HCl. If we take 10 ml of the same solution of NaOH, the amount of HCl solution required to neutralise it will be:

A. 15 ml

B. 2.5 ml

C. 5 ml

D. 10 ml



Q100 Neutralization reaction

When an acid is allowed to react with a base to form salt and water, this chemical reaction is named as:

A. acid-base reaction

B. neutralisation reaction



C. redox reaction

D. combination reaction



Q101 Neutralization reaction HINDI - no English version saved

जब एसिटिक अम्ल को सोडियम हाइड्रॉक्साइड से उपचारित किया जाता है, तो _____ और जल बनेगा।

- A. सोडियम कार्बोनेट
- B. लैक्टिक अम्ल
- C. सोडियम एसीटेट ✓
- D. सोडियम बाईकार्बोनेट

Q102 Neutralization reaction

Consider the below statements and identify the correct answer.

Statement I: The reaction between an acid and a base to form salt and water is known as a neutralisation reaction.

Statement II: A neutralisation reaction can be written as: Acid + Base $\rightarrow$ Salt + Water

- A. Statement I is correct, and Statement II is incorrect.
- B. Statement II is correct, and Statement I is incorrect.
- C. Both statements are correct. ✓
- D. Both statements are incorrect.

Q103 Neutralization reaction

Which of the following is an example of neutralisation reaction?

- A. $\text{CuSO}_4 (\text{aq}) + \text{BaCl}_2 (\text{aq}) \rightarrow \text{BaSO}_4 (\text{s}) + \text{CuCl}_2 (\text{aq})$
- B. $\text{Fe}(\text{s}) + \text{CuSO}_4 (\text{aq}) \rightarrow \text{FeSO}_4 (\text{aq}) + \text{Cu} (\text{s})$
- C. $\text{NaOH} (\text{aq}) + \text{HCl} (\text{aq}) \rightarrow \text{NaCl} (\text{aq}) + \text{H}_2\text{O} (\text{l})$ ✓
- D. $\text{Zn}(\text{s}) + \text{CuSO}_4 (\text{aq}) \rightarrow \text{ZnSO}_4 (\text{aq}) + \text{Cu} (\text{s})$

Q104 Neutralization reaction

For a neutralisation reaction, the reactants should be:

- A. base and water
- B. acid and water
- C. acid and base ✓
- D. salt and water



Q105 Neutralization reaction

What are the main products in the process of neutralisation reaction?

- A. O_2 and salt
- B. CO_2 and salt
- C. N_2 and salt
- D. H_2O and salt



Q106 Neutralization reaction

Which of the following reactions is NOT an example of neutralisation reaction?

- A. $Ca(OH)_2 + H_2CO_3 \rightarrow CaCO_3 + 2H_2O$
- B. $HNO_3 + KOH \rightarrow KNO_3 + H_2O$
- C. $CaO + H_2O \rightarrow Ca(OH)_2$
- D. $H_3PO_4 + 3KOH \rightarrow K_3PO_4 + 3H_2O$



Q107 Neutralization reaction

Select the compounds 'A' and 'B' produced in the given reaction.



- A. Na_2CO_3 and H_2O
- B. CH_3COONa and H_2O
- C. $NaHCO_3$ and H_2O
- D. $(CH_3COO)_2Na$ and H_2O



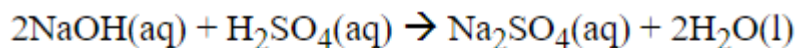
Q108 Neutralization reaction

Which of the following are produced in a neutralisation reaction?

- A. Salt and acid
- B. Acid and water
- C. Salt and water
- D. Precipitate and base



Q109 Neutralization reaction



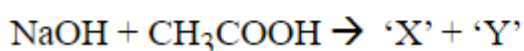
The given reaction is an example of:

- A. decomposition reaction
- B. precipitation reaction
- C. redox reaction
- D. neutralisation reaction



Q110 Neutralization reaction

Identify 'X' and 'Y' products respectively, in the given chemical equation.



- A. NaO and CO₂
- B. CH₃COONa and H₂O
- C. CH₃CO₂H and Na(OH)₂
- D. Na₂OH and CO₂



Q111 Plaster of Paris and gypsum

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

- A. baking soda
- B. washing soda
- C. sodium hydroxide
- D. plaster of Paris



Q112 Plaster of Paris and gypsum

Calcium sulphate dihydrate is the chemical name of:

- A. gypsum
- B. plaster of Paris
- C. washing soda
- D. baking powder



Q113 Plaster of Paris and gypsum

What temperature will be required for the preparation of Plaster of Paris from gypsum?

A. 100°C



B. 0°C

C. 373°C

D. 173°C

Q114 Plaster of Paris and gypsum

Which of the following is a use of plaster of Paris?

(i) Manufacture of glass, soap and paper

(ii) As a cleaning agent for domestic purposes

(iii) Making toys, materials for decoration and for making surfaces smooth

(iv) For baking

A. only i

B. only ii

C. only iii



D. Only iv

Q115 Plaster of Paris and gypsum

Consider the below statements and identify the correct answer.

Statement-I: Plaster of Paris has a very remarkable property of setting into hard mass on wetting with water.

Statement-II: Plaster of Paris is used in chemistry laboratories for sealing air gaps in apparatus where air tight arrangement is required.

A. Both the statements are true.



B. Both the statements are false.

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

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



Q116 Plaster of Paris and gypsum

Plaster of Paris is NOT used:

- A. for supporting fractured bones
- B. for making toys
- C. for cooking food
- D. as building material



Q117 Plaster of Paris and gypsum

Which of the following is NOT a use of plaster of Paris?

- (i) Manufacture of glass, soap and paper
- (ii) used in plaster for supporting fractured bones.
- (iii) making toys, materials for decoration and for making surfaces smooth.
- (iv) Used in chemistry laboratories for sealing air gaps in apparatus where air tight arrangement is required.

- A. only i
- B. only ii
- C. only iii
- D. ii and iii



Q118 Plaster of Paris and gypsum

How many formula units of CaSO_4 are attached to one molecule of water of crystallisation in Plaster of Paris?

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



Q119 Plaster of Paris and gypsum

At what temperature does gypsum get converted into Plaster of Paris?

- A. 473 K
- B. 273 K
- C. 373 K
- D. 573 K



Q120 Plaster of Paris and gypsum

What happens when calcium sulphate hemihydrate is mixed with water?

- A. It sets as a hard solid mass. ✓
- B. A clear solution is formed.
- C. SO_2 gas is liberated.
- D. Lime water is formed.

Q121 Plaster of Paris and gypsum

Which of the following statements is INCORRECT about plaster of Paris?

- A. It is used in making cosmetics and casts for statues.
- B. It is also known as calcium sulphate dihydrate. ✓
- C. It is used for making surfaces smooth before painting.
- D. It is used for setting fractured bones.

Q122 Plaster of Paris and gypsum

Calcium sulphate hemihydrates is the chemical name for:

- A. gypsum
- B. plaster of Paris ✓
- C. washing soda
- D. baking powder

Q123 Plaster of Paris and gypsum

In plaster of Paris:

- A. two formula units of CaSO_4 share half molecule of water
- B. one formula unit of CaSO_4 has one molecule of water
- C. two formula units of CaSO_4 share two molecule of water
- D. two formula units of CaSO_4 share one molecule of water ✓



Q124 Plaster of Paris and gypsum

What are the chemical formulas of gypsum and plaster of Paris, respectively?

- A. $\text{CaCO}_3 \cdot 2\text{H}_2\text{O}$ and $\text{CaCO}_3 \cdot 1/2\text{H}_2\text{O}$
- B. $\text{CaSO}_4 \cdot 1/2\text{H}_2\text{O}$ and $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$
- C. $\text{CaCO}_3 \cdot 1/2\text{H}_2\text{O}$ and $\text{CaCO}_3 \cdot 2\text{H}_2\text{O}$
- D. $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ and $\text{CaSO}_4 \cdot 1/2\text{H}_2\text{O}$



Q125 Plaster of Paris and gypsum

Which of the following compounds is used as a raw material for making plaster of Paris?

- A. $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$
- B. $\text{CuSO}_4 \cdot 2\text{H}_2\text{O}$
- C. $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$
- D. $\text{MgSO}_4 \cdot 2\text{H}_2\text{O}$



Q126 Plaster of Paris and gypsum

Plaster of Paris should be stored in sealed containers.

Which of the following is the correct explanation for the given assertion?

- A. It turns into a hard solid after reacting with moisture present in air.
- B. It decomposes in the presence of sunlight.
- C. It turns into hard solid after reacting with oxygen present in the air.
- D. It decomposes in the presence of oxygen.



Q127 Plaster of Paris and gypsum

_____ is Calcium sulphate hemihydrate.

- A. Gypsum
- B. Limestone
- C. Quicklime
- D. Plaster of Paris



Q128 Plaster of Paris and gypsum

Plaster of Paris is prepared by heating _____.

- A. gypsum at 373 K
- B. limestone at 373 K
- C. limestone at 273 K
- D. gypsum at 273 K

Q129 Plaster of Paris and gypsum

What is the number of water of crystallisation molecules present in plaster of Paris?

- A. $\frac{1}{2}$
- B. 1
- C. 10
- D. 2

Q130 Plaster of Paris and gypsum

A football player got fractured while playing football. He went to the hospital. The doctor took 'X' substance and mixed it with water for supporting the fractured bones in the right position.

What is the name of substance 'X'?

- A. Gypsum
- B. Plaster of Paris
- C. Calcium sulphate
- D. Sodium hydroxide

Q131 Plaster of Paris and gypsum

The substance which doctors use as plaster for supporting fractured bones in the right position is:

- A. $\text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$
- B. $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$
- C. $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$
- D. $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$



Q132 Properties & Tests

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

- A. $\text{Ba}(\text{NO}_3)_2$ solution
- B. AlCl_3 solution
- C. KNO_3 solution
- D. $\text{Mg}(\text{NO}_3)_2$ solution

Q133 Properties & Tests

To investigate the conduction of electric current, Ravi performed an experiment. He took different aqueous solutions or liquids (as electrolyte) and tried to pass electricity and connected the circuit with a bulb. In the presence of which of the following, will the bulb NOT glow?

- A. Sodium chloride (aq)
- B. Octane (l)
- C. Calcium chloride (aq)
- D. Copper sulphate (aq)

Q134 Properties & Tests

What will happen when an acid or base is mixed with water?

- i) Increase in the concentration of ions per unit volume.
- ii) Decrease in the concentration of ions per unit volume.
- iii) The solution will become diluted.
- iv) The solution will become more concentrated.

- A. Only (i)
- B. Only (ii)
- C. Only (i) and (iv)
- D. Only (ii) and (iii)



Q135 Strong vs weak acids/bases

Which of the following is/are weak acid(s)?

HCl, CH₃COOH, H₂SO₄, HNO₃, H₂CO₃, H₂SO₃

- A. HCl, CH₃COOH, H₂SO₄
- B. CH₃COOH, H₂CO₃ ✓
- C. H₂SO₄, HNO₃, H₂CO₃
- D. CH₃COOH, H₂SO₄, HNO₃, H₂CO₃

Q136 Strong vs weak acids/bases

Acids that give rise to more H⁺ ions are said to be _____, while those which gives less H⁺ ions are said to be _____.

- A. strong acid, strong base
- B. strong acid, weak base
- C. weak acid, strong acid
- D. strong acid, weak acid ✓

Q137 pH Scale & Indicators

Match the following:

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

- A. i-a, ii-b, iii-c
- B. i-c, ii-b, iii-a ✓
- C. i-c, ii-a, iii-b
- D. i-a, ii-c, iii-b



Q138 pH Scale & Indicators

Match the following:

Substance	pH
i. Lemon juice	a. 14
ii. Gastric juice	b. 1.2
iii. Milk of magnesia	c. 2.2
iv. Sodium hydroxide solution	d. 10

A. i-a, ii-b, iii-c, iv-d

B. i-c, ii-b, iii-d, iv-a



C. i-c, ii-b, iii-a, iv-d

D. i-d, ii-b, iii-c, iv-a

Q139 pH Scale & Indicators

Bhupesh suffered crop failure for few years. When he got the pH of the soil examined, it was about 11.6. Which of the following compounds can he use to treat the soil of his agricultural field?

A. Ca(OH)_2

B. NaCl

C. $\text{Al}_2(\text{SO}_4)_3$



D. Zn(OH)_2

Q140 pH Scale & Indicators

Seema squeezed a lemon and collected the juice in a glass. She realised that its sourness reduced when she added some water to it. What is the effect of addition of water on the concentration of hydroxide ions?

A. It increases



B. It reduces

C. It remains constant

D. It first increases and then decreases



Q141 pH Scale & Indicators

Which of the following salts will give an aqueous solution having pH of almost 7?

- (i) NH_4Cl
- (ii) Na_2CO_3
- (iii) K_2SO_4

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

Q142 pH Scale & Indicators

Babu took some quantity of dilute nitric acid in a test tube and heated the test tube at 70°C for about 10 minutes. What was its effect on the pH of nitric acid?

- A. It rose up
- B. It decreased ✓
- C. It remained constant
- D. It first increased and then decreased

Q143 pH Scale & Indicators

Consider the below statements and identify the correct answer.

Statement-I: An Olfactory indicator is a material whose smell varies depending on whether it is mixed with an acidic or basic solution.

Statement-II: Onion, clove oil and vanilla extract are examples of some olfactory indicators

- A. Both the statements are true. ✓
- B. Both the statements are false.
- C. Statement-I is true, and Statement-II is false.
- D. Statement-II is true, and Statement-I is false.



निम्नलिखित में से कौन सा अम्ल-क्षारक सूचक नहीं है?

- A. लिटमस
- B. मेथिल ऑरेंज
- C. फीनॉलफ्थेलिन
- D. स्टार्च पेपर



Consider the below statements and identify the correct answer.

Statement-I: Salts of strong acid and a strong base are neutral with pH value of 7.

Statement-II: Salts of a strong acid and weak base are acidic with pH value less than 7.

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



A litmus paper was used to check the pH of a solution. The solution turns blue litmus red, its pH is likely to be:

- A. 7
- B. 9
- C. 8
- D. 5



Q147 pH Scale & Indicators

Consider the below statements and identify the correct answer.

Statement-I: The p in pH stands for 'potenz' in German, meaning power.

Statement-II: On the pH scale we can measure pH generally from 0 to 16.

- A. Both the statements are true.
- B. Both the statements are false.
- C. Statement-I is true, and Statement-II is false. ✓
- D. Statement-I is false, and Statement-II is true.

Q148 pH Scale & Indicators HINDI - no English version saved

नीचे दिए गए कथनों पर विचार कीजिए, और सही उत्तर का चयन कीजिए।

कथन-I: लिटमस विलयन एक बैंगनी रंजक (purple dye) है, जो थैलोफाइटा वर्ग से संबंधित पादप, लाइकेन से निकाला जाता है।

कथन-II: लाल गोभी के पत्ते, हल्दी, कुछ फूलों की रंगीन पंखुड़ियां, जैसी कई प्राकृतिक सामग्रियां हैं, जो किसी विलयन में अम्ल या क्षारक की उपस्थिति का संकेत देती हैं।

- A. दोनों कथन सत्य हैं। ✓
- B. दोनों कथन असत्य हैं।
- C. कथन-I सत्य है, और कथन-II असत्य है।
- D. कथन-II सत्य है, और कथन-I असत्य है।

Q149 pH Scale & Indicators

The pH of milk of magnesia is about _____.

- A. 2.9
- B. 4.7
- C. 10.4 ✓
- D. 13.2



Q150 pH Scale & Indicators

Match the following:

matter	pH
i. human body	a. less than 5.6
ii. acid rain	b. less than 5.5
iii. mouth when tooth decay starts	c. 7 to 7.8

A. i-a, ii-b, iii-c

B. i-c, ii-b, iii-a

C. i-c, ii-a, iii-b



D. i-a, ii-c, iii-b

Q151 pH Scale & Indicators

The sunflower plant grows best in a soil having a pH range of 6.2 to 6.7. If the soil in a garden has a pH of 5, which substance needs to be added to the soil in order to grow sunflower?

A. Salt

B. Lime



C. Sand

D. Compost

Q152 pH Scale & Indicators

There is an aqueous solution X, whose pH is 2.6. It represents that the solution is:

A. strongly acidic in nature



B. strongly basic in nature

C. neutral in nature

D. weakly basic in nature



Q153 pH Scale & Indicators

You have two solutions A and B. The pH of solution A is 6 and that of solution B is 9. Based on this information, select the correct answer.

A. Solution A is acidic, and Solution B is basic.



B. Solution A is basic, and Solution B is acidic.

C. Both the solutions are basic.

D. Both the solutions are acidic.

Q154 pH Scale & Indicators

Which of the following is NOT a natural indicator for acids or bases?

A. Methyl orange



B. Turmeric

C. Coloured petals of Hydrangea

D. Coloured petals of Petunia

Q155 pH Scale & Indicators

What is the pH of salt containing a mixture of a strong base and a weak acid?

A. pH less than 7

B. pH equal to 7

C. pH more than 7



D. pH equal to 0

Q156 pH Scale & Indicators

Which of the following has the value of pH lower than that of pure water?

A. Milk of magnesia

B. NaOH

C. Gastric juice



D. NH_4OH



Q157 pH Scale & Indicators

Red cabbage is a natural indicator which gives different colour when mixed with an acid or a base. Identify the change in colour when it is mixed with an alkaline solution.

A. Bluish green



B. Orange

C. Reddish brown

D. Pale pink

Q158 pH Scale & Indicators

Which of the following statements is true for a solution with high concentration of hydroxide ions?

A. Solution is basic with low pH value.

B. Solution is acidic with high pH value.

C. Solution is basic with high pH value.



D. Solution is acidic with low pH value.

Q159 pH Scale & Indicators

A salt is dissolved in water and the pH of this salt solution is measured with a universal indicator paper. If the pH of solution is more than 7, the salt is most likely to be

A. Na_2SO_4

B. K_2CO_3



C. KCl

D. NH_4Cl

Q160 pH Scale & Indicators

Which of the following solutions has the lowest pH value?

A. Tomato juice



B. Coffee

C. Saliva (before a meal)

D. Saliva (after a meal)



Q161 pH Scale & Indicators

Which of the following solutions will turn pH paper blue?

- A. Gastric juice
- B. Hydrochloric acid
- C. Sodium hydroxide
- D. Lemon juice



Q162 pH Scale & Indicators

At what pH level does tooth decay start?

- A. pH 7
- B. pH below 5.5
- C. pH above 7
- D. pH 6



Q163 pH Scale & Indicators

What will be the colour of pH paper when it is dipped in gastric juice?

- A. Red
- B. Greenish-yellow
- C. Blue
- D. Yellow



Q164 pH Scale & Indicators

What is the pH of a neutral solution?

- A. 0
- B. 7
- C. 8
- D. 14



Q165 pH Scale & Indicators

pH paper shows light blue colour when dipped into milk of magnesia. This indicates that milk of magnesia is:

- A. a mild acid
- B. a mild base
- C. neutral
- D. a strong acid



Q166 pH Scale & Indicators

Which of the following statements is/are correct?

- A) pH value of saliva: 6.2 – 8
- B) pH value of pure blood : 7.35 – 7.45
- C) pH value of pure water: 9

- A. A and B
- B. Only B
- C. Only C
- D. B and C



Q167 pH Scale & Indicators

Which of the following statements is correct about litmus solution?

- A. Litmus solution is an orange dye, which is extracted from lichen.
- B. Litmus solution is an orange dye, which is extracted from moss.
- C. Litmus solution is a purple dye, which is extracted from lichen.
- D. Litmus solution is a purple dye, which is extracted from moss.



Q168 pH Scale & Indicators

Our body works within the pH range of:

- A. 7 to 7.8
- B. 7.8 to 8.0
- C. 6 to 7
- D. 8 to 8.7



Litmus is an natural acid–base indicator which is extracted from:

- A. Lichen
- B. turmeric
- C. rose petals
- D. lemon grass



Q1 Alkali and alkaline earth metals

The elements which have 2 electrons in their outermost cell are generally:

- A. metals ✓
- B. non-metals
- C. metalloids
- D. noble gases

Q2 Alkali and alkaline earth metals

The triad of group 2 metals consists of which of the following elements?

- A. F, Cl, I
- B. S, N, O
- C. C, Ca, Cu
- D. Ca, Sr, Ba ✓

Q3 Alkali and alkaline earth metals

In group 2 of the Modern Periodic Table, the valency of elements is:

- A. 1
- B. 2 ✓
- C. 3
- D. 4

Q4 Alkali and alkaline earth metals

Which of the following groups represents metals?

- A. Group 2 ✓
- B. Group 18
- C. Group 17
- D. Group 16



Q5 Atom and subatomic particles

If carbon will form C^{4-} , then the number of electrons and protons in the carbon ion will be _____ and _____, respectively.

- A. 4; 2
- B. 10; 6
- C. 2; 4
- D. 6; 10



Q6 Atomic number and mass number

The elements having atomic numbers 15, 16, 17, and 18, respectively, are:

- A. P, S, Cl and Ar
- B. Ar, Cl, S and P
- C. S, P, Cl and Ar
- D. P, S, Ar and Cl



Q7 Atomic number and mass number

The atomic masses of carbon and hydrogen, respectively, are:

- A. 6 u and 1u
- B. 6 u and 2u
- C. 12 u and 1u
- D. 12 u and 2u



Q8 Atomic number and mass number

How many elements occur naturally?

- A. 92
- B. 93
- C. 94
- D. 95



Q9 Atoms & Molecules

Which of the following elements has the maximum number of atoms in their molecular form?

A. S



B. Ar

C. Ne

D. P

Q10 Chemical Bonding (Ionic, Covalent)

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

A. They are not soluble in an organic solvent.



B. They are bad conductors of electricity and heat.

C. They form by sharing of electrons.

D. They do not form ions generally.

Q11 Chemical Bonding (Ionic, Covalent)

Consider the below statements and identify the correct answer.

Statement-I: Ionic compounds are generally brittle and break into pieces when pressure is applied.

Statement-II: Ionic compounds have low melting and boiling points.

A. Both the statements are true.

B. Both the statements are false.

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



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



Q12 Chemical Bonding (Ionic, Covalent)

Which of the following is/are NOT true for ionic compounds?

- i. Ionic compounds have low melting and boiling points.
- ii. Ionic compounds are brittle and break into pieces when pressure is applied.
- iii. Ionic compounds are solids and are somewhat hard because of the strong force of attraction between the positive and negative ions.
- iv. Ionic compounds conduct electricity in the molten state.

A. Only i



B. i and ii

C. i and iii

D. i and iv

Q13 Chemical Bonding (Ionic, Covalent)

Long chain compounds formed by Silicon are:

A. Very stable

B. Less polarizable

C. Very reactive



D. More Ionic

Q14 Chemical Bonding (Ionic, Covalent)

The total number of shared electrons in N_2 are _____.

A. 3

B. 4

C. 6



D. 8

Q15 Chemical Bonding (Ionic, Covalent)

Which of the following has the highest boiling point?

A. $LiCl$

B. $NaCl$

C. $CaCl_2$

D. CaO



Q16 Chemical Bonding (Ionic, Covalent)

Consider the below statements and identify the correct answer.

Statement I: Most carbon compounds are good conductors of electricity.

Statement II: The force of attraction between the molecules of carbon compounds is not very strong.

A. Statement I is correct, and Statement II is incorrect.

B. Statement II is correct, and Statement I is incorrect. ✓

C. Both the statements are correct.

D. Both the statements are incorrect.

Q17 Chemical Bonding (Ionic, Covalent)

How many electrons are shared by one oxygen atom with a carbon atom in a carbon dioxide molecule?

A. 1

B. 2 ✓

C. 3

D. 4

Q18 Chemical Bonding (Ionic, Covalent)

The total numbers of covalent bond in propane are _____.

A. 8

B. 7

C. 10 ✓

D. 12

Q19 Chemical Bonding (Ionic, Covalent)

Which of the following molecules has only single bonds?

A. CH_4 ✓

B. CO_2

C. N_2

D. O_2



Q20 Chemical Bonding (Ionic, Covalent)

Which of the following will NOT show covalent bonding?

- A. Oxygen (O_2)
- B. Ammonia (NH_3)
- C. Methane (CH_4)
- D. Magnesium chloride ($MgCl_2$)



Q21 Chemical Bonding (Ionic, Covalent)

Consider the below statements and identify the correct answer.

Statement-I: The compounds formed by the transfer of electrons from a metal to a non-metal are known as electrovalent compounds.

Statement-II: Electrovalent compounds are generally soluble in water and insoluble in solvent such as kerosene, petrol etc.

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



Q22 Chemical Bonding (Ionic, Covalent)

In case of N_2 , the molecule has _____.

- A. a triple bond between the two nitrogen atoms
- B. a single bond between the two nitrogen atoms
- C. a double bond between the two nitrogen atoms
- D. an ionic bond between the two nitrogen atoms



Q23 Chemical Bonding (Ionic, Covalent)

Which of the following elements can form both a double bond and a single bond with a carbon atom?

- A. F
- B. Cl
- C. Br
- D. O



Q24 Chemical Bonding (Ionic, Covalent)

Which of the following bonds are formed between carbon-carbon atoms of hydrocarbons?

- A. Coordination covalent bonds
- B. Ionic bonds
- C. Covalent bonds
- D. Hydrogen bonds



Q25 Chemical Bonding (Ionic, Covalent)

Which of the following statements about conductivity of electricity in ionic compounds is correct?

- A. Ionic compounds conduct electricity in both solid as well as in molten state.
- B. Ionic compounds conduct electricity in molten state but not in solid state.
- C. Ionic compounds conduct electricity in solid state but not in molten state.
- D. Ionic compounds are bad conductors of electricity in both solid as well as in molten state.



Q26 Chemical Bonding (Ionic, Covalent)

Which of the following compounds is an example of a covalent compound?

- A. CaO
- B. MgCl_2
- C. P_2O_5
- D. NaCl



Q27 Chemical Bonding (Ionic, Covalent)

Match the following:

Ionic compound	Melting point (K)
i. NaCl	a. 2850
ii. CaCl_2	b. 1074
iii. CaO	c. 1045

A. i-a, ii-b, iii-c

B. i-c, ii-b, iii-a

C. i-c, ii-a, iii-b

D. i-b, ii-c, iii-a



Q28 Chemical Bonding (Ionic, Covalent)

Why are carbon compounds bad conductors of electricity?

A. Because they don't form any ions

B. Because they are ionic in nature

C. Because they have high melting and boiling point

D. Because carbon compounds are solid in nature



Q29 Chemical Bonding (Ionic, Covalent)

Carbon compounds DO NOT conduct electricity in the molten state because _____.

A. they are non-covalent in nature

B. they are ionic in nature

C. bonding in carbon compounds involve formation of ions

D. bonding in carbon compounds does not involve formation of any ions



Q30 Chemical Bonding (Ionic, Covalent)

Which of the following ionic compounds has the highest boiling point?

A. CaCl_2



B. NaCl

C. MgCl_2

D. LiCl

Q31 Chemical Bonding (Ionic, Covalent)

The number of covalent bonds involved in the formation of a nitrogen molecule is:

A. one

B. two

C. three



D. four

Q32 Chemical Bonding (Ionic, Covalent)

The melting and boiling points of ionic compounds are very high because _____.

A. a small amount of energy is required to break the strong inter-ionic attraction

B. a large amount of energy is required to break the strong inter-ionic attraction



C. a large amount of energy is required to break the weak inter-ionic attraction

D. a small amount of energy is required to break the weak inter-ionic attraction

Q33 Chemical Bonding (Ionic, Covalent)

Carbon makes strong bonds with other elements.

Which of the following is the correct explanation for the given statement?

A. A carbon nucleus holds the shared pairs of electrons strongly due to its small size.



B. A carbon nucleus holds the shared pairs of electrons weakly due to its small size.

C. A carbon nucleus holds the shared pairs of electrons strongly due to its large size.

D. A carbon nucleus holds the shared pairs of electrons weakly due to its large size.



Q34 Electronic configuration basics

What is the total number of shells involved in electronic configuration of carbon?

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



Q35 Electronic configuration basics

What is the order of K, L and M shells in terms of the total number of electrons?

- A. $K > M > L$
- B. $M > L > K$
- C. $L > K > M$
- D. $L > M > K$



Q36 Electronic configuration basics

How many electrons are present in an L-Shell of a carbon atom?

- A. 2
- B. 4
- C. 6
- D. 8



Q37 Electronic configuration basics

Oxygen has _____ electrons in its outermost _____ shell.

- A. 8, M
- B. 6, L
- C. 8, K
- D. 6, M



Q38 Electronic configuration basics

Match the following characteristics in the modern periodic table:

i. Total number of blocks in table	a. 4
ii. Total number of periods	b. 2
iii. Number of elements in K shell	c. 8
iv. Number of elements in M shell	d. 7
v. Number of elements in L shell	e. 18

A. i-a, ii-b, iii-c, iv-d, v-e

B. i-a, ii-d, iii-b, iv-e, v-c



C. i-b, ii-a, iii-d, iv-c, v-e

D. i-e, ii-c, iii-a, iv-b, v-d

Q39 Electronic configuration basics

Which atomic number is related with four valence electrons?

A. 5

B. 6



C. 7

D. 8

Q40 Electronic configuration basics

Which shell of the nitrogen atom participates in forming N_2 molecule?

A. K

B. L



C. M

D. N



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Q41 Electronic configuration basics

Which of the following elements has three shells with two valence electrons?

A. P

B. Si

C. Mg



D. Cl

Q42 Electronic configuration basics

Which of the following metals has an electronic configuration 2, 8, 4?

A. Ar

B. Si



C. P

D. Cl

Q43 Electronic configuration basics

The element 'x' in the modern periodic table has an electronic configuration 2, 8, 8. The element 'x' is placed in the _____.

A. 18th group



B. 10th group

C. 6th group

D. 8th group

Q44 Electronic configuration basics

If element 'X' belongs to group 17 and period 4 in the periodic table, then how many shells will be completely filled?

A. 1

B. 2

C. 3



D. 4



Q45 Electronic configuration basics

An atom of element with electronic configuration of 2,8,8. To which group does it belong?

- A. 4th group
- B. 10th group
- C. 18th group
- D. 6th group



Q46 Groups, periods, blocks

A, which has an anomalous position in the Modern Periodic Table, depends on its properties. It has electronic configuration of alkali metals, but exists as diatomic molecules. B is the element that comes immediately after sodium in the third period and belongs to group C in the modern periodic table.

Identify A, B and C.

- A. A = Hydrogen, B = Mg, C = 2
- B. A = Helium, B = Al, C = 13
- C. A = Lanthanoids, B = Ne, C = 3
- D. A = Lithium, B = K, C = 1



Q47 Groups, periods, blocks

The Modern Periodic Table has _____ groups and _____ periods.

- A. 18, 7
- B. 17, 8
- C. 18, 6
- D. 18, 5



Q48 Groups, periods, blocks

The number of valence electrons in a group _____ when we are moving down.

- A. increases
- B. decreases
- C. remains constant
- D. first increases, then decreases



Q49 Groups, periods, blocks

An element belongs to period 2 and group 2 the number of valence electrons in the atoms of this element is:

A. 2



B. 4

C. 3

D. 1

Q50 Groups, periods, blocks

The Modern Periodic Table consists of _____ groups and _____ periods, respectively.

A. 7; 18

B. 6; 17

C. 18; 7



D. 17; 6

Q51 Groups, periods, blocks

Consider the statements given below and identify the correct answer.

Statement I: The Modern Periodic Table has 18 vertical columns known as 'periods' and 7 horizontal rows known as 'groups'.

Statement II: Groups in the Periodic Table signify an identical outer shell electronic configuration

A. Statement I is correct, Statement II is incorrect.

B. Statement II is correct, Statement I is incorrect.



C. Both statements are correct.

D. Both statements are incorrect.

Q52 Groups, periods, blocks

What is the correct order of periods in terms of number of elements?

A. $1 < 2 = 3 < 4 = 5 < 6 = 7$



B. $1 = 2 < 3 = 4 < 5 = 6 < 7$

C. $1 = 2 = 3 < 4 = 5 < 6 = 7$

D. $1 < 2 < 3 = 4 < 5 = 6 < 7$



Q53 Groups, periods, blocks

Which statement is correct for the elements of second period?

- A. They have the same number of valence electrons and they also contain the same number of shells.
- B. They do not have the same number of valence electrons and they do not contain the same number of shells.
- C. They have the same number of valence electrons, but they do not contain the same number of shells.
- D. They do not have the same number of valence electrons, but they contain the same number of shells. ✓

Q54 Groups, periods, blocks

What are the group numbers of halogens and carbon family, respectively, in the modern periodic table?

- A. Group 18 and Group 14
- B. Group 16 and Group 14
- C. Group 16 and Group 17
- D. Group 17 and Group 14 ✓

Q55 Groups, periods, blocks

Which of the following elements does NOT belong to period 3 of the Modern Periodic Table?

- A. Al
- B. Ar
- C. S
- D. Ge ✓

Q56 Groups, periods, blocks

Which element is NOT included in Group 2 of the Modern Periodic Table?

- A. Be
- B. Na ✓
- C. Mg
- D. Ca



Q57 Groups, periods, blocks

The total number of elements known at present is:

A. 118



B. 117

C. 116

D. 115

Q58 Groups, periods, blocks

In the Modern Periodic Table, Tellurium (atomic number 52) is surrounded by elements with atomic numbers:

A. 35, 51, 54, 85

B. 34, 51, 53, 84



C. 36, 50, 53, 84

D. 33, 50, 53, 83

Q59 Groups, periods, blocks

The element 'X' has seven electrons in outermost shell. Select the group of the modern periodic table to which it belongs.

A. 18th group

B. 7th group

C. 16th group

D. 17th group



Q60 Groups, periods, blocks

The number of elements present in the third, fourth, fifth, sixth and seventh periods in the modern periodic table is:

A. 8, 8, 18, 18 and 32, respectively

B. 8, 18, 18, 32 and 32, respectively



C. 8, 8, 18, 32 and 32, respectively

D. 8, 18, 32, 32 and 32, respectively



Q61 Groups, periods, blocks

Which of the following pairs of elements belonging to the same group exhibit similar chemical properties?

A. N and P



B. Mg and Mn

C. C and Cl

D. Li and Kr

Q62 Groups, periods, blocks

In the Modern Periodic Table, phosphorous is placed in the _____.

A. 15th group and 2nd period

B. 15th group and 3rd period



C. 14th group and 2nd period

D. 14th group and 3rd period

Q63 Groups, periods, blocks

In which group of modern periodic table are halogens placed?

A. 16th

B. 18th

C. 1st

D. 17th



Q64 Groups, periods, blocks

Which of the following elements belongs to the second group?

A. Na

B. B

C. C

D. Be



Q65 Groups, periods, blocks

Which of the following two elements contain the same number of valence electrons?

- A. N and C
- B. F and Cl
- C. H and He
- D. B and Br



Q66 Groups, periods, blocks

Which element is NOT present in the VIII group and first series of the fourth period in Mendeleev's periodic table?

- A. Fe
- B. Co
- C. Ni
- D. Cu



Q67 Groups, periods, blocks

What is the position of zinc in the Modern Periodic Table?

- A. Group 11, Period 3
- B. Group 12, Period 3
- C. Group 11, Period 4
- D. Group 12, Period 4



Q68 Groups, periods, blocks

In the Modern Periodic Table elements present in one group have the same number of _____.

- A. electrons
- B. valence electrons
- C. shells
- D. protons



Q69 Groups, periods, blocks

In which group and period is carbon present?

- A. Group 1 and period 2
- B. Group 5 and period 5
- C. Group 14 and period 2
- D. Group 13 and period 4



Q70 Groups, periods, blocks

Which of the following with respect to the Modern Periodic Table is NOT correct?

- A. It has 18 groups and 7 periods.
- B. The elements present in the same group have same number of valence electrons.
- C. The number of shells increases as we go down the group.
- D. Na, Mg and S belongs to the 4th period of the Modern Periodic Table.



Q71 Mendeleev vs modern periodic law

Mendeleev's Periodic Law states that:

- A. the properties of elements are the periodic function of their atomic numbers
- B. the properties of elements are the periodic function of their colour
- C. the properties of elements are the periodic function of their atomic masses
- D. the properties of elements are the periodic function of their magnetic properties



Q72 Mendeleev vs modern periodic law

Consider the statements below and identify the correct answer.

Statement I: Among chemical properties, Mendeleev concentrated on the compounds formed by elements with carbon and hydrogen.

Statement II: He selected these elements as they are less reactive and formed compounds with few elements.

- A. Statement I is correct, Statement II is incorrect.
- B. Statement II is correct, Statement I is incorrect.
- C. Both statements are correct.
- D. Both statements are incorrect.



Q73 Mendeleev vs modern periodic law

To study chemical properties of elements, Mendeleev concentrated on their compounds formed by which two elements?

- A. O and S
- B. C and H
- C. N and Cl
- D. H and O



Q74 Mendeleev vs modern periodic law

Which group of the modern periodic table is NOT mentioned in Mendeleev's periodic table?

- A. Halogen group
- B. Chalcogen group
- C. Pnictogen group
- D. Noble gas group



Q75 Mendeleev vs modern periodic law

Select the incorrect statements from among the following.

- (i) Newland arranged the elements in the order of increasing atomic masses and gave the law of Octaves.
- (ii) Sodium is the eighth element after lithium.
- (iii) Calcium is the eighth element after Beryllium.
- (iv) The law of Octaves was applicable only up to Magnesium, as after Magnesium every eighth element did not possess properties similar to that of the first.

- A. iv
- B. iii
- C. ii
- D. i



Q76 Mendeleev vs modern periodic law

According to Dobereiner, _____.

- A. the sum of atomic masses of the first and the second elements of the triad is equal to that of the third element
- B. the arithmetical mean of the atomic masses of the second and the third elements of the triad is equal to that of the first one
- C. the sum of atomic masses of the first and the third elements of the triad is equal to that of the second element
- D. the arithmetical mean of the atomic masses of the first and the third elements of the triad is equal to that of the second one ☒

Q77 Mendeleev vs modern periodic law HINDI - no English version saved

मेंडेलीफ द्वारा किन तत्वों का नामकरण उसी समूह में उनके पूर्ववर्ती तत्वों के नाम से पहले शब्द 'एका (एक)' लगाकर किया गया था?

- A. स्कैंडियम, गैलियम और जर्मेनियम ☒
- B. बोरॉन, एल्यूमीनियम और गैलियम
- C. नाइट्रोजन, फॉस्फोरस और आर्सेनिक
- D. कार्बन, सिलिकॉन, जर्मेनियम

Q78 Mendeleev vs modern periodic law HINDI - no English version saved

निम्न में से कौन सी मेंडेलीफ के आवर्त वर्गीकरण की विशेषता नहीं है?

- A. समस्थानिकों की सही स्थिति। ☒
- B. उन्होंने तत्वों को समूहों और आवर्तों के रूप में सारणीबद्ध रूप में व्यवस्थित किया था।
- C. उन्होंने तत्वों को भौतिक और रासायनिक, दोनों गुणधर्मों के आधार पर व्यवस्थित किया था।
- D. वह कुछ अनुपस्थित तत्वों के गुणधर्मों की भविष्यवाणी कर सके थे, जिनकी खोज बाद में हुई।



Q79 Mendeleev vs modern periodic law

Consider the statements below and identify the correct answer.

Statement-I: Isotopes of all elements posed a challenge to Medeleev's periodic law.

Statement-II: No fixed position can be given to hydrogen in the periodic table.

- A. Statement I is correct, Statement II is incorrect.
- B. Statement II is correct, Statement I is incorrect.
- C. Both statements are correct. ✓
- D. Both statements are incorrect.

Q80 Mendeleev vs modern periodic law

Mendeleev's period table examined the relationship between the atomic mass of elements and their _____.

- A. physical properties only
- B. chemical properties only
- C. physical and chemical properties both ✓
- D. colour

Q81 Mendeleev vs modern periodic law

Who discovered the law of octaves and compared this to the octaves found in music?

- A. John Newlands ✓
- B. Johann Döbereiner
- C. Dmitri Mendeléev
- D. Johann Jakob Balmer



Q82 Mendeleev vs modern periodic law

Select the incorrect statements from among the following.

- i. When Mendeléeve started his work on the periodic table, 63 elements were known.
- ii. Mendeléeve concentrated on the compounds formed by elements with oxygen and hydrogen.
- iii. Mendeléeve examined the relationship between the atomic numbers of the elements.
- iv. Mendeléeve examined the relationship between the physical and chemical properties of the elements.

A. iv

B. iii



C. ii

D. i

Q83 Mendeleev vs modern periodic law

Chlorine, bromine and iodine make a Dobereiner's triad. The average of atomic masses of chlorine and Iodine would be close to _____.

A. 94

B. 131.25

C. 79.9



D. 162.5

Q84 Mendeleev vs modern periodic law

Mendeleev's Periodic Law could not explain the position of _____ in the periodic table.

A. Isotopes



B. Isotones

C. Isobars

D. Isodiaphers

Q85 Mendeleev vs modern periodic law

How many elements were discovered till the time Newland's Law of Octaves came in to existence?

A. 53

B. 61

C. 56



D. 63



Q86 Mendeleev vs modern periodic law

Newlands' Law of Octaves worked well with:

A. metallic elements only

B. radioactive elements only

C. lighter elements only



D. noble gases only

Q87 Mendeleev vs modern periodic law

What was the fundamental property used by Mendeleev to arrange elements in his Periodic Table?

A. Gaseous nature

B. Atomic mass



C. Solid nature

D. Liquid nature

Q88 Mendeleev vs modern periodic law

Mendelée's Periodic Table was published in _____.

A. 1842

B. 1852

C. 1862

D. 1872



Q89 Mendeleev vs modern periodic law

Which of the following oxides corresponds to the oxide of Eka-aluminium?

A. Ge_2O_3

B. B_2O_3

C. In_2O_3

D. Ga_2O_3



Q90 Mendeleev vs modern periodic law

In Mendeleev's Periodic Table, at which position are the formulae of hydrides and oxides of elements written?

- A. Bottom
- B. Left
- C. Right
- D. Top



Q91 Mendeleev vs modern periodic law

Which of the following elements have similar properties with Eka-silicon, Eka-boron and Eka-aluminium, respectively?

- A. Germanium, Carbon, and Gallium
- B. Carbon, Scandium, and Indium
- C. Germanium, Scandium, and Gallium
- D. Scandium, Gallium, and Germanium



Q92 Mendeleev vs modern periodic law

Which set of three elements does NOT constitute a Dobereiner's triad?

- A. Li, Na, K
- B. Ca, Sr, Ba
- C. Cl, Br, I
- D. Fe, Co, Ni



Q93 Mendeleev vs modern periodic law

In the Newlands' arrangement of elements in the increasing order of their atomic masses, the last element was:

- A. Th
- B. He
- C. H
- D. Mg



Q94 Mendeleev vs modern periodic law

Which of the following is the Modern Periodic Law?

- A. 'Properties of elements are a periodic function of their atomic number'. ☒
- B. 'Properties of elements are a periodic function of their atomic mass'.
- C. 'Properties of elements are a periodic function of their melting points'.
- D. 'Properties of elements are a periodic function of their boiling points'.

Q95 Mendeleev vs modern periodic law

Which of the following statements is correct with respect to Newlands law of octaves?

- A. Newlands' law of octaves worked well with lighter elements only. ☒
- B. John Newlands, an English scientist arranged the then known elements in the order of increasing atomic sizes.
- C. Newlands' law of octaves worked well with heavier elements only.
- D. In Newlands' octaves, the properties of fluorine and sodium were found to be the same.

Q96 Mendeleev vs modern periodic law

Which statement about Mendeleev's Periodic Table is INCORRECT?

- A. Vertical columns are called 'groups'.
- B. Horizontal rows are called 'periods'.
- C. The properties of elements are the periodic functions of their atomic numbers. ☒
- D. Elements are arranged in the order of their increasing atomic masses.

Q97 Mendeleev vs modern periodic law

What is the main limitation of Mendeleev's periodic table?

- A. Nobel gases could be placed in a new group without disturbing the existing order.
- B. No fixed position can be given to hydrogen in the Periodic Table. ☒
- C. Mendeleev's Periodic Table contains vertical columns called groups and horizontal rows called periods.
- D. Mendeleev selected hydrogen and oxygen as they are very reactive and formed compounds with most elements.



Q98 Mendeleev vs modern periodic law

Which of the following statements about Mendeleev's periodic table is NOT correct?

- A. Like alkali metals, hydrogen reacts with halogen, oxygen, and sulphur to form compounds having similar formulae.
- B. Hydrogen was assigned a fixed position in the Mendeleev's periodic table. ✓
- C. No specific position was assigned to the isotopes in the Mendeleev's periodic table.
- D. Noble gases were not discovered at that time.

Q99 Mendeleev vs modern periodic law

Which of the following was considered as a limitation of Mendeleev's periodic table?

- A. Resemblance of hydrogen to alkali metals as well as halogens and a specific position was assigned to hydrogen.
- B. Resemblance of hydrogen to alkaline earth metals as well as halogens and no specific position was assigned to hydrogen
- C. Resemblance of hydrogen to alkali metals as well as halogens and no specific position was assigned to hydrogen ✓
- D. Resemblance of hydrogen to alkaline earth metals as well as halogens and a specific position was assigned to hydrogen

Q100 Mendeleev vs modern periodic law

Which of the following groups of elements were NOT discovered at the Mendeleev's periodic table?

- A. Alkali metals
- B. Alkaline earth metals
- C. Noble gases ✓
- D. Halogens

Q101 Mendeleev vs modern periodic law

According to Henry Moseley, which of the following properties of an element is a more fundamental property than its atomic mass?

- A. Atomic size
- B. Atomic number ✓
- C. Atomic density
- D. Atomic radii



Q102 Mendeleev vs modern periodic law

According to Mendeleev's periodic table, just like halogens, hydrogen also exists as a:

- A. monoatomic molecule
- B. diatomic molecule
- C. triatomic molecule
- D. tetra-atomic molecule

Q103 Mendeleev vs modern periodic law

Which of the following statements is correct with respect to modern periodic law?

- A. In a neutral atom, the atomic number is equal to the number of electrons or protons.
- B. In a neutral atom, the atomic number of an atom is equal to only number of electrons.
- C. The atomic number is equal to the only number of protons in a neutral atom.
- D. The atomic number is neither equal to the number of electrons nor protons in a neutral atom.

Q104 Mendeleev vs modern periodic law

Law of Octaves became irrelevant after the discovery of:

- A. radioactivity
- B. noble gases
- C. fullerene
- D. isotopes

Q105 Mendeleev vs modern periodic law

Newlands arranged the elements into the periodic table on the basis of _____.

- A. increasing atomic mass
- B. decreasing atomic mass
- C. metallic character
- D. non-metallic character



Q106 Mendeleev vs modern periodic law

Which two elements were put in the same slot by Newland?

A. Na and Al

B. Co and Ni



C. As and Se

D. Ca and Cu

Q107 Mendeleev vs modern periodic law

Elements were classified on the basis of their _____

A. different physical but same chemical properties

B. different physical as well different chemical properties

C. state of matter

D. different valency

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q108 Mendeleev vs modern periodic law

According to Newlands law of octaves, which of the following elements have same properties?

A. Na and Cl

B. Be and Mg



C. B and Si

D. K and Co

Q109 Mendeleev vs modern periodic law

In each of the triads, how many elements were identified by Dobernenier?

A. 3



B. 6

C. 9

D. 2



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Q110 Mendeleev vs modern periodic law

Which group of elements constitutes a triad?

- A. F(19.0), Cl(35.5), Br(79.9)
- B. B(10.8), Al(27.0), Ga(69.7)
- C. Li(6.9), Na(23.0), K(39.1) ✓
- D. N(14.0), P(30.9), As(74.9)

Q111 Mendeleev vs modern periodic law

Why were noble gases NOT included in the Newlands law of octaves?

- A. These elements do not follow the octet rule.
- B. These elements do not follow the law of octaves.
- C. These elements were not known at that time. ✓
- D. These elements are inert.

Q112 Mendeleev vs modern periodic law

Which of the following statements is/are correct?

- A) Classification is necessary in order to compare the physical and chemical properties of the elements.
- B) Classification is necessary to arrange the same kind of elements in the same group.
- C) Classification is necessary to arrange the different kinds of elements in the same group.

- A. Only A
- B. Only A and B ✓
- C. A, B and C
- D. Only B and C

Q113 Mendeleev vs modern periodic law

According to Newland's Law of Octaves, every _____ element had properties similar to that of the first element

- A. sixth
- B. seventh
- C. eighth ✓
- D. fourth



Q114 Mendeleev vs modern periodic law

Newlands arranged the then known elements in the order of _____.

- A. increasing atomic masses
- B. decreasing atomic masses
- C. increasing atomic radius
- D. decreasing atomic radius

Q115 Mendeleev vs modern periodic law

Select the correct order of Chlorine, Bromine and Iodine for Dobereiner's Law of Triads.

- A. Iodine, Bromine, Chlorine
- B. Bromine, Iodine, Chlorine
- C. Chlorine, Iodine, Bromine
- D. Chlorine, Bromine, Iodine

Q116 Mendeleev vs modern periodic law

According to Mendeleev, the properties of elements are the periodic function of their:

- A. atomic masses
- B. atomic number
- C. atomic radius
- D. reactivity of elements

Q117 Mendeleev vs modern periodic law

Select the correct Dobereiner's triads from the given sets.

- A. Li, Na, Ba
- B. F, Cl, Br
- C. Ca, Sr, I
- D. Ca, Sr, Ba



Q118 Mendeleev vs modern periodic law

How many elements exist in nature according to Newlands law of octaves?

A. 36

B. 46

C. 56



D. 76

Q119 Metals, nonmetals, metalloids position

Which element is neither metal nor non-metal?

A. Mg

B. Al

C. Ge



D. P

Q120 Metals, nonmetals, metalloids position

Which of the following is NOT a metal?

A. Ga

B. Sc

C. Si



D. Pb

Q121 Metals, nonmetals, metalloids position

Which of the following elements of group 14 is a metalloid?

A. Pb

B. Sn

C. Ge



D. C



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Q122 Metals, nonmetals, metalloids position

Which of the following elements is a metalloid?

- A. Bismuth
- B. Antimony
- C. Iron
- D. Selenium



Q123 Metals, nonmetals, metalloids position

Which of the following groups in the Modern Periodic Table have NO metallic element?

- A. 14
- B. 15
- C. 16
- D. 17



Q124 Metals, nonmetals, metalloids position

Select the correct pair of semi-metals amongst the following elements.

- A. Carbon and nitrogen
- B. Hydrogen and helium
- C. Sulphur and phosphorus
- D. Silicon and germanium



Q125 Metals, nonmetals, metalloids position

Which group in the Modern Periodic Table has only one non-metallic element?

- A. 14
- B. 15
- C. 16
- D. 17



Q126 Metals, nonmetals, metalloids position

Which of the following elements is a metal?

A. Sodium



B. Germanium

C. Bromine

D. Neon

Q127 Metals, nonmetals, metalloids position

Which of the following elements is a metal?

A. B

B. C

C. Fe



D. Si

Q128 Mole Concept & Laws of Chemical Combination

The difference in molecular masses between the pair C_3H_8 and C_5H_{12} is:

A. 14

B. 28



C. 42

D. 56

Q129 Noble gases and their properties/uses

Which of the following groups represents zero valency?

A. 12

B. 16

C. 14

D. 18



Q130 Noble gases and their properties/uses

Which of the following elements is NOT present as a diatomic molecule in nature?

- A. Chlorine
- B. Hydrogen
- C. Helium
- D. Nitrogen



Q131 Periodic Table & Classification

In Newland's law of octaves, the first element is _____ and the last known element is _____.

- A. hydrogen, zirconium
- B. hydrogen, lanthanum
- C. hydrogen, thorium
- D. helium, zirconium



Q132 Periodic Table & Classification

Which factor(s) led scientists towards the classification of elements?

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

- A. Only i
- B. Only ii
- C. Only iii
- D. i, ii, iii



Q133 Periodic Table & Classification

In Newlands Octaves, the properties of which two elements were found to be the same?

- A. Li, Na
- B. H, Th
- C. Na, Mg
- D. Ca, Cl



Q134 Periodic Table & Classification

What was the achievement of Dobereiner's triads?

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

Q135 Periodic Table & Classification

Newlands Octaves start with _____ and end with _____, respectively.

- A. Li; Na
- B. H; Th ✓
- C. Mg; Ca
- D. He; Ar

Q136 Periodic Table & Classification

Which of the following triads is NOT a Dobereiner's triad?

- (i) Li, Na, K
- (ii) Ca, Sr, Ba
- (iii) N, P, Sb
- (iv) Cl, Br, I

- A. Only i
- B. Only ii
- C. Only iii ✓
- D. Only iv



Q137 Periodic Table & Classification

At present, _____ elements are known, of which _____ are naturally occurring elements.

A. 114, 92

B. 118, 92

C. 114, 94

D. 118, 94



Q138 Periodic Table & Classification

Consider the below statements and identify the correct answer.

Statement I: Lithium, Sodium and Rubidium are elements of Dobereiner's triad.

Statement II: In triads, the atomic mass of the middle element was roughly the average of the atomic masses of the other two elements

A. Statement I is correct, Statement II is incorrect.

B. Statement II is correct, Statement I is incorrect.



C. Both statements are correct.

D. Both statements are incorrect.

Q139 Periodic Table & Classification

According to Newland's Law of Octaves, the properties of beryllium are similar to those of _____.

A. B

B. C

C. Al

D. Mg



Q140 Periodic Table & Classification

Which of the following groups of three elements each constitutes Dobereiner's triads?

A. Li, Mg, Al

B. Cl, H, Si

C. Ca, Ba, F

D. Cl, Br, I



Q141 Periodic Table & Classification

Periodicity among elements in Newlands Octaves was observed up to _____ only.

- A. C
- B. Cr
- C. Co
- D. Ca



Q142 Periodic Table & Classification

Consider the below statements and identify the correct answer.

Statement I: According to Newland's assumption, only 56 elements existed in the nature.

Statement II: Newland found that every eighth element had properties similar to that of the first.

- A. Statement I is correct, Statement II is incorrect.
- B. Statement II is correct, Statement I is incorrect.
- C. Both statements are correct.
- D. Both statements are incorrect.



Q143 Periodic Table & Classification

Which of the following is NOT an appropriate reason for the need of classification of elements?

- A. To understand the periodicity in properties of elements.
- B. To understand the specific position of an element in the periodic table.
- C. To give the elements positions according to their colour.
- D. To correlate the properties of different elements.



Q144 Periodic Table & Classification

Which of the following was the main drawback of the Doberiner's triads?

- A. He found some periodicity in the properties of triads.
- B. The elements of a triad have some similarities in their properties.
- C. He was unable to make more than three triads of the elements.
- D. He arranged three element according to their increasing atomic mass.



Q145 Periodic Table & Classification

Newlands compared his Octave with _____.

- A. historical events
- B. musical notes
- C. computer language codes
- D. Hindi rhymes

Q146 Periodic Table & Classification

Identify the basic requirements that led scientists towards the classification of elements.

- (i) Identification of some pattern in different properties of elements
- (ii) Rearrangement of elements on the basis of their synthesis
- (iii) To get overall idea of the colour of different elements

- A. only (i)
- B. (i) and (iii)
- C. (ii) and (iii)
- D. (i), (ii) and (iii)

Q147 Periodic Table & Classification

In a triad the middle element has:

- A. double the atomic mass of the first element
- B. double the atomic mass of the third element
- C. average atomic mass of the first and third elements
- D. atomic mass equal to the of sum of the first and third elements

Q148 Periodic Table & Classification

Name the chemist who arranged the elements with similar properties into groups in the year 1817.

- A. Mosley
- B. Mendeleev
- C. Newland
- D. J W Dobereiner



Q149 Periodic Table & Classification

In Newlands' octaves, which of the following pairs of elements were placed in the same column along with H, F, Cl and Br?

A. Co and Ni



B. P and S

C. Cr and Zr

D. C and K

Q150 Periodic Table & Classification

Who among the following was first to find that every eighth element had properties similar to that of the first element?

A. Dmitri Ivanovich Mendelée

B. Johann Wolfgang Döbereiner

C. John Newlands



D. Henry Moseley

Q151 Periodic Table & Classification

The term 'triads' was used by:

A. Mendeleev

B. Johann Wolfgang Döbereiner



C. John Newlands

D. Henry Moseley

Q152 Periodic Table & Classification

Which of the following statements regarding Dobereiner's triads is NOT correct?

A. Li, Na and K constitute Dobereiner's triads.

B. If three elements are arranged in the increasing sequence of atomic masses, then atomic mass of the middle element is approximately the average of the atomic masses of the other two elements.

C. If three elements are arranged in the decreasing sequence of atomic masses, then atomic mass of the third element is approximately the average of the atomic masses of the other two elements.



D. Cl, Br and I constitute Dobereiner's triads.



Q153 Periodic Table & Classification

According to Newlands, how many elements existed in nature?

A. 56



B. 66

C. 76

D. 86

Q154 Periodic Table & Classification

According to Dobereiner's Triads, which of the following elements could be placed between Calcium and Barium? (Atomic mass of Ca = 40.1 and atomic mass of Ba = 137.3)

A. Chlorine (atomic mass = 35.5)

B. Strontium (atomic mass = 87.62)



C. Phosphorous (atomic mass = 30.97)

D. Nitrogen (atomic mass = 14.00)

Q155 Periodic Table & Classification

Dobereiner tried to arrange the elements with similar properties into groups. For this he identified some groups having how many elements?

A. 2

B. 8

C. 3



D. 4

Q156 Periodic Table & Classification

Newlands law of Octaves was applicable only up to element _____.

A. Ca



B. K

C. Na

D. Mg



Q157 Periodic Table & Classification

How many triads were identified by Dobereiner in his system of classification of elements?

- A. Five
- B. Six
- C. Four
- D. Three



Q158 Periodic Table & Classification

According to the Newland's law of octaves, how many elements are present in between Potassium and Copper?

- A. 5
- B. 8
- C. 7
- D. 9



Q159 Periodic Table & Classification

In Dobereiner's Triads, elements were written as:

- A. down the group with increasing atomic masses
- B. down the group with decreasing atomic masses
- C. Moving from left to right with increasing atomic masses
- D. Moving from left to right with decreasing atomic masses



Q160 Periodic Table & Classification

Which of the following is a saturated hydrocarbon?

- A. Ethane
- B. Ethene
- C. Benzene
- D. Acetylene



Q161 Periodic trends (atomic size/electroneg.)

As atomic number ____ and nuclear charge ____, the force of attraction between nucleus and valence electrons ____, hence, atomic radii ____ from Li to F.

A. increases, increases, increases, decreases



B. decreases, decreases, decreases, increases

C. increases, decreases, decreases, increases

D. increases, increases, decreases, decreases

Q162 Periodic trends (atomic size/electroneg.)

Which of the following has the maximum non-metallic characters in group 16 elements?

A. Po

B. Se

C. O



D. S

Q163 Periodic trends (atomic size/electroneg.)

Which of the following is the most electropositive element?

A. Ca

B. Cs



C. Mg

D. Na

Q164 Periodic trends (atomic size/electroneg.)

Which of the following has the largest atomic radius?

A. Fluorine

B. Oxygen

C. Chlorine

D. Iodine



Q165 Periodic trends (atomic size/electroneg.)

Consider the below statements and identify the correct answer.

Statement I: Metallic character decreases across a period as we move from left to right.

Statement II: The effective nuclear charge acting on the valence shell electrons increases across a period, the tendency to lose electrons will decrease.

- A. Both statements are correct. Statement II is correct explanation of Statement I. ✓
- B. Both statements are correct. Statement I is correct explanation of Statement II.
- C. Only Statement I is correct.
- D. Only Statement II is correct.

Q166 Periodic trends (atomic size/electroneg.)

Elements of which of the following groups have the tendency to form acidic oxide?

- A. 1
- B. 2
- C. 13
- D. 16 ✓

Q167 Periodic trends (atomic size/electroneg.)

Which of the following elements shows maximum valence electrons?

- A. Al
- B. H
- C. N
- D. F ✓

Q168 Periodic trends (atomic size/electroneg.)

What is the correct order of elements according to their valence shell electrons?

- A. $\text{Li} > \text{O} > \text{C} > \text{F}$
- B. $\text{F} > \text{O} > \text{C} > \text{Li}$ ✓
- C. $\text{Ne} > \text{N} > \text{F} > \text{Be}$
- D. $\text{B} > \text{C} > \text{O} > \text{F}$



Q169 Periodic trends (atomic size/electroneg.)

What is the correct order of metallic character of the following metals?

A. $\text{Mg} < \text{Na} < \text{Ba} < \text{Cs}$



B. $\text{Na} < \text{Mg} < \text{Cs} < \text{Ba}$

C. $\text{Cs} < \text{Ba} < \text{Na} < \text{Mg}$

D. $\text{Ba} < \text{Cs} < \text{Mg} < \text{Na}$

Q170 Periodic trends (atomic size/electroneg.)

Identify the INCORRECT order for the number of valence shell electrons.

A. $\text{Al} < \text{P} < \text{Si} < \text{S} < \text{Cl}$



B. $\text{Li} < \text{Be} < \text{B} < \text{C} < \text{N}$

C. $\text{Na} < \text{Mg} < \text{Al} < \text{P} < \text{Ar}$

D. $\text{B} < \text{N} < \text{O} < \text{F} < \text{Ne}$

Q171 Periodic trends (atomic size/electroneg.)

The atomic size _____ moving from left to right and _____ moving from up to down in the periodic table.

A. decreases, increases



B. decreases, decreases

C. increases, decreases

D. increases, increases

Q172 Periodic trends (atomic size/electroneg.)

The most electronegative element in the periodic table is:

A. chlorine

B. fluorine



C. oxygen

D. nitrogen



Q173 Periodic trends (atomic size/electroneg.)

Consider the below statements and identify the correct answer.

Statement I: Atomic radius increases in moving from left to right along a period.

Statement II: Nuclear charge increases in moving from left to right along a period.

- A. Both statements are correct. Statement II is correct explanation of Statement I.
- B. Both statements are correct. Statement I is correct explanation of Statement II.
- C. Only Statement I is correct.
- D. Only Statement II is correct. ✓

Q174 Periodic trends (atomic size/electroneg.) HINDI - no English version saved

जब हम समूह में नीचे की ओर जाते हैं, तो क्षारीय ऑक्साइड के निर्माण की प्रवृत्ति _____।

- A. बढ़ती है ✓
- B. घटती है
- C. नियत रहती है
- D. पहले बढ़ती है, फिर घटती है

Q175 Periodic trends (atomic size/electroneg.)

Which of the following is the most electronegative element?

- A. Cl ✓
- B. S
- C. Mg
- D. Al

Q176 Periodic trends (atomic size/electroneg.)

Which of the following properties is NOT governed by the position of elements in the Periodic Table?

- A. Electrons present in outermost shell
- B. Valency
- C. Atomic size
- D. Colour of element ✓



Q177 Periodic trends (atomic size/electroneg.)

Which of the following elements has the highest effective nuclear charge?

A. Li

B. C

C. F



D. B

Q178 Periodic trends (atomic size/electroneg.)

Which of the following elements is most metallic in nature?

A. Be

B. Ca

C. Ba



D. Sr

Q179 Periodic trends (atomic size/electroneg.)

Match the following characteristics in Modern Periodic Table:

i. smallest atom	a. cesium
ii. metalloid	b. Fluorine
iii. most metallic natural element	c. silicone
iv. most electronegative	d. iodine
v. least electronegative	e. lithium

A. i-a, ii-b, iii-c, iv-d, v-e

B. i-a, ii-d, iii-b, iv-e, v-c

C. i-e, ii-c, iii-a, iv-b, v-d



D. i-e, ii-c, iii-a, iv-d, v-b



Q180 Periodic trends (atomic size/electroneg.)

Which of the following metals is most metallic in nature?

- A. Li
- B. Rb
- C. Na
- D. Cs



Q181 Periodic trends (atomic size/electroneg.)

Whenever moving from left to right in a period, metallic character _____.

- A. increases
- B. decreases
- C. remains constant
- D. first increases, then decreases



Q182 Periodic trends (atomic size/electroneg.)

Which of the following elements has the highest atomic radius?

- A. Be
- B. O
- C. N
- D. Li



Q183 Periodic trends (atomic size/electroneg.)

Which statement about effective nuclear charge is NOT correct?

- A. It acts on the valence shell electrons.
- B. It increases across a period from left to right.
- C. It decreases down a group.
- D. It depends only upon the nuclear charge.



Q184 Periodic trends (atomic size/electroneg.)

Which of the following elements is the most metallic in nature?

- A. Li
- B. K
- C. Rb
- D. Cs



Q185 Periodic trends (atomic size/electroneg.)

Arrange the following element of group 1 in the decreasing order of their atomic radii. Atomic numbers are given in parentheses.

Li (3), K (19), Cs (55), Na (11), Rb (37)

- A. $Cs > Rb > K > Li > Na$
- B. $Cs > Rb > K > Na > Li$
- C. $Cs > Rb > Li > K > Na$
- D. $Cs > Rb > Na > K > Li$



Q186 Periodic trends (atomic size/electroneg.)

In the modern periodic table, addition of new shells down the group results in _____.

- A. increase in atomic size and nuclear charge
- B. decrease in atomic size and nuclear charge
- C. increase in atomic size and decrease in nuclear charge
- D. decrease in atomic size and increase in nuclear charge



Q187 Periodic trends (atomic size/electroneg.)

In the Modern Periodic Table, atomic size increases down the group because:

- A. number of shells increases
- B. valency increases
- C. tendency to lose electrons decreases
- D. nuclear charge increases



Q188 Periodic trends (atomic size/electroneg.)

What is the trend for the atomic number while moving across a period in the modern periodic table?

- A. The atomic number increases by one unit. ✓
- B. The mass number increases by one unit.
- C. The atomic number increases by two units.
- D. The atomic number decreases by one unit.

Q189 Periodic trends (atomic size/electroneg.)

Arrange the given non-metals in the increasing order of their electronegativity. Atomic number is given in parentheses.

O (8), Te (52), S (16), Se (34)

- A. $\text{Se} < \text{Te} < \text{S} < \text{O}$
- B. $\text{Te} < \text{Se} < \text{S} < \text{O}$ ✓
- C. $\text{O} < \text{S} < \text{Se} < \text{Te}$
- D. $\text{O} < \text{S} < \text{Te} < \text{Se}$

Q190 Periodic trends (atomic size/electroneg.)

Which of the following statements regarding the trend of metallic properties in the modern periodic table is correct?

- A. Metallic character remains constant across a period and increases down a group.
- B. Metallic character increases across a period and decreases down a group.
- C. Metallic character decreases across a period and increases down a group. ✓
- D. Metallic character decreases across a period and remains constant down a group.

Q191 Periodic trends (atomic size/electroneg.)

The correct increasing order of metallic character is:

- A. $\text{Ge} < \text{Ga} < \text{Sc} < \text{Ca}$ ✓
- B. $\text{Ge} < \text{As} < \text{Ga} < \text{Ca}$
- C. $\text{Ge} < \text{Zn} < \text{Cu} < \text{As}$
- D. $\text{Ga} < \text{Ge} < \text{Ca} < \text{Sc}$



Q192 Periodic trends (atomic size/electroneg.)

Arrange the following elements in the order of increasing atomic number.

B, Ne, K, O

A. B, K, O, Ne

B. B, O, Ne, K

C. K, B, O, Ne

D. Ne, K, B, O

Q193 Periodic trends (atomic size/electroneg.)

Which of the following elements shows maximum metallic character?

A. Ga

B. As

C. Sc

D. Be

Q194 Periodic trends (atomic size/electroneg.)

Select the correct increasing order of atomic radii.

A. $B < Be < Li < Rb$

B. $B < Be < Rb < Li$

C. $Li < B < Be < Rb$

D. $Li < Be < B < Rb$

Q195 Periodic trends (atomic size/electroneg.)

Which among the following elements possesses greater tendency to gain electrons?

A. Carbon

B. Nitrogen

C. Oxygen

D. Fluorine



Q196 Periodic trends (atomic size/electroneg.)

Which of the following properties remain same while moving down the group in the periodic table?

- A. Valency ✓
- B. Atomic size
- C. Metallic character
- D. Non-metallic character

Q197 Valency and radicals

Carbon is unable to form C^{4+} ion because _____.

- A. it gains electrons easily
- B. it has tetra valency
- c. its formation requires a large amount of energy ✓
- D. it shows catenation property

Q198 Valency and radicals

Select the element with the highest valency from among the following.

- A. Li
- B. Al
- C. Ca
- D. N ✓

Q199 Valency and radicals

The valency of group 17 elements will be:

- A. 1 ✓
- B. 2
- C. 5
- D. 8



Q200 Valency and radicals

Which of the following elements has valency 3?

A. Mg

B. S

C. Al



D. C

Q201 Valency and radicals

An element X combines with chlorine to form a compound XCl . The element X is placed on the left side of the periodic table. Which of the following statements are correct for element X?

- (i) Has one valence electron.
- (ii) Is a metal and is solid.
- (iii) Is a non-metal and is a gas.
- (iv) Has five valence electrons.

A. Only (iii)

B. Only (iv)

C. Only (i) and (iii)

D. Only (I), (ii) and (iii)

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q202 Valency and radicals

Which elements show similar valency as that of silicon?

A. Mg and K

B. C and Ge



C. Cl and Br

D. Na and H



Q203 Valency and radicals

Which of the following acts as the deciding factor in the determination of the valency of an atom?

- A. Number of electrons in the K shell
- B. Number of electrons in the L shell
- C. Number of electrons in the innermost shell
- D. Number of electrons in the outermost shell



Q204 Valency and radicals

The valency of carbon is ____.

- A. 3
- B. 4
- C. 2
- D. 6



Q205 Valency and radicals

Use Mendeleev's periodic table to select the correct formula for the oxides of Ba and K.

- A. BaO and KO
- B. BaO₂ and K₂O
- C. BaO and KO₂
- D. BaO and K₂O



Q206 Valency and radicals

What is the atomic number and valency of sulphur, respectively?

- A. 16 and 2
- B. 14 and 4
- C. 15 and 3
- D. 17 and 1



Q207 Valency and radicals

Which of the following elements has three valence electrons?

A. Al



B. Mg

C. N

D. Ca

Q208 Valency and radicals

How many number of bonds do the single carbon atom form?

A. 4



B. 3

C. 2

D. 1



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Q4 Carbon and its allotropes (diamond/graphite/fullerene)

Which form of carbon is used as a dry lubricant?

- A. Coal
- B. Coke
- C. Diamond
- D. Graphite



Q5 Carbon and its allotropes (diamond/graphite/fullerene)

Consider the below statements and identify the correct answer.

Statement I: Graphite is bad conductors of electricity.

Statement II: In graphite, each carbon atom is bonded to three other carbon atoms in the same plane giving a hexagonal array.

- A. Statement I is correct, and Statement II is incorrect.
- B. Statement II is correct, and Statement I is incorrect.
- C. Both the statements are correct.
- D. Both the statements are incorrect.



Q6 Carbon and its allotropes (diamond/graphite/fullerene)

Which of the following properties is NOT exhibited or shown by carbon?

- A. Catenation
- B. Covalency
- C. Allotropy
- D. Metallic character



Q7 Carbon and its allotropes (diamond/graphite/fullerene)

The catenation property shown by carbon refers to which of the following properties?

- A. Self-degeneration property
- B. Property of occurring as different allotropes
- C. Self-combining capacity to form a long chain of atoms
- D. Property of carbon to give combustive nature to its compounds



Q8 Carbon and its allotropes (diamond/graphite/fullerene) HINDI - no English version saved

निम्न में से कौन सा तत्व कार्बन के समान श्रृंखलन गुण प्रदर्शित करता है?

A. Ne

B. O

C. K

D. Si



Q9 Carbon and its allotropes (diamond/graphite/fullerene)

Catenation property is shown by:

A. carbon

B. Oxygen

C. Nitrogen

D. Helium



Q10 Carbon and its allotropes (diamond/graphite/fullerene)

The first Fullerene to be identified was _____.

A. C-60

B. C-160

C. C-600

D. C-660



Q11 Carbon and its allotropes (diamond/graphite/fullerene)

Carbon exhibits catenation property due to _____.

A. its large size and greater strength of carbon-carbon bond

B. its small size and greater strength of carbon-carbon bond

C. its small size and weaker strength of carbon-carbon bond

D. its large size and weaker strength of carbon-carbon bond



Q12 Carbon and its allotropes (diamond/graphite/fullerene)

Which of the following properties of carbon is responsible for a large number of carbon compounds?

- A. Catenation property and divalency
- B. Isomerisation and divalency
- C. Allotropy and tetravalency
- D. Catenation property and tetravalency



Q13 Carbon and its allotropes (diamond/graphite/fullerene)

Carbon shows greater tendency for catenation than silicon.

Which of the following statements is the correct explanation for the given assertion?

- A. Carbon-carbon bond is weaker than Si-Si bond due to the smaller size of carbon as compared to silicon.
- B. Carbon-carbon bond is stronger than Si-Si bond due to the smaller size of carbon as compared to silicon.
- C. Carbon-carbon bond is stronger than Si-Si bond due to the larger size of carbon as compared to silicon.
- D. Carbon-carbon bond is weaker than Si-Si bond due to the larger size of carbon as compared to silicon.



Q14 Carbon and its allotropes (diamond/graphite/fullerene)

Which element has the hardest natural allotrope?

- A. C
- B. S
- C. Sn
- D. Pb



Q15 Carbon and its allotropes (diamond/graphite/fullerene)

Which of the following allotropes of carbon is a good conductor of electricity?

- A. Fullerene
- B. Graphite
- C. Charcoal
- D. Diamond



Q16 Carbon and its allotropes (diamond/graphite/fullerene)

Which of the following is NOT a crystalline allotrope of carbon?

- A. Graphite
- B. Diamond
- C. Fullerene
- D. Coke



Q17 Carbon and its allotropes (diamond/graphite/fullerene)

The allotrope of which non-metal conducts electricity?

- A. Phosphorous
- B. Sulfur
- C. Oxygen
- D. Carbon



Q18 Carbon and its allotropes (diamond/graphite/fullerene)

How many carbon atoms are arranged in the shape of a football like structure in fullerene?

- A. 60
- B. 40
- C. 55
- D. 30



Q19 Common organic compounds (methane/ethanol)

Alcohols react with sodium leading to the evolution of which of the following gases?

- A. Oxygen
- B. Carbon dioxide
- C. Hydrogen
- D. No evolution of Gas



Q20 Common organic compounds (methane/ethanol)

Which of the following compounds possesses the highest boiling point?

- A. Methane
- B. Acetic acid
- C. Chloroform
- D. Ethanol

Q21 Common organic compounds (methane/ethanol)

Match the following:

Formula	Name
i. CH_3COOH	a. Methane
ii. CHCl_3	b. Ethanol
iii. $\text{CH}_3\text{CH}_2\text{OH}$	c. Acetic acid
iv. CH_4	d. Chloroform

- A. i-c, ii-d, iii-a, iv-b
- B. i-a, ii-c, iii-b, iv-d
- C. i-a, ii-b, iii-c, iv-d
- D. i-c, ii-d, iii-b, iv-a

Q22 Common organic compounds (methane/ethanol) HINDI - no English version saved

एथेनॉल के एथेनोइक अम्ल में परिवर्तन को किसके द्वारा उत्प्रेरित किया जाता है?

- A. क्षारीय KMnO_4 और अम्लीकृत $\text{K}_2\text{Cr}_2\text{O}_7$
- B. अम्लीकृत K_2CrO_4 और क्षारीय KMnO_4
- C. क्षारीय K_2MnO_4 और अम्लीकृत $\text{K}_2\text{Cr}_2\text{O}_7$
- D. अम्लीकृत K_2CrO_4 और क्षारीय K_2MnO_4



Q23 Common organic compounds (methane/ethanol)

Match the following:

Compound	Name
i. C_6H_6	a. Ethane
ii. $H_2C=CH_2$	b. Benzene
iii. CH_3-CHO	c. Acetaldehyde
iv. CH_3COCH_3	d. Ethylene
v. CH_3CH_3	e. Acetone

A. i-d, ii-c, iii-a, iv-b. v-e

B. i-a, ii-b, iii-c, iv-e v-d

C. i-b, ii-d, iii-c, iv-e, v-a



D. i-d, ii-c, iii-e, iv-b v-a

Q24 Common organic compounds (methane/ethanol)What will be the product when $CO(g)$ reacts with $H_2(g)$ at 340 atm pressure?A. $HCHO$ B. CH_3OH C. C_2H_5OH D. $HCOOH$ **Q25** Common organic compounds (methane/ethanol)

Naphthalene balls are prepared from _____.

A. coke

B. coal tar



C. coal gas

D. petroleum



Q26 Common organic compounds (methane/ethanol)

Which of the following is a two-carbon molecule?

- A. Glucose
- B. Lactic acid
- C. Pyruvic acid
- D. Ethanol



Q27 Common organic compounds (methane/ethanol)

Which of the following compounds has the highest boiling point?

- A. CHCl_3
- B. CH_3COOH
- C. $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_3$
- D. $\text{CH}_3\text{CH}_2\text{OH}$



Q28 Common organic compounds (methane/ethanol)

Glucose is represented by which of the following formulae?

- A. $\text{C}_2\text{H}_5\text{OH}$
- B. $\text{C}_6\text{H}_{12}\text{O}_6$
- C. CH_3COOH
- D. $\text{C}_6\text{H}_{14}\text{O}_8$



Q29 Common organic compounds (methane/ethanol)

What is the major product when ethanol reacts with potassium dichromate ($\text{K}_2\text{Cr}_2\text{O}_7$) in an acidic medium?

- A. Ethanoic acid
- B. Ethanal
- C. Ethyl ethanoate
- D. Ethene



Q30 Common organic compounds (methane/ethanol)

Which of the following compounds was used for the preparation of urea by Friedrich Wohler?

A. Carbon monoxide

B. Methane nitrile

C. Ammonia

D. Ammonium cyanate



Q31 Common organic compounds (methane/ethanol)

Arrange the following organic compounds in the increasing order of their boiling point.

CH_4 , CH_3COOH , CHCl_3 , $\text{CH}_3\text{CH}_2\text{OH}$

A. $\text{CH}_3\text{COOH} < \text{CH}_3\text{CH}_2\text{OH} < \text{CHCl}_3 < \text{CH}_4$

B. $\text{CH}_4 < \text{CHCl}_3 < \text{CH}_3\text{CH}_2\text{OH} < \text{CH}_3\text{COOH}$



C. $\text{CH}_3\text{CH}_2\text{OH} < \text{CH}_3\text{COOH} < \text{CHCl}_3 < \text{CH}_4$

D. $\text{CH}_4 < \text{CHCl}_3 < \text{CH}_3\text{COOH} < \text{CH}_3\text{CH}_2\text{OH}$

Q32 Common organic compounds (methane/ethanol)

Which of the following compounds does NOT belong to the homologous series of alcohols?

A. $\text{C}_2\text{H}_5\text{OH}$

B. $\text{C}_3\text{H}_7\text{OH}$

C. $\text{C}_4\text{H}_{10}\text{OH}$



D. CH_3OH

Q33 Common organic compounds (methane/ethanol)

Which of the following is a correct nomenclature of the given structure?

$\text{CH}_3\text{CH}_2\text{OH}$

A. Ethan-1-ol



B. Methan-1-ol

C. Ethan-2-ol

D. Methan-2-ol



Q34 Common organic compounds (methane/ethanol)

The homologue of ethanol is _____.

A. methanol



B. ethanal

C. propanal

D. ethane

Q35 Common organic compounds (methane/ethanol)

Which of the following is NOT a carbon compound?

A. CHCl_3

B. CH_4

C. C_2H_6

D. $\text{Co}(\text{NO}_3)_2$



Q36 Common organic compounds (methane/ethanol)

Which of the following is a correct pair for homologous series?

A. CH_3OH and CH_4

B. CH_3OH and $\text{C}_2\text{H}_5\text{OH}$



C. CH_3OH and $\text{C}_3\text{H}_7\text{OH}$

D. $\text{C}_3\text{H}_7\text{OH}$ and CH_3OH

Q37 Fossil fuels (coal/petroleum/natural gas)

Carbonisation is a term used to describe the process of transforming dead plants into _____ over a long period of time.

A. diesel

B. petrol

C. coal



D. fossil



Q38 Fossil fuels (coal/petroleum/natural gas)

Coal and petroleum have their own advantages and disadvantages. Three of the statements regarding coal and petroleum are similar. Choose the one that is dissimilar.

- A. When burnt produce oxides of N and S that are poisonous and cause acid rain
- B. When burnt in insufficient O_2 produce carbon monoxide, which is a poisonous gas
- C. Used to generate electricity in thermal plants and are cost effective ☒
- D. When burnt produce CO_2 , which causes global warming

Q39 Fossil fuels (coal/petroleum/natural gas)

Petroleum is called _____.

- A. a renewable resource since it is derived from dead plants
- B. a non-renewable resource since it cannot be made in a factory
- C. a renewable resource since a single oil well gives oil everyday
- D. a non-renewable resource since conditions that produced it no longer exist ☒

Q40 Fossil fuels (coal/petroleum/natural gas)

Which of the following is a tough, porous and black substance obtained from coal?

- A. Coke ☒
- B. Coal tar
- C. Coal gas
- D. Diamond

Q41 Fossil fuels (coal/petroleum/natural gas)

Naphthalene balls used to repel moths and other insects are obtained from:

- A. coal tar ☒
- B. coke
- C. coal
- D. coal gas



Q42 Fossil fuels (coal/petroleum/natural gas)

Which of the following statements is INCORRECT?

- A. Coal, petroleum and natural gas are fossil fuels.
- B. Fossil fuels are inexhaustible resources. ✓
- C. Coke, coal tar and coal gas are the products of coal.
- D. We should use coal, petroleum and natural gas judiciously.

Q43 Fossil fuels (coal/petroleum/natural gas)

The coal that we use now comes from plants that lived around _____ years ago

- A. 1,000
- B. 10,000
- C. 100,000
- D. 10,000,000 ✓

Q44 Functional groups basics

The first and second members, respectively, of the ketone homologous series are:

- A. methanone, ethanone
- B. ethanone, propanone
- C. propanone, butanone ✓
- D. butanone, propanone

Q45 Functional groups basics

Propanone has _____ carbons and _____ functional group.

- A. 4, ketone
- B. 3, ketone ✓
- C. 4, aldehyde
- D. 3, aldehyde



Q46 Functional groups basics

In an organic compound, a functional group determines:

- A. its chemical properties ✓
- B. the length of carbon chain
- C. the nature of the carbon chain
- D. its molecular mass

Q47 Functional groups basics

Which of the following pairs will be in the same homologous series?

- A. $\text{C}_2\text{H}_5\text{OH}$ and CH_3COOH
- B. CH_3OH and HCOOH
- C. CH_3CHO and CH_3OH
- D. CH_3COCH_3 and $\text{C}_2\text{H}_5\text{COCH}_3$ ✓

Q48 Functional groups basics

What will be the next homologous member of compound CH_3OH ?

- A. $\text{C}_3\text{H}_5\text{OH}$
- B. $\text{C}_3\text{H}_7\text{OH}$
- C. $\text{C}_2\text{H}_3\text{OH}$
- D. $\text{C}_2\text{H}_5\text{OH}$ ✓

Q49 Functional groups basics

The class of compounds with a functional group which has no oxygen atom is:

- A. halo compounds ✓
- B. Ketones
- C. Esters
- D. carboxylic acid



Q50 Functional groups basics

The functional group which has more than one oxygen atom is:

- A. Alcohol
- B. Ketone
- C. Aldehyde
- D. carboxylic acid



Q51 Functional groups basics

Select the functional group in five-carbon atom compound 'Pentanal'.

- A. Ketone
- B. Alcohol
- C. Alkene
- D. Aldehyde



Q52 Functional groups basics

Which of the following is the correct name of a carbon compound with three-carbon chains and a ketone group?

- A. Propanal
- B. Propanol
- C. Propanone
- D. Propene



Q53 Functional groups basics

In a homologous series, which element is replaced by any functional group?

- A. Hydrogen
- B. Sodium
- C. Sulphur
- D. Helium



Q54 Functional groups basics

Which of the following statements correctly describes a homologous series?

- A. The members of a homologous series have different chemical properties due to the same functional group.
- B. The members of a homologous series have almost the same chemical properties due to the same functional group. ✓
- C. The members of a homologous series have almost the same chemical properties due to different functional groups.
- D. The members of a homologous series have different chemical properties due to different functional groups.

Q55 Functional groups basics

How many double bonds are present in propanone?

- A. 0
- B. 1 ✓
- C. 3
- D. 2

Q56 Glass and cement basics

Which of the following chemical compounds is used in the manufacture of cement?

- A. Al_2O_3
- B. $\text{Mg}(\text{OH})_2$
- C. CaO ✓
- D. CuO

Q57 Hydrocarbons (alkane/alkene/alkyne)

Cyclohexane contains _____ C-C bonds and _____ C-H bonds, so total _____ covalent bonds.

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



Q58 Hydrocarbons (alkane/alkene/alkyne)

All the compounds of which of the following sets belongs to the same homologous series?

- A. C_2H_6 , C_2H_4 , C_2H_2
- B. C_4H_8 , C_5H_8 , C_6H_{10}
- C. C_3H_8 , C_4H_{10} , C_5H_{12} ✓
- D. C_6H_{10} , C_6H_{12} , C_6H_{14}

Q59 Hydrocarbons (alkane/alkene/alkyne)

Compounds C_2H_6 and C_3H_8 are differ by _____ unit and belong to _____ series.

- A. CH_3 , heterogeneous
- B. CH_2 , heterogeneous
- C. CH_2 , homologous ✓
- D. CH_3 , homologous

Q60 Hydrocarbons (alkane/alkene/alkyne)

What will be the fourth next member of the homologous series of the compound propene?

- A. C_2H_4
- B. C_4H_8
- C. C_7H_{14} ✓
- D. C_6H_{12}

Q61 Hydrocarbons (alkane/alkene/alkyne)

Which of the following will be the next member of the homologous series of hexene?

- A. Pentane
- B. Heptane
- C. Pentene
- D. Heptene ✓



Q62 Hydrocarbons (alkane/alkene/alkyne)

Which of the following group of hydrocarbons follows the general formula of C_nH_{2n} ?

A. Alkane

B. Alkene



C. Alkyne

D. Alkyl

Q63 Hydrocarbons (alkane/alkene/alkyne)

How many total electrons are shared by three carbon atoms with all the hydrogen atoms in a propane molecule?

A. 2

B. 4

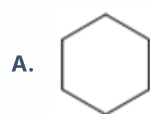
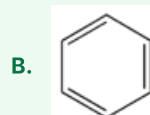
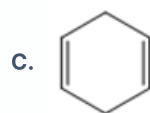
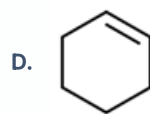
C. 6

D. 8



Q64 Hydrocarbons (alkane/alkene/alkyne)

Which of the following is the correct structure of benzene molecule?



Q65 Hydrocarbons (alkane/alkene/alkyne)

What will be the next homologous series member of compound C_6H_{10} ?

A. C_7H_{10}

B. C_7H_{12}



C. C_7H_{14}

D. C_7H_{16}



Q66 Hydrocarbons (alkane/alkene/alkyne)

How many hydrogen atoms will be added along with one carbon atom in the next member of a homologous series?

A. 1

B. 2



C. 3

D. 4

Q67 Hydrocarbons (alkane/alkene/alkyne)

The number of σ -bonds, π -bonds and the total bonds in benzene molecule, respectively, are:

A. 6, 3, 15

B. 12, 3, 15



C. 6, 6, 18

D. 6, 6, 12

Q68 Hydrocarbons (alkane/alkene/alkyne)

C_3H_6 belongs to the homologous series of:

A. alkane

B. alkene



C. alkyne

D. cycloalkane

Q69 Hydrocarbons (alkane/alkene/alkyne)

How many double bonds are there in a structure of benzene?

A. 1

B. 2

C. 3



D. 4



Q70 Hydrocarbons (alkane/alkene/alkyne)

In which of the following groups do all the hydrocarbons NOT belong to the same homologous series?

A. C_2H_4 , C_3H_6 , C_4H_8

B. CH_4 , C_2H_6 , C_3H_6



C. C_3H_6 , C_5H_{10} , C_7H_{14}

D. C_2H_2 , C_3H_4 , C_4H_6

Q71 Hydrocarbons (alkane/alkene/alkyne)

The first member of the alkyne group of hydrocarbons is:

A. methyne

B. ethyne



C. propyne

D. butyne

Q72 Hydrocarbons (alkane/alkene/alkyne)

What is the formula of cyclohexane?

A. C_6H_{14}

B. C_6H_{10}

C. C_6H_{12}



D. C_6H_6

Q73 Hydrocarbons (alkane/alkene/alkyne)

What is the total number of single bonds in cyclopentane?

A. 5

B. 10

C. 12

D. 15



Q74 Hydrocarbons (alkane/alkene/alkyne)

The compound containing 5 carbon atoms with the general formula C_nH_{2n+2} is:

A. pentane



B. butane

C. hexane

D. heptane

Q75 Hydrocarbons (alkane/alkene/alkyne)

The succeeding members of alkane homologous series differ by the formula unit:

A. H_2

B. CH_2



C. C_2

D. OH

Q76 Hydrocarbons (alkane/alkene/alkyne)

Which of the following members of the homologous series of alkanes has the highest melting point?

A. C_4H_{10}



B. C_3H_8

C. C_2H_6

D. CH_4

Q77 Hydrocarbons (alkane/alkene/alkyne)

Select the correct product when ethanol is heated at 443 K with excess concentrated sulphuric acid.

A. $CH_2 = CH_2$



B. CH_4

C. CH_3COOH

D. $CH_3 - CH_3$



Q78 Hydrocarbons (alkane/alkene/alkyne)

The hydrocarbons which have a double bond between two carbon atoms are called:

- A. saturated compounds
- B. unsaturated compounds
- C. natural compounds
- D. inorganic compounds

Q79 Hydrocarbons (alkane/alkene/alkyne)

Which formula is related to an unsaturated carbon compound?

- A. C_2H_4
- B. C_2H_6
- C. C_3H_8
- D. C_4H_{10}

Q80 Hydrocarbons (alkane/alkene/alkyne)

Which organic compound does NOT belong to the same homologous series as the other three?

- A. CH_4
- B. C_2H_6
- C. C_3H_8
- D. C_4H_8

Q81 Hydrocarbons (alkane/alkene/alkyne)

Which of the following molecular formulas is related to cyclic hydrocarbon?

- A. C_7H_{16}
- B. C_6H_{12}
- C. C_4H_{10}
- D. C_5H_{12}



Q82 Hydrocarbons (alkane/alkene/alkyne)

Which of the following compounds does NOT belong to the same homologous series?

A. C_3H_6

B. C_4H_8

C. C_5H_{10}

D. C_6H_{11}



Q83 Hydrocarbons (alkane/alkene/alkyne)

Which of the following properties remain(s) the same in a homologous series?

A. Molecular mass

B. Boiling points

C. Chemical properties



D. Melting points

Q84 Hydrocarbons (alkane/alkene/alkyne)

Which property does NOT show gradation with increasing molecular mass in any homologous series of carbon compounds?

A. Combustion



B. Melting point

C. Boiling point

D. Solubility in a particular solvent

Q85 Hydrocarbons (alkane/alkene/alkyne)

What is the difference between the molecular masses of two successive members of the homologous series?

A. 12 u

B. 14 u



C. 8 u

D. 6 u



Q86 Hydrocarbons (alkane/alkene/alkyne)

Which of the following statements is correct with respect to Alkanes?

- A. Saturated hydrocarbons contain one or more double bonds.
- B. Unsaturated hydrocarbons contain one or more double bonds.
- C. Unsaturated hydrocarbons contain one or more single bonds.
- D. Saturated hydrocarbons contain one or more single bonds. ✓

Q87 Hydrocarbons (alkane/alkene/alkyne)

The two successive members in a homologous series differ from each other by which group?

- A. $-\text{CH}-$
- B. $-\text{CH}_2-$ ✓
- C. $-\text{CH}_3$
- D. $-\text{C}_2\text{H}$

Q88 Hydrocarbons (alkane/alkene/alkyne)

Which of the following statements is correct for saturated carbon compounds?

- A. They have carbon-carbon single bond only. ✓
- B. They have carbon-carbon double bond only.
- C. They have carbon-carbon triple bond only.
- D. They have both double and triple bond.

Q89 Hydrocarbons (alkane/alkene/alkyne)

Which of the following is the general formula of alkene?

- A. $\text{C}_n\text{H}_{2n+2}$
- B. C_nH_{2n} ✓
- C. $\text{C}_n\text{H}_{2n-2}$
- D. $\text{C}_n\text{H}_{2n+4}$



Q90 Hydrocarbons (alkane/alkene/alkyne)

Saturated carbon compounds are normally:

- A. less stable than unsaturated compounds
- B. less reactive than unsaturated compounds ✓
- C. having electrostatic force of attraction
- D. having a double bond between carbon atoms

Q91 Hydrocarbons (alkane/alkene/alkyne)

A compound with molecular formula C_3H_4 belongs to the homologous series of _____.

- A. alkane only
- B. alkene only
- C. alkyne only ✓
- D. alcohol

Q92 Hydrocarbons (alkane/alkene/alkyne)

Which of the following statements about the gradation of boiling point in a homologous series is correct?

- A. The boiling points increase with increasing molecular mass. ✓
- B. The boiling points decrease with increasing molecular mass.
- C. The boiling point does not depend on molecular mass.
- D. The boiling points increase with decreasing molecular mass.

Q93 Hydrocarbons (alkane/alkene/alkyne)

Which of the following structures is formed with a closed chain of carbon atoms?

- A. Straight chain structure
- B. Branched chain structure
- C. Ring structure ✓
- D. Acyclic structure



Q94 Hydrocarbons (alkane/alkene/alkyne)

What is the molecular formula of second member of alkene series?

A. C_2H_4

B. C_3H_6



C. C_4H_8

D. C_6H_{12}

Q95 Hydrocarbons (alkane/alkene/alkyne)

Compounds of carbon containing carbon-carbon double bond are known as:

A. saturated compounds

B. alkanes

C. unsaturated compounds



D. alkynes

Q96 Hydrocarbons (alkane/alkene/alkyne)

The number of double bonds present in Benzene is _____.

A. two

B. three



C. four

D. six

Q97 Hydrocarbons (alkane/alkene/alkyne)

Carbon compounds that are linked by only a single bond are known as _____.

A. saturated compounds



B. unsaturated compounds

C. both saturated and unsaturated compounds

D. neither saturated nor unsaturated compounds



Q98 Hydrocarbons (alkane/alkene/alkyne)

The general formula C_nH_{2n-2} represents:

- A. alkane
- B. alkene
- C. alkyne
- D. acyclic compound

Q99 Hydrocarbons (alkane/alkene/alkyne)

The general formula of alkene is:

- A. C_nH_{2n}
- B. C_nH_{2n-2}
- C. C_nH_{2n+2}
- D. C_nH_n

Q100 Hydrocarbons (alkane/alkene/alkyne)

Select the correct homologous series of alkane.

- A. CH_4 , C_2H_4 , C_3H_8 , C_4H_{10}
- B. CH_4 , C_2H_6 , C_3H_8 , C_4H_{10}
- C. CH_4 , C_2H_4 , C_3H_4 , C_4H_{10}
- D. CH_4 , C_3H_8 , C_2H_6 , C_4H_{10}

Q101 Hydrocarbons (alkane/alkene/alkyne)

Which of the following belongs to homologous series of alkenes?

- A. C_3H_8
- B. C_3H_6
- C. C_3H_4
- D. C_5H_{12}



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Q102 Hydrocarbons (alkane/alkene/alkyne)

Which of the following compounds has 7 covalent bonds?

A. Propane

B. Ethane



C. Butane

D. Methane

Q103 Hydrocarbons (alkane/alkene/alkyne)

Which of the following compounds contains only one carbon-carbon single bond?

A. Methane

B. Ethane



C. Propane

D. Butane

Q104 Hydrocarbons (alkane/alkene/alkyne)

Which of the following compounds is cyclic and unsaturated?

A. Ethane

B. Benzene



C. Cyclopropane

D. Cyclohexane

Q105 Hydrocarbons (alkane/alkene/alkyne)

The members of homologous series differ by _____.

A. CH_2 unit



B. CH unit

C. C_2H unit

D. C_2H_2 unit



Q106 Hydrocarbons (alkane/alkene/alkyne)

Unsaturated hydrocarbons that contain one or more double bonds are known as _____.

- A. ketones
- B. alkenes
- C. Alkanes
- D. Acids

Q107 Hydrocarbons (alkane/alkene/alkyne)

Which of the following compounds of carbon does NOT exist?

- A. CH_6
- B. CH_4
- C. C_2H_6
- D. C_6H_6

Q108 Isomerism (basic idea)

Which of the following is NOT a possible isomer of hexane?

- A. 2-ethyl pentane
- B. 2-methyl pentane
- C. 3-methyl pentane
- D. 2, 2 dimethyl butane

Q109 Isomerism (basic idea)

_____ make an isomeric pair.

- A. Propane and butane
- B. Butane and 2-methyl propane
- C. Butane and 2-ethyl butane
- D. Propane and 2-methyl propane



Q110 Isomerism (basic idea)

The total number of isomers of butane and pentane, respectively, are:

A. 2, 3



B. 3, 4

C. 2, 4

D. 3, 3

Q111 LPG, CNG, biogas

Which of the following carbon compounds is a major component of biogas and compressed natural gas?

A. Methane



B. Ethane

C. Propane

D. Butane

Q112 LPG, CNG, biogas

Which of the following statements is FALSE with respect to CNG and LPG

A. CNG and LPG can be piped to homes.



B. CNG and LPG are labelled as 'clean fuels'.

C. CNG and LPG are both carbon-based fuels.

D. CNG and LPG do not contain carbon particles.

Q113 Petroleum fractions and uses

What is the natural resource from which petrol and diesel are obtained?

A. Petroleum



B. Coke

C. Bitumen

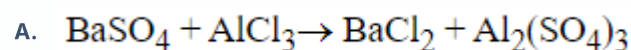
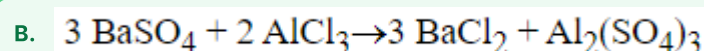
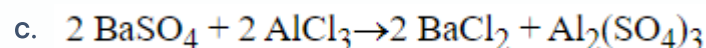
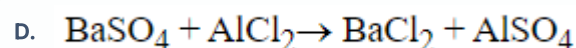
D. Coal tar



Q1 Balancing Chemical Equations

The balanced reaction for following chemical reaction is:

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



Q2 Balancing Chemical Equations

What is the need to balance chemical equations?

A. To indicate the ratio of masses of reactants and products in which these react.

B. To satisfy the law of constant proportions.

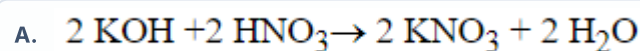
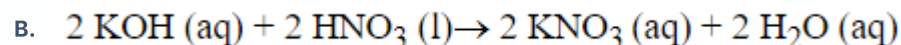
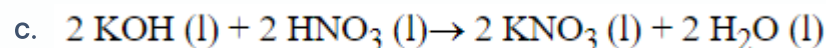
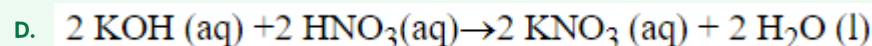
C. To indicate the ratio of volumes of reactants and products in which these react.

D. To satisfy the law of conservation of mass. ✓

Q3 Balancing Chemical Equations

Write a balanced chemical equation with state symbols for the following reaction.

Potassium hydroxide solution (in water) reacts with nitric acid solution (in water) to produce sodium nitrate solution and water.



Q4 Balancing Chemical Equations

The term (aq) written after the symbol/formula of a substance in a chemical equation indicates that it is present in:

- A. solid state
- B. gaseous state
- C. a solution in water
- D. liquid state



Q5 Balancing Chemical Equations

In chemical reaction $\text{N}_2 + x\text{H}_2 \rightarrow 2\text{NH}_3$, what is the value of x?

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



Q6 Balancing Chemical Equations

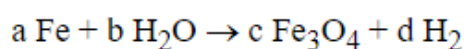
Reaction conditions are indicated at which place in the chemical equation?

- A. Only above the arrow
- B. Only below the arrow
- C. Above and/or below the arrow
- D. In the beginning of the equation



Q7 Balancing Chemical Equations

In a balanced chemical reaction, like the one shown below, the values of a, b, c and d respectively, are:

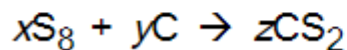


- A. 3,1,1,4
- B. 3,4,1,4
- C. 1,4,1,4
- D. 3,4,3,4



Q8 Balancing Chemical Equations HINDI - no English version saved

दी गई संतुलित रासायनिक अभिक्रिया में, x , y , और z के मान क्रमशः क्या होंगे?



A. 2, 3, 6

B. 1, 3, 5

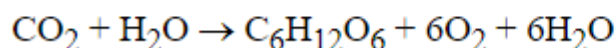
C. 2, 6, 3

D. 1, 4, 4



Q9 Balancing Chemical Equations

For the following reaction, balance the chemical equation with state symbols.



A. $CO_2(g) + 6H_2O(l) \rightarrow C_6H_{12}O_6 + 6O_2 + 6H_2O$

B. $CO_2(g) + 12H_2O(l) \rightarrow C_6H_{12}O_6 + 6O_2 + 6H_2O$

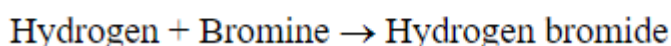
C. $6CO_2(aq) + 12H_2O(l) \rightarrow C_6H_{12}O_6(aq) + 6O_2(aq) + 6H_2O(l)$

D. $6CO_2(g) + 12H_2O(l) \rightarrow C_6H_{12}O_6(aq) + 6O_2(g) + 6H_2O(l)$



Q10 Balancing Chemical Equations

The balanced reaction for the following chemical reaction is:



A. $H_2 + Br_2 \rightarrow 2HBr$

B. $H + Br \rightarrow HBr$

C. $H_2 + 2Br \rightarrow 2HBr$

D. $2H + Br_2 \rightarrow 2HBr$



Q11 Balancing Chemical Equations

In a chemical equation, the arrow head points towards:

- A. reaction conditions
- B. Solvent
- C. products
- D. Reactants

Q12 Balancing Chemical Equations

The method of balancing a chemical equation is called:

- A. molar method
- B. equivalent method
- C. hit and trial method
- D. chemical method

Q13 Balancing Chemical Equations

Which of the following chemical reactions is balanced?

- A. $\text{Fe} + \text{H}_2\text{O} \rightarrow \text{Fe}_3\text{O}_4 + \text{H}_2$
- B. $\text{Zn} + \text{H}_2\text{SO}_4 \rightarrow \text{ZnSO}_4 + \text{H}_2$
- C. $\text{Mg} + \text{O}_2 \rightarrow \text{MgO}$
- D. $\text{Fe} + 4\text{H}_2\text{O} \rightarrow \text{Fe}_3\text{O}_4 + 4\text{H}_2$

Q14 Balancing Chemical Equations

Which of the following balanced equations is correct for the given reaction?

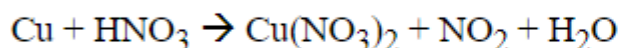
Calcium chloride + Sulphuric acid $\rightarrow$ Calcium sulphate + Hydrogen chloride

- A. $\text{CaCl}_2 + \text{H}_2\text{SO}_4 \rightarrow \text{CaSO}_4 + \text{HCl}$
- B. $\text{CaCl}_2 + \text{H}_2\text{SO}_4 \rightarrow \text{CaSO}_4 + 2\text{HCl}$
- C. $\text{CaCl}_2 + 2\text{H}_2\text{SO}_4 \rightarrow \text{CaSO}_4 + 2\text{HCl}$
- D. $2\text{CaCl}_2 + \text{H}_2\text{SO}_4 \rightarrow 2\text{CaSO}_4 + 2\text{HCl}$

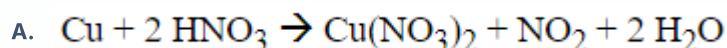
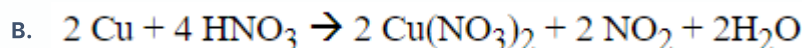
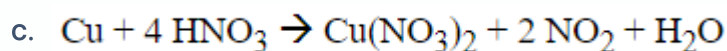
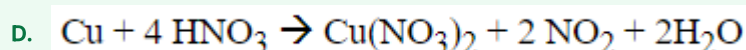


Q15 Balancing Chemical Equations

Copper reacts with conc. nitric acid to produce cupric nitrate and nitrogen dioxide as follows.



Which of the following balanced equations is correct?



Q16 Balancing Chemical Equations

In a balanced chemical equation, the reactant is always written _____ the arrow.

A. above

B. on the left-hand side of ✓

C. on the right-hand side of

D. below

Q17 Balancing Chemical Equations

Select the correct statement about a Balanced Chemical Equation.

A. The mass may or may not be the same on both the sides of the equation.

B. Volume must be the same on both the sides of the equation

C. Number of reactants and products must be same on both the sides of the equation.

D. The mass must be the same on both the sides of the equation. ✓

Q18 Balancing Chemical Equations

How many molecules of hydrogen sulphide are required to balance the given chemical equation? $\text{SO}_2 + \text{H}_2\text{S} \rightarrow 3\text{S} + 2\text{H}_2\text{O}$

A. Four

B. Three

C. Two ✓

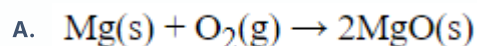
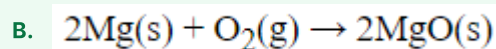
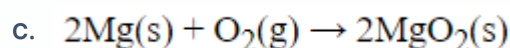
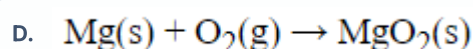
D. One



Q19 Balancing Chemical Equations

Select the correct balanced chemical equation for the given reaction.

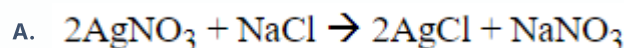
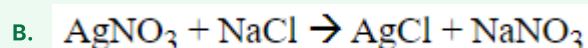
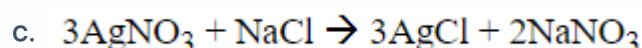
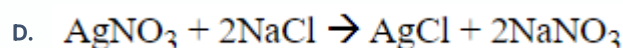
Magnesium(s) + Oxygen(g) $\rightarrow$ Magnesium oxide(s)



Q20 Balancing Chemical Equations

Which of the following balanced reactions is correct for the given reaction?

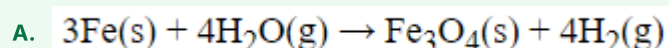
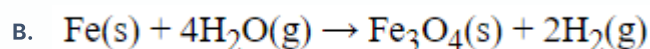
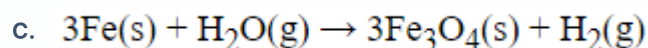
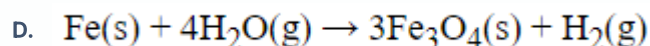
Silver nitrate + Sodium chloride $\rightarrow$ Silver chloride + Sodium nitrate



Q21 Balancing Chemical Equations

Which of the following is the correct balanced equation for the given chemical reaction?

$\text{Fe} + \text{H}_2\text{O} \rightarrow \text{Fe}_3\text{O}_4 + \text{H}_2$



Q22 Balancing Chemical Equations

In a chemical equation, the notations (aq) represents:

- A. solid
- B. Liquid
- C. Gas
- D. aqueous



Q23 Balancing Chemical Equations

Study the given chemical reaction and find the values of x, y and z, respectively.



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



Q24 Balancing Chemical Equations

Select the correct balanced chemical equation for the given reaction.

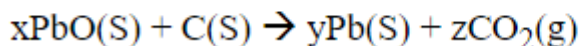
Zinc + Silver nitrate $\rightarrow$ Zinc nitrate + Silver

- A. $\text{Zn(s)} + \text{AgNO}_3\text{(aq)} \rightarrow \text{ZnNO}_3\text{(aq)} + \text{Ag(s)}$
- B. $2\text{Zn(s)} + \text{AgNO}_3\text{(aq)} \rightarrow 2\text{ZnNO}_3\text{(aq)} + \text{Ag(s)}$
- C. $\text{Zn(s)} + 2\text{AgNO}_3\text{(aq)} \rightarrow \text{Zn(NO}_3)_2\text{(aq)} + 2\text{Ag(s)}$
- D. $2\text{Zn(s)} + \text{AgNO}_3\text{(aq)} \rightarrow \text{ZnNO}_3\text{(aq)} + \text{Ag(s)}$



Q25 Balancing Chemical Equations

What is the value of x, y and z in the following chemical equation?



A. $x = 2, y = 1, z = 1$

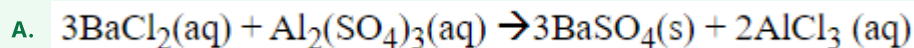
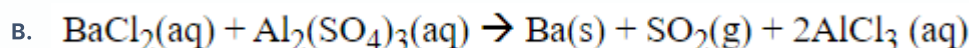
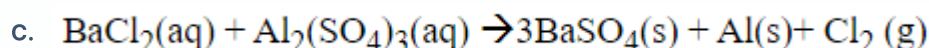
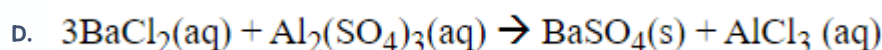
B. $x = 2, y = 2, z = 1$ ✓

C. $x = 2, y = 1, z = 2$

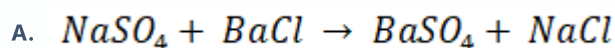
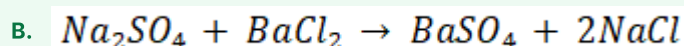
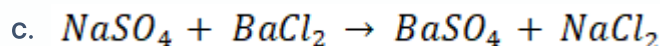
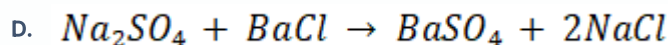
D. $x = 1, y = 1, z = 2$

Q26 Balancing Chemical Equations

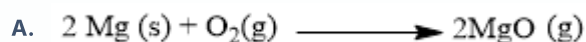
A student performs an experiment wherein he adds barium chloride to aluminium sulphate. Which of the following reaction is correct?

**Q27** Balancing Chemical Equations

Which of the following reactions is the most accurate representation of the reaction between barium chloride and sodium sulphate?

**Q28** Balancing Chemical Equations

Which of the following chemical equations is INCORRECT?



Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).



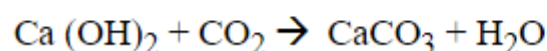
Q29 Balancing Chemical Equations

When carbon dioxide is dissolved in an aqueous solution of sodium hydroxide, the mixture reacts to give aqueous sodium carbonate and liquid water. The correct balanced equation for this reaction is:

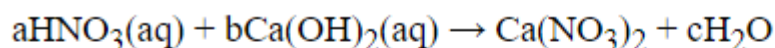
- A. $2\text{CO}_2(\text{aq}) + \text{NaOH}(\text{aq}) \rightarrow 2\text{Na}_2\text{CO}_3(\text{aq}) + \text{H}_2\text{O}(\text{l})$
- B. $\text{CO}_2(\text{aq}) + 2\text{NaOH}(\text{aq}) \rightarrow \text{NaCO}_3(\text{aq}) + \text{H}_2\text{O}(\text{l})$
- C. $2\text{CO}_2(\text{aq}) + \text{NaOH}(\text{aq}) \rightarrow 2\text{NaCO}_3(\text{aq}) + \text{H}_2\text{O}(\text{l})$
- D. $\text{CO}_2(\text{aq}) + 2\text{NaOH}(\text{aq}) \rightarrow \text{Na}_2\text{CO}_3(\text{aq}) + \text{H}_2\text{O}(\text{l})$ ✓

Q30 Balancing Chemical Equations

How many atoms of oxygen are on the left side of the given chemical equation?



- A. 4 ✓
- B. 3
- C. 2
- D. 1

Q31 Balancing Chemical Equations

The coefficients a, b and c in the given balanced chemical equation are:

- A. 2, 1 and 2, respectively ✓
- B. 2, 1 and 1, respectively
- C. 1, 2 and 1, respectively
- D. 2, 2 and 2, respectively

Q32 Combustion and its types

Which of the following is a property of combustion reaction?

- A. An element burns in the presence of oxygen. ✓
- B. In the presence of sunlight, reaction occurs.
- C. The reaction happens with absorption of heat.
- D. The reaction happens with absorption of light.



Q33 Combustion and its types

Combustion of one methane gas molecule gives _____ carbon dioxide and _____ water molecules, respectively.

A. 2; 3

B. 1; 2

C. 3; 2

D. 2; 1



Q34 Combustion and its types

Which of the following is produced when magnesium ribbon burns in the presence of air?

A. White powder of magnesium oxide

B. Blue powder of magnesium oxide

C. White powder of magnesium dioxide

D. White powder of magnesium carbonate



Q35 Exothermic vs endothermic

Which of the following is/are example(s) of exothermic reaction?

(i) Making of slaked lime

(ii) Burning of natural gas

(iii) Respiration

A. Only i

B. Only ii

C. Both i and ii

D. All i, ii, iii



Q36 Exothermic vs endothermic

Burning of natural gas is:

A. an exothermic reaction

B. an endothermic reaction

C. a decomposition reaction

D. a substitution reaction



Q37 Ionic and covalent bond (distinguish)

Consider the below statements and identify the correct answer.

Statement-I: Most carbon compounds are poor conductors of electricity.

Statement-II: Carbon compounds have low melting and boiling points.

- A. Both the statements are true ✓
- B. Both the statements are false
- C. Statement-I is true, and Statement-II is false
- D. Statement-II is true, and Statement-I is false

Q38 Ionic and covalent bond (distinguish)

Why do organic carbon compounds have lower melting points than ionic compounds?

- A. Strong force of attraction between molecules
- B. Weak force of attraction between molecules
- C. Presence of covalent bonds
- D. Presence of ionic bonds

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q39 Ionic and covalent bond (distinguish)

The bond generally NOT found in carbon compounds is:

- A. single bond
- B. double bond
- C. triple bond
- D. ionic bond ✓

Q40 Ionic and covalent bond (distinguish)

In which of the following compounds are ions NOT found?

- A. CH_4 ✓
- B. NaCl
- C. KBr
- D. NaBr



Q41 Ionic and covalent bond (distinguish)

Which of the following is NOT an ionic compound?

A. NaCl

B. CO₂



C. CaCl₂

D. CaO

Q42 Ionic and covalent bond (distinguish)

Which of the following statements is INCORRECT about properties of ionic compounds?

A. Ionic compounds are solids because of the weak force of attractions between positive and negative ions.



B. Ionic compounds are generally brittle and break into pieces when pressure is applied.

C. Ionic compounds have high melting and boiling points.

D. Electrovalent compounds are generally soluble in water and insoluble in petrol.

Q43 Ionic and covalent bond (distinguish)

Which of the following is not the property of ionic compounds?

(i) Ionic compounds have low melting and boiling points.

(ii) Ionic compounds are generally soluble in water and insoluble in solvent such as kerosene, petrol etc.

(iii) Ionic compounds are solids and are somewhat hard because of the strong force of attraction between the positive and negative ions.

(iv) Ionic compounds conduct electricity in the molten state.

A. iv

B. iii

C. ii

D. i



Q44 Ionic and covalent bond (distinguish)

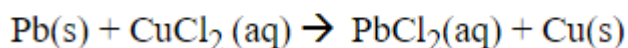
What type of bonding is present in carbon compounds?

- A. Metallic bonding
- B. Ionic bonding
- C. Hydrogen bonding
- D. Covalent bonding



Q45 Ionic and covalent bond (distinguish)

In a given reaction, which element acts as an ion?



- A. Only Pb
- B. Only Cu
- C. Only Cl_2
- D. Both Pb and Cu



Q46 Ionic and covalent bond (distinguish)

Which of the following compounds can conduct electricity?

- A. Glucose
- B. Sodium chloride
- C. Kerosene
- D. Alcohol



Q47 Ionic and covalent bond (distinguish)

An element 'A' reacts with chlorine to give a compound ACl with a high melting point. This compound is also soluble in water. The element 'A' is likely to be:

- A. sodium
- B. carbon
- C. silicon
- D. iron



Q48 Ionic and covalent bond (distinguish)

Which of the following DOES NOT contain covalent bond?

A. H_2

B. CH_4

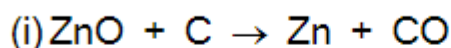
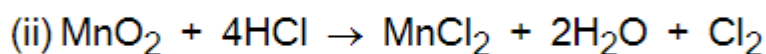
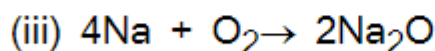
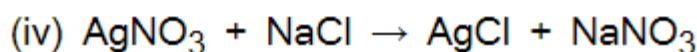
C. NH_3

D. $NaOH$



Q49 Oxidation & Reduction (Redox) HINDI - no English version saved

निम्नलिखित में से कौन सा रेडॉक्स अभिक्रिया का उदाहरण नहीं है?



A. i

B. ii

C. iii

D. iv



Q50 Oxidation & Reduction (Redox)

Consider the below statements and identify the correct answer.

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

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

A. Both the statements are true.

B. Both the statements are false.

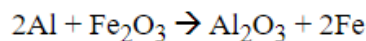
C. Statement-I is true, and Statement-II is false.

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



Q51 Oxidation & Reduction (Redox)

In the given chemical reaction, which of the following chemical species acts as an oxidising agent and as a reducing agent, respectively?



- A. Fe and Al
- B. Al_2O_3 and Fe
- C. Al and Fe
- D. Fe_2O_3 and Al

**Q52** Oxidation & Reduction (Redox)

Consider the below statements and identify the correct answer.

Statement-I: On heating, the surface of copper powder becomes coated with black copper (II) oxide.

Statement-II: If hydrogen gas is passed over this heated material (CuO), the black coating on the surface turns brown.

- A. Both the statements are true.
- B. Both the statements are false.
- C. Statement-I is true, and statement-II is false.
- D. Statement-I is false, and statement-II is true.

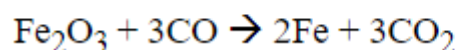
**Q53** Oxidation & Reduction (Redox)

In the reaction $\text{ZnO} + \text{C} \rightarrow \text{Zn} + \text{CO}$:

- A. carbon is reduced to CO
- B. ZnO is reduced to Zn
- C. ZnO is oxidized to Zn
- D. Zn does not undergo redox reaction.

**Q54** Oxidation & Reduction (Redox)

In the given reaction, _____ acts as a reducing agent.



- A. Fe
- B. Fe_2O_3
- C. CO_2
- D. CO



Q55 Oxidation & Reduction (Redox)

The conversion of ethanol to ethanoic acid is an example of which of the following reactions?

- A. Combustion reaction
- B. Oxidation reaction
- C. Addition reaction
- D. Substitution reaction



Q56 Oxidation & Reduction (Redox)

If a substance loses hydrogen during a reaction, it is said to be:

- A. reduced
- B. oxidised
- C. decomposed
- D. neutralised



Q57 Oxidation & Reduction (Redox)

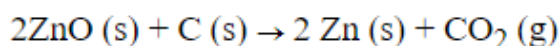
If a substance gains hydrogen during reaction, it is said to be:

- A. reduced
- B. oxidised
- C. decomposed
- D. neutralised



Q58 Oxidation & Reduction (Redox)

Which of the statements about the reaction below is/are correct?



- (i) Zinc is getting reduced
- (ii) Carbon is getting oxidised
- (iii) Zinc is getting oxidized.
- (iv) Carbon is getting reduced

A. only (i)

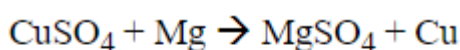
B. only (ii)

C. Both (i) and (ii)



D. All (i), (iii), (iv)

Q59 Oxidation & Reduction (Redox)



In the above reaction Mg is the:

A. oxidising agent

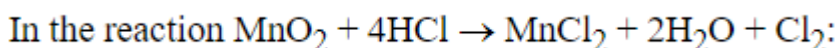
B. catalyst

C. reducing agent



D. dissolving agent

Q60 Oxidation & Reduction (Redox)



A. MnO_2 is oxidized to MnCl_2

B. MnO_2 is reduced to MnCl_2



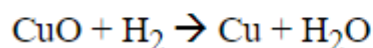
C. MnCl_2 is reduced to MnO_2

D. Mn does not undergo redox reaction



Q61 Oxidation & Reduction (Redox)

In the following chemical reaction, which chemical species is getting oxidised?



A. CuO

B. H₂



C. H₂O

D. Cu

Q62 Oxidation & Reduction (Redox)

If a reactant gains oxygen in a reaction, it is said to be undergoing:

A. reduction

B. Oxidation



C. redox process

D. dissociation

Q63 Oxidation & Reduction (Redox)

When a substance combines with O₂, it gets:

A. dissolved in air

B. Reduced

C. oxidised



D. back its shine

Q64 Oxidation & Reduction (Redox)

Which of the following statements is correct about oxidation reaction?

A. Oxidation is loss of oxygen or gain of hydrogen.

B. Oxidation is gain of oxygen and hydrogen.

C. Oxidation is gain of oxygen or loss of hydrogen.



D. Oxidation is loss of oxygen and hydrogen.



Q65 Oxidation & Reduction (Redox)

A substance gains hydrogen during a chemical process called:

- A. Oxidation
- B. Rusting
- C. reduction
- D. decomposition

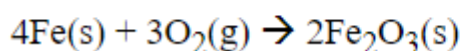
Q66 Oxidation & Reduction (Redox)

A substance is said to be reduced in a redox reaction if it:

- A. gains oxygen or loses hydrogen
- B. gains hydrogen or loses oxygen
- C. gains hydrogen and oxygen both
- D. loses hydrogen and oxygen both

Q67 Oxidation & Reduction (Redox)

Which of the following substances is being oxidised in the given reaction?



- A. Fe(s)
- B. O₂(g)
- C. Fe₂O₃(s)
- D. Both Fe(s) and Fe₂O₃(s)

Q68 Oxidation & Reduction (Redox)

What happens when concentrated hydrochloric acid is added to manganese dioxide?

- A. Hydrogen gas is liberated.
- B. Hydrochloric acid is reduced to chlorine gas.
- C. Manganese dioxide is reduced to manganese (II) chloride.
- D. Hydrochloric acid is reduced while MnO₂ is oxidised.



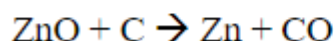
Q69 Oxidation & Reduction (Redox)

Which of the following gases are evolved at the anode and the cathode, respectively, during electrolytic decomposition of aqueous sodium chloride?

- A. H_2 gas at the anode and Cl_2 gas at the cathode.
- B. Cl_2 gas at the anode and H_2 gas at the cathode. ✓
- C. H_2 gas at the anode and O_2 gas at the cathode.
- D. O_2 gas at the anode and H_2 gas at the cathode.

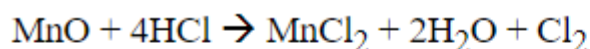
Q70 Oxidation & Reduction (Redox)

Which of the following is reduced in the given reaction?



- A. ZnO ✓
- B. Carbon
- C. Zn
- D. CO

Q71 Oxidation & Reduction (Redox)



According to the given reaction, which of the following statements is INCORRECT?

- A. Cl_2 is oxidised to HCl .
- B. HCl is oxidised to Cl_2 .
- C. MnO_2 is reduced to MnCl_2 .
- D. It is a redox reaction.

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q72 Oxidation & Reduction (Redox)

Burning of magnesium in the presence of air produces magnesium oxide. Select the type of reaction involved.

- A. Reduction reaction
- B. Oxidation reaction ✓
- C. Displacement reaction
- D. Double displacement reaction



Q73 Oxidation & Reduction (Redox)

Sulphide ion is formed from Sulphur due to _____.

A. Reduction



B. Oxidation

C. Dehydrogenation

D. Combination

Q74 Oxidation & Reduction (Redox)

A student takes a ribbon and burns it in the presence of oxygen. It changes into magnesium oxide. Which process has occurred?

A. Oxidation



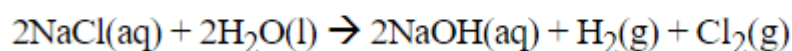
B. Reduction

C. Hydrogenation

D. Decomposition

Q75 Oxidation & Reduction (Redox)

Which product is formed near the cathode in the given chemical reaction?



A. H_2 , Cl_2

B. NaOH

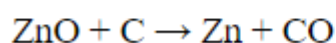


C. NaOH, H_2

D. NaOH, Cl_2

Q76 Oxidation & Reduction (Redox)

Identify the substance that is reduced in the following reaction.



A. C

B. ZnO



C. Zn

D. O



Q77 Oxidation & Reduction (Redox)

Which of the following statement is INCORRECT for reduction?

- A. Loss of electrons
- B. Gain of electrons
- C. Addition of Hydrogen
- D. Removal of oxygen

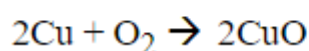
Q78 Oxidation & Reduction (Redox)

The formation of zinc ion from zinc is due to:

- A. reduction
- B. oxidation
- C. combination reaction
- D. hydrolysis

Q79 Oxidation & Reduction (Redox)

In the given reaction which substance undergoes oxidation?



- A. Copper oxide
- B. Only copper
- C. Only oxygen
- D. Copper and oxygen

Q80 Oxidation & Reduction (Redox)

In a chemical reaction, a substance gains hydrogen. This process is said to be _____.

- A. reduction
- B. chlorination
- C. bromination
- D. oxidation



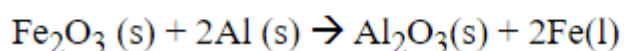
Q81 Oxidation & Reduction (Redox)

Redox reaction is the reaction in which _____.

- A. only oxidation occurs
- B. only reduction occurs
- C. oxidation and reduction occur simultaneously ✓
- D. neither oxidation nor reduction occur

Q82 Oxidation & Reduction (Redox)

In the given reaction, reduction of which substance takes place?



- A. Ferric oxide ✓
- B. Aluminium
- C. Aluminium oxide
- D. Iron

Q83 Oxidation & Reduction (Redox)

The conversion of ethanol to acetic acid is an example of:

- A. addition reaction
- B. oxidation reaction ✓
- C. reduction reaction
- D. substitution reaction

Q84 Rusting/corrosion and prevention

Corrosion is a type of:

- A. oxidation reaction ✓
- B. decomposition reaction
- C. displacement reaction
- D. double displacement reaction



Q85 Rusting/corrosion and prevention

Tarnishing of ornaments is an example of _____.

- A. oxidation reaction
- B. neutralisation reaction
- C. exothermic reaction
- D. photolytic decomposition reaction

Q86 Rusting/corrosion and prevention

Which of the following metals forms a green colour coating due to corrosion?

- A. Silver
- B. Iron
- C. Zinc
- D. Copper

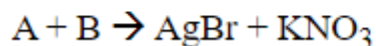
Q87 Types of chemical reactions

Any reaction that produces an insoluble precipitate can be called a:

- A. precipitation reaction
- B. displacement reaction
- C. decomposition reaction
- D. redox reaction

Q88 Types of chemical reactions

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



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



Q89 Types of chemical reactions

Which of the following reactions represents symbolic combination reaction?

- A. $A + B \rightarrow C$ ✓
- B. $XY \rightarrow X + Y$
- C. $PQ + R \rightarrow PR + Q$
- D. $AB + CD \rightarrow AC + BD$

Q90 Types of chemical reactions

The formation of water from hydrogen and oxygen is an example of _____.

- A. combination reaction ✓
- B. decomposition reaction
- C. displacement reaction
- D. oxidation and reduction

Q91 Types of chemical reactions

Which of the following chemical reactions represents the chlor-alkali process?

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

Q92 Types of chemical reactions

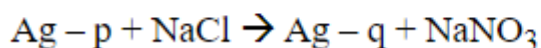
A magnesium ribbon burns with a dazzling flame in air (oxygen) and changes into a white substance 'X'. The X is:

- A. MgO ✓
- B. Mg(OH)_2
- C. MgCO_3
- D. Mg



Q93 Types of chemical reactions

What will come in place of p and q, respectively, in the given double displacement reaction?



- A. NO_3 and NO_3
- B. Cl and NO_3
- C. Cl and Cl
- D. NO_3 and Cl



Q94 Types of chemical reactions

The insoluble substance formed in a solution during a chemical reaction is known as _____.

- A. residue
- B. soluble salt
- C. aqueous solution
- D. precipitate



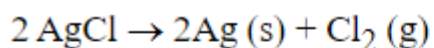
Q95 Types of chemical reactions

Which of the following is an example of a thermal decomposition reaction?

- A. $\text{ZnCO}_3 \rightarrow \text{ZnO} + \text{CO}_2$
- B. $2\text{AgCl} \rightarrow 2\text{Ag} + \text{Cl}_2$
- C. $2\text{H}_2\text{O} \rightarrow 2\text{H}_2 + \text{O}_2$
- D. $2\text{NaCl (molten)} \rightarrow 2\text{Na} + \text{Cl}_2$



Q96 Types of chemical reactions



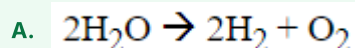
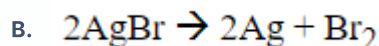
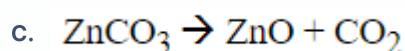
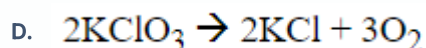
What is the suitable condition for the above reaction to take place?

- A. Sunlight + Pressure
- B. Heat
- C. Heat + Pressure
- D. Sunlight



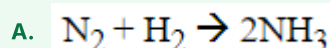
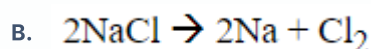
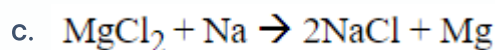
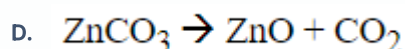
Q97 Types of chemical reactions

Which of the following is an example of 'Electrolytic Decomposition Reaction'?



Q98 Types of chemical reactions

Which of the following is an example of combination reaction?



Q99 Types of chemical reactions

Four different experiments were conducted by students of Class X.

I. Navin took a beaker containing some aqueous solution of CuSO_4 and added a piece of magnesium strip in it.

II. Ayush took a beaker containing some aqueous solution of CuSO_4 and added some platinum pieces in it.

III. Sneha took a beaker containing some aqueous solution CuSO_4 and added some copper turnings in it.

IV. Akriti took a beaker containing some aqueous solution CuSO_4 and added a piece of silver wire in it.

Who among them was able to perform a displacement reaction?

A. Ayush

B. Navin



C. Akriti

D. Sneha



Q100 Types of chemical reactions

Chlorine gas reacts with potassium iodide solution to form potassium chloride and iodine. This reaction is an example of a:

- A. combination reaction
- B. double displacement reaction
- C. decomposition reaction
- D. displacement reaction



Q101 Types of chemical reactions

The reaction in which a single reactant splits into the two or more simpler products is called:

- A. displacement reaction
- B. double displacement reaction
- C. combination reaction
- D. decomposition reaction



Q102 Types of chemical reactions HINDI - no English version saved

जब लेड नाइट्रेट को गर्म किया जाता है, तो लेड ऑक्साइड, ऑक्सीजन गैस और एक भूरे रंग की रहस्यमयी गैस बनती है। वह रहस्यमयी गैस कौन सी है?

- A. नाइट्रस ऑक्साइड
- B. कार्बन डाइऑक्साइड
- C. कार्बन मोनोआक्साइड
- D. नाइट्रोजन डाइऑक्साइड



Q103 Types of chemical reactions

Which of the following reactions will be considered as a double displacement reaction?

- A. $\text{MgO} + \text{H}_2\text{O} \rightarrow \text{Mg}(\text{OH})_2$
- B. $\text{Zn} + \text{FeCl}_3 \rightarrow \text{ZnCl}_2 + \text{Fe}$
- C. $\text{H}_2\text{CO}_3 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$
- D. $\text{HCl} + \text{KOH} \rightarrow \text{KCl} + \text{H}_2\text{O}$



Q104 Types of chemical reactions

Silver chloride turns into silver and chlorine gas in the presence of ultraviolet radiation. This is an example of:

- A. thermal decomposition reaction
- B. double displacement reaction
- C. redox reaction
- D. photolytic decomposition reaction



Q105 Types of chemical reactions

Formation of methyl chloride from methane and chlorine gas is which type of reaction?

- A. Combustion reaction
- B. Oxidation reaction
- C. Addition reaction
- D. Substitution reaction



Q106 Types of chemical reactions

Identify the double displacement reaction from the following.

- A. $\text{Na}_2\text{SO}_4 (\text{aq}) + \text{BaCl}_2 (\text{aq}) \rightarrow \text{BaSO}_4 (\text{s}) + 2\text{NaCl} (\text{aq})$
- B. $\text{Fe}(\text{s}) + \text{CuSO}_4 (\text{aq}) \rightarrow \text{FeSO}_4 (\text{aq}) + \text{Cu} (\text{s})$
- C. $\text{Zn}(\text{s}) + \text{CuSO}_4 (\text{aq}) \rightarrow \text{ZnSO}_4 (\text{aq}) + \text{Cu} (\text{s})$
- D. $\text{Pb}(\text{s}) + \text{CuCl}_2 (\text{aq}) \rightarrow \text{PbCl}_2 (\text{aq}) + \text{Cu} (\text{s})$



Q107 Types of chemical reactions

When solutions of lead (II) nitrate and potassium iodide are mixed together, which of the following observations will be true?

- A. No reaction will occur.
- B. A white precipitate of lead iodide will be formed.
- C. A yellow precipitate of lead iodide will be formed.
- D. A white precipitate of potassium nitrate will be formed.



Q108 Types of chemical reactions

Select the option that correctly indicates which of the following statements are true.

When a strip of zinc metal is placed in copper sulphate solution:

- (i) zinc displaces copper from copper sulphate
- (ii) the blue colour of copper sulphate solution does not fade
- (iii) a blue deposit of copper metal is formed on the zinc strip
- (iv) it is an example of combination reaction

A. i



B. ii

C. iii

D. iv

Q109 Types of chemical reactions

Decomposition reaction is when:

A. one reactant breaks down to give simpler products



B. one element displaces another to give product

C. two or more reactants give one product

D. one reactant breaks down to simple products and energy released

Q110 Types of chemical reactions

Which of the following is a precipitation reaction?

A. $\text{CuSO}_4 (\text{aq}) + \text{BaCl}_2 (\text{aq}) \rightarrow \text{BaSO}_4 (\text{s}) + \text{CuCl}_2 (\text{aq})$



B. $\text{Fe}(\text{s}) + \text{CuSO}_4 (\text{aq}) \rightarrow \text{FeSO}_4 (\text{aq}) + \text{Cu} (\text{s})$

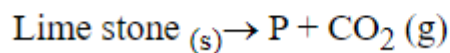
C. $2\text{Al}_2\text{O}_3 (\text{l}) \rightarrow 4\text{Al} (\text{l}) + 3\text{O}_2 (\text{g})$

D. $\text{CuO} + \text{H}_2 \rightarrow \text{H}_2\text{O} + \text{Cu}$



Q111 Types of chemical reactions

Identify the product (P) in the following reaction:



A. CaO (s)



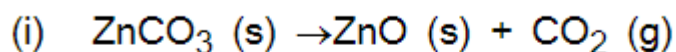
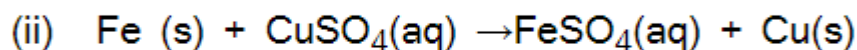
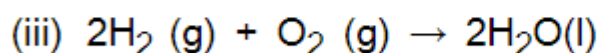
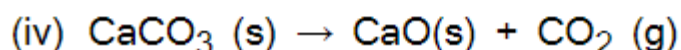
B. $\text{CaCO}_3\text{(s)}$

C. $\text{Ca(OH)}_2 \text{ (l)}$

D. $\text{CaO(s)} + \text{O}_2\text{(g)}$

Q112 Types of chemical reactions

Which of the following is a displacement reaction?



A. (i)

B. (ii)



C. (iii)

D. (iv)

Q113 Types of chemical reactions

When sodium sulphide reacts with dilute hydrochloric acid, a gas with unpleasant smell is produced. This gas with unpleasant smell is:

A. H_2

B. SO_2

C. H_2S



D. SO_3



Q114 Types of chemical reactions

Which gases are evolved during complete decomposition of ferrous sulphate crystals?

- A. Only SO_2
- B. Only SO_3
- C. Both SO_2 and SO_3 ✓
- D. O_2

Q115 Types of chemical reactions

Identify the double displacement reaction from the following.

- (i) $2AgCl(s) \rightarrow 2Ag(s) + Cl_2(g)$
- (ii) $Mg(s) + 2HCl(aq) \rightarrow MgCl_2(aq) + H_2(g)$
- (iii) $2KBr(aq) + BaI_2(aq) \rightarrow 2KI(aq) + BaBr_2(s)$
- (iv) $Pb(s) + CuCl_2(aq) \rightarrow PbCl_2(aq) + Cu(s)$

- A. (i)
- B. (ii)
- C. (iii) ✓
- D. (iv)

Q116 Types of chemical reactions

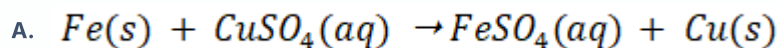
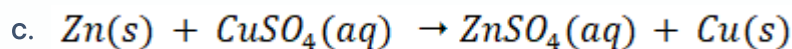
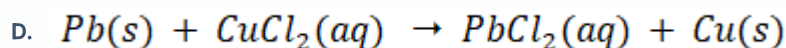
Which of the following statements about double displacement reactions is correct?

- A. An exchange of ions between two reactants. ✓
- B. The number of products should be one.
- C. The reactant should be organic.
- D. Only one reactant is required.



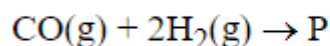
Q117 Types of chemical reactions

Which of the following reactions is NOT an example of a displacement reaction?

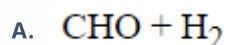
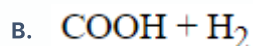
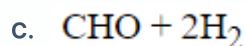
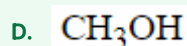


Q118 Types of chemical reactions

Consider the following chemical reaction.

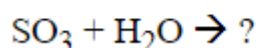
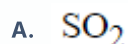
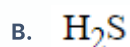
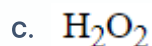
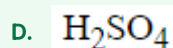


Predict the product (P) of this reaction.



Q119 Types of chemical reactions

What is the product of the following combination reaction?



Q120 Types of chemical reactions

Reactions in which there is an exchange of ions between the reactants are called:

- A. displacement reactions
- B. double displacement reactions
- C. precipitation reactions
- D. exchange reactions

Q121 Types of chemical reactions

Name the compound precipitated when the solutions of lead(II) nitrate and potassium iodide are mixed:

- A. Potassium oxide
- B. Lead oxide
- C. Lead iodide
- D. Potassium sulphate

Q122 Types of chemical reactions

Complete the double displacement reaction.

$2\text{NaOH} + \text{CuSO}_4 \rightarrow \text{X} + \text{Na}_2\text{SO}_4$, here X will be _____.

- A. CaCl_2
- B. $\text{Cu}(\text{OH})_2$
- C. $\text{Ca}(\text{OH})_2$
- D. CuCl_2



Q123 Types of chemical reactions

When a piece of limestone reacts with dilute HCl, a gas X is produced. When gas X is passed through lime water, a white precipitate Y is formed. On passing excess of gas X, the white precipitate dissolves, forming a soluble compound Z. X, Y and Z, respectively, are:

A. CO_2 , CaCO_3 , $\text{Ca}(\text{HCO}_3)_2$



B. CO_2 , $\text{Ca}(\text{HCO}_3)_2$, CaCO_3

C. CO_2 , CaCO_3 , CaO

D. CO_2 , CaCO_3 , $\text{Ca}(\text{OH})_2$

Q124 Types of chemical reactions

The double displacement reaction among the following is:

A. $\text{Fe (s)} + \text{CuSO}_4 \text{ (aq)} \rightarrow \text{FeSO}_4 \text{ (aq)} + \text{Cu (s)}$

B. $\text{Zn (s)} + \text{CuSO}_4 \text{ (aq)} \rightarrow \text{ZnSO}_4 \text{ (aq)} + \text{Cu (s)}$

C. $\text{Pb (s)} + \text{CuCl}_2 \text{ (aq)} \rightarrow \text{PbCl}_2 \text{ (aq)} + \text{Cu (s)}$

D. $\text{CuSO}_4 \text{ (aq)} + \text{H}_2\text{S (g)} \rightarrow \text{CuS (s)} + \text{H}_2\text{SO}_4 \text{ (aq)}$



Q125 Types of chemical reactions

A decomposition reaction carried out by heating is called:

A. photochemical decomposition

B. thermal decomposition



C. electrolysis

D. exothermic reaction

Q126 Types of chemical reactions

What happens when calcium hydroxide solution is left open in air?

A. CaCO_3 is formed.



B. CaO is formed.

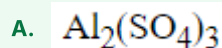
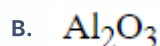
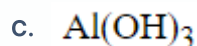
C. O_2 is liberated.

D. H_2O (gas) is evolved.



Q127 Types of chemical reactions

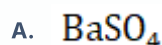
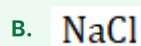
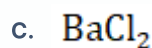
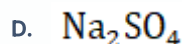
When Kavita took an aqueous solution of copper sulphate and added some granules of aluminium, the colour of the solution changed. This is because of the formation of:



Q128 Types of chemical reactions

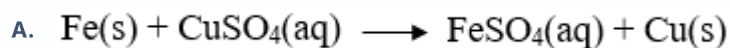
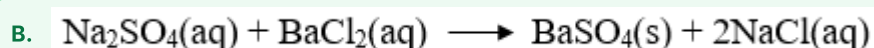
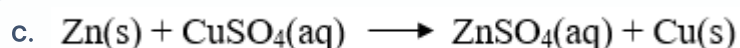
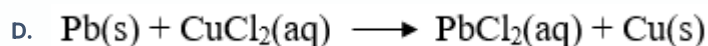


In the given reaction, which product remains in the solution?



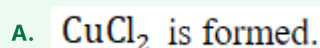
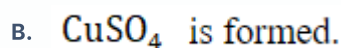
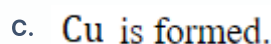
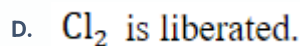
Q129 Types of chemical reactions

Which reaction is an example of a double displacement reaction?



Q130 Types of chemical reactions

Which of the following statements for the reaction of copper oxide with HCl is correct?



Q131 Types of chemical reactions

What is the nature of BaSO_4 formed by a reaction of SO_4^{2-} and Ba^{2+} ?

- A. Water soluble
- B. Water insoluble
- C. Black crystals
- D. Red powder



Q132 Types of chemical reactions

Select the correct option for precipitation reaction.

- A. It always occurs at 80°C .
- B. One reactant should be a carbon compound.
- C. All products are water soluble.
- D. Solid mass separates out on mixing two clear solutions.



Q133 Types of chemical reactions

The reaction between lead nitrate and potassium iodide is an example of:

- A. combination reaction
- B. decomposition reaction
- C. displacement reaction
- D. double displacement reaction



Q134 Types of chemical reactions

Select the product when zinc granules react with dilute sulphuric acid:

- A. ZnSO_4
- B. ZnCl_2
- C. O_2 gas
- D. N_2 gas



Q135 Types of chemical reactions

Which of the following solid compounds is formed when lead nitrate is heated?

A. Pb(OH)_2

B. PbO

C. $\text{Pb(CO}_3)_2$

D. Pb

Q136 Types of chemical reactions

What is the solid product formed when ferrous sulphate is heated?

A. Ferrous oxide

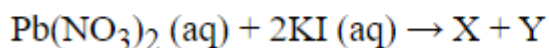
B. Iron

C. Ferric oxide

D. Ferrous sulphide

Q137 Types of chemical reactions

In the given double displacement reaction, identify the products X and Y.



A. $\text{PbI}_2 (\text{s}) + 2\text{KNO}_3 (\text{aq})$

B. $\text{PbI}_2 (\text{s}) + \text{KCl} (\text{s})$

C. $\text{PbI}_2 + \text{HNO}_3$

D. No reaction occurs

Q138 Types of chemical reactions

Which of the following reactions is an example of double displacement?

A. $\text{Pb(s)} + \text{CuCl}_2(\text{aq}) \rightarrow \text{PbCl}_2(\text{aq}) + \text{Cu(s)}$

B. $\text{Zn(s)} + \text{CuSO}_4(\text{aq}) \rightarrow \text{ZnSO}_4(\text{aq}) + \text{Cu(s)}$

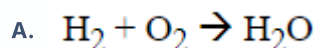
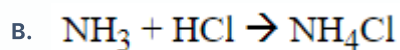
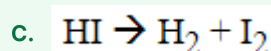
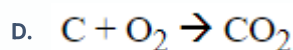
C. $\text{Na}_2\text{SO}_4(\text{aq}) + \text{BaCl}_2 (\text{aq}) \rightarrow \text{BaSO}_4(\text{s}) + 2\text{NaCl}(\text{aq})$

D. $\text{Fe(s)} + \text{CuSO}_4(\text{aq}) \rightarrow \text{FeSO}_4(\text{aq}) + \text{Cu(s)}$



Q139 Types of chemical reactions

Which of the following reactions is NOT a combination reaction?



Q140 Types of chemical reactions

Which of the following coloured precipitates is formed when lead (II) nitrate and potassium iodide are mixed together?

A. Yellow



B. Violet

C. Green

D. Black

Q141 Types of chemical reactions

White AgCl turns grey in presence of:

A. O_2

B. sunlight



C. Water

D. CO_2

Q142 Types of chemical reactions

Consider the reaction $\text{KI (aq)} + \text{PbNO}_3 \text{ (aq)} \rightarrow 2 \text{KNO}_3 \text{ (aq)} + \text{PbI}_2 \text{ (s)}$.

This is an example of:

A. decomposition reaction

B. combination reaction

C. double displacement reaction

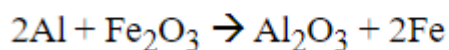


D. displacement reaction



Q143 Types of chemical reactions

The given reaction is an example of _____.



- A. oxidation reaction
- B. reduction reaction
- C. displacement reaction
- D. double displacement reaction



Q144 Types of chemical reactions

Which of the following reactions would undergo precipitation?

- A. $\text{HCl} + \text{NaOH}$
- B. $\text{H}_2\text{SO}_4 + 2\text{NaOH}$
- C. $\text{HNO}_3 + \text{NaOH}$
- D. $\text{Pb}(\text{NO}_3)_2 + \text{KI}$



Q145 Types of chemical reactions

In the given reaction, iron has displaced:



- A. Cu
- B. S
- C. O_2
- D. SO_2



Q146 Types of chemical reactions

Which of the following is the correct product formed by the combination reaction of calcium oxide with water?

- A. Calcium carbonate
- B. Calcium hydroxide
- C. Calcium bicarbonate
- D. No reaction takes place



Q147 Types of chemical reactions

Silver chloride turns grey in sunlight.

Which of the following is the correct explanation for the given statement?

- A. Displacement of silver chloride into silver and chlorine by light.
- B. Decomposition of silver chloride into silver oxide and chlorine by light.
- C. Decomposition of silver chloride into silver and chlorine by light ✓
- D. Displacement of silver chloride into silver oxide and chlorine by light.

Q148 Types of chemical reactions

Which of the following compounds gets precipitated when lead nitrate solution is mixed with sodium iodide solution?

- A. Sodium nitrite
- B. Lead iodide ✓
- C. Lead nitrite
- D. Sodium nitrate

Q149 Types of chemical reactions

Ferrous sulphate on heating gives a solid product and two different gases. Select the gases evolved during the reaction.

- A. Sulphur dioxide and sulphur trioxide ✓
- B. Sulphur trioxide and oxygen
- C. Sulphur dioxide and oxygen
- D. Oxygen and disulphur

Q150 Types of chemical reactions

Precipitation reactions occur when cation of one reactant and anion of second reactant, found in an aqueous solution, combine to form _____.

- A. a soluble acid
- B. a soluble ionic solid
- C. an insoluble acid
- D. an insoluble ionic solid ✓



Q151 Types of chemical reactions

What happens when aqueous silver nitrate is added to sodium chloride solution?

- A. Brown precipitate of silver chloride is produced.
- B. Yellow precipitate of silver chloride is produced.
- C. White precipitate of silver chloride is produced. ✓
- D. No precipitate of silver chloride is produced.

Q152 Types of chemical reactions

Which of the following reactions produces water insoluble salts?

- A. Addition reaction
- B. Displacement reaction
- C. Catalytic reaction
- D. Precipitation reaction ✓

Q153 Types of chemical reactions

Select the product formed in a reaction between barium chloride and aluminium sulphate.

- A. Solid AlCl_3 is formed.
- B. Solid BaSO_4 is formed. ✓
- C. Aqueous solution of BaSO_4 is formed.
- D. AlCl_3 is released in gaseous form.

Q154 Types of chemical reactions

The chemical reaction in which two reactants exchange their ions to form two new compounds is known as:

- A. displacement reaction
- B. double displacement reaction ✓
- C. combination reaction
- D. reduction reaction



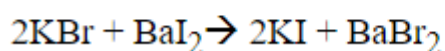
Q155 Types of chemical reactions

Which of the following is NOT an example of combination reaction?

- A. Heating of calcium carbonate ✓
- B. Burning of coal
- C. Formation of water from hydrogen gas and oxygen gas
- D. Formation of slaked lime

Q156 Types of chemical reactions

In the given reaction, which substance is insoluble?



- A. 2KBr
- B. 2KI
- C. BaBr₂ ✓
- D. BaI₂

Q157 Types of chemical reactions

When lead nitrate is mixed with potassium iodine, the precipitate formed is _____.

- A. yellow colour potassium nitrate
- B. yellow colour lead iodide ✓
- C. colourless lead iodide
- D. black colour potassium nitrate



Q158 Types of chemical reactions

Double displacement reaction takes place with:

- i) Precipitates are formed.
- ii) Evolution of a gas
- iii) Change in colour.

A. Only i and ii

B. Only iii

C. Only iii and i



D. i, ii and iii

Q159 Types of chemical reactions

When iron nails come in contact with copper sulphate solution their colour changes to _____.

A. brown



B. yellow

C. red

D. blue

Q160 Types of chemical reactions

Which of the following is an example of double displacement reaction?

A. $\text{CaO (s)} + \text{H}_2\text{O (l)} \longrightarrow \text{Ca(OH)}_2 \text{ (aq)} + \text{Heat}$

B. $2\text{FeSO}_4 \text{ (s)} \longrightarrow \text{Fe}_2\text{O}_3 \text{ (s)} + \text{SO}_2 \text{ (g)} + \text{SO}_3 \text{ (g)}$

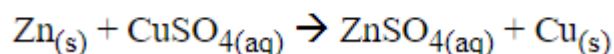
C. $\text{CaO (s)} + \text{H}_2\text{O (l)} \longrightarrow \text{Ca(OH)}_2 \text{ (aq)} + \text{Heat}$

D. $\text{Na}_2\text{SO}_4 \text{ (aq)} + \text{BaCl}_2 \text{ (aq)} \longrightarrow \text{BaSO}_4 \text{ (s)} + 2\text{NaCl (s)}$



Q161 Types of chemical reactions

The given reaction is an example of a _____.

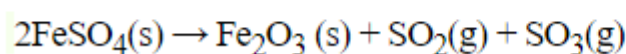


- A. combination reaction
- B. double displacement reaction
- C. decomposition reaction
- D. displacement reaction



Q162 Types of chemical reactions

What is the colour of ferrous sulphate in the given chemical reaction?



- A. Blue
- B. Green
- C. Yellow
- D. Red



Q163 Types of chemical reactions

Which of the following chemical reactions are examples of combination reactions?

- i) $3\text{Fe}_{(s)} + 4\text{H}_2\text{O}_{(g)} \rightarrow \text{Fe}_3\text{O}_4(s) + 4\text{H}_2(g)$
- ii) $\text{CO}_{(g)} + 2\text{H}_2(g) \rightarrow \text{CH}_3\text{OH}(l)$
- iii) $2\text{Mg}_{(s)} + \text{O}_{2(g)} \rightarrow 2\text{MgO}(s)$
- iv) $\text{Zn}_{(s)} + 2\text{AgNO}_{3(aq)} \rightarrow \text{Zn}(\text{NO}_3)_2(aq) + 2\text{Ag}(s)$

- A. i and ii
- B. ii and iii
- C. i and iv
- D. iii and iv



Q164 Types of chemical reactions

When copper oxide is added to dilute hydrochloric acid, the colour of the acid changes to blue-green, due to the formation of _____.

A. copper (II) chloride



B. hydrogen gas

C. water

D. copper (I) chloride

Q165 Types of chemical reactions

Which of the following is an example of a combination reaction between two compounds to form new compound?

A. Formation of ammonia

B. Formation of water

C. Formation of carbon dioxide

D. Formation of calcium hydroxide



Q166 Types of chemical reactions

Which substance formed precipitates when a reaction occurs between potassium sulfate and barium chloride?

A. Barium sulfate



B. Potassium sulfate

C. Barium chloride

D. Potassium chloride

Q167 Types of chemical reactions

The reaction in which two reactants participate and produce only one product is called:

A. combination reaction



B. dissociation reaction

C. displacement reaction

D. double displacement reaction



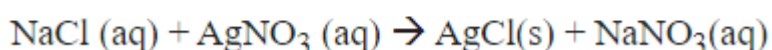
Q168 Types of chemical reactions

Which of the following statements is true about combination reaction?

- A. A single product is formed from two or more reactants. ✓
- B. Only two elements react to give the products.
- C. Only two products are formed.
- D. A single reactant changes to a single product.

Q169 Types of chemical reactions

Identify the following type of reaction.



- A. Combination reaction
- B. Combustion reaction
- C. Double displacement reaction ✓
- D. Decomposition reaction

Q170 Types of chemical reactions

Double displacement reaction occurs between:

- A. ionic compounds ✓
- B. covalent compounds
- C. both ionic and covalent compounds
- D. neither ionic nor covalent compounds

Q171 Types of chemical reactions

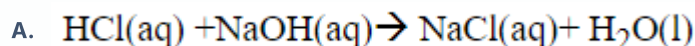
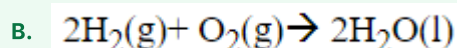
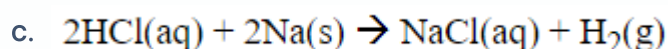
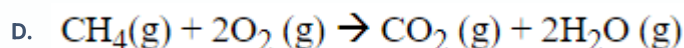
Which of the following statements is true about precipitation reaction?

- A. An insoluble salt is formed. ✓
- B. Only water is formed.
- C. Only soluble solution is formed.
- D. Only hydrogen gas is formed.



Q172 Types of chemical reactions

Which of the following is an example of combination reaction?



Q173 Types of chemical reactions

Precipitation reactions are a specific class of _____.

A. Decomposition reactions

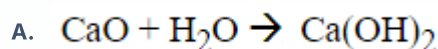
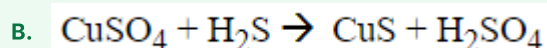
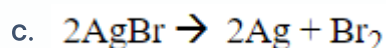
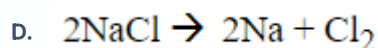
B. double displacement reactions

C. combination reactions

D. redox reactions

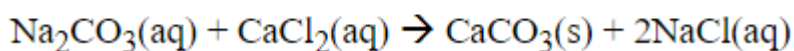
Q174 Types of chemical reactions

Select the correct example of double displacement reaction.



Q175 Types of chemical reactions

What is the given reaction an example of?



A. Combination and decomposition reaction

B. Displacement and combination reaction

C. Double displacement and precipitation reaction

D. Only displacement reaction



Q176 Types of chemical reactions

Formation of carbon monoxide from carbon dioxide and oxygen is an example of _____.

- A. neutralisation reaction
- B. decomposition reaction
- C. combination reaction
- D. displacement reaction

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q177 Types of chemical reactions

Which reaction occurs when a student adds a few drops of lemon in milk?

- A. Combination reaction
- B. Hydrolysis
- C. Precipitation reaction
- D. Displacement reaction



Q178 Types of chemical reactions

Which of the following reactions occurs, - when the exchange of two ions takes place?

- A. Combination reaction
- B. Decomposition reaction
- C. Displacement reaction
- D. Double displacement reaction



Q179 Types of chemical reactions

Which of the following statements is correct with respect to displacement reaction?

- A. A chemical reaction in which a single compound is formed.
- B. A more reactive metal displaces a less reactive metal from its aqueous solution.
- C. A less electronegative non-metal displaces a less electronegative metal from its aqueous solution.
- D. A less reactive metal displaces a more reactive metal from its aqueous solution.



Q180 Types of chemical reactions

Which of the following reactions is an example of a displacement reaction?



Q181 Types of chemical reactions

The process of using electricity to decompose water into oxygen and hydrogen gas is called _____.

A. hydrolysis of water

B. electrolysis of water



C. ionisation of water

D. atomisation of water

Q182 Types of chemical reactions

Consider the following reaction.



This reaction is an example of:

A. precipitation reaction



B. decomposition reaction

C. displacement reaction

D. combination reaction

Q183 Types of chemical reactions

Formation of slaked lime by the reaction of calcium oxide with water is an example of _____.

A. combination reaction



B. endothermic reaction

C. displacement reaction

D. decomposition reaction



Q1 Carbon dioxide and carbon monoxide

What happens when CO_2 gas is passed through the lime water?

- A. There is no change.
- B. The solution turns milky.
- C. A black precipitate is formed.
- D. Green colour appears.

Q2 Carbon dioxide and carbon monoxide

Which of the following gases is evolved when limestone undergoes thermal decomposition?

- A. Oxygen
- B. Hydrogen
- C. Carbon monoxide
- D. Carbon dioxide

Q3 Carbon dioxide and carbon monoxide

What will happen if bubbles of air are sent through lime water taken in a container?

- A. The solution will foam and froth
- B. The solution will turn milky due to insoluble suspension of Calcium carbonate
- C. The temperature will rise due to an exothermic reaction
- D. The solution will instantly red as reacts with lime

Q4 Chemical names of common substances

The leaves of the _____ plant contain methanoic acid.

- A. orange
- B. tamarind
- C. tomato
- D. nettle



Q5 Chemical names of common substances

What is the chemical formula of marble?

- A. $\text{Ca}(\text{OH})_2$
- B. CaSO_4
- C. CaCO_3 ✓
- D. $\text{Ca}(\text{HCO}_3)_2$

Q6 Chemical names of common substances

Which of the following chemical compounds is known as marble?

- A. Calcium bicarbonate
- B. Calcium oxide
- C. Calcium carbonate ✓
- D. Calcium hydroxide

Q7 Common chemicals and their uses (match)

Which of the following compound is/are used in black and white photography?

- A. Silver chloride
- B. Silver bromide
- C. Silver chloride and silver bromide both ✓
- D. Silver oxide

Q8 Common chemicals and their uses (match)

Caustic soda is generally NOT used in the _____.

- A. paper and pulp industry
- B. manufacture of ammonia ✓
- C. fabric industry
- D. detergent industry



Q9 Common chemicals and their uses (match)

Which among the following is NOT a use of sodium hydroxide?

- (i) Used in making soaps and detergents.
- (ii) Used in the manufacture of paper.
- (iii) Used for removing permanent hardness of water.

A. Only i

B. Only ii

C. Only iii



D. Both ii and iii

Q10 Common chemicals and their uses (match)

Aashi, by mistake used an unknown solution to clean her clothes, in place of detergent. Her clothes faded. The solution could be:

A. common salt

B. baking soda powder

C. bleaching powder



D. talcum powder

Q11 Common chemicals and their uses (match)

Which of the following is NOT a use of sodium hydroxide?

A. De-greasing metals

B. Paper making

C. Detergent making

D. Sweets making



Q12 Common chemicals and their uses (match)

Which of the following chemicals is used in black and white photography?

- A. Silver oxide
- B. Sodium chloride
- C. Sodium oxide
- D. Silver bromide



Q13 Common chemicals and their uses (match)

Which of the following aqueous solutions undergoes electrolysis to form sodium hydroxide?

- A. Na_2O
- B. NaCl
- C. NaHCO_3
- D. Na_2SO_4



Q14 Common chemicals and their uses (match)

'X' gas is produced during the electrolysis of brine. Then, 'X' gas is used in dry slaked lime to produce CaOCl_2 . What is 'X'?

- A. Chlorine
- B. Hydrogen
- C. Nitrogen
- D. Sulphur



Q15 Common chemicals and their uses (match)

A student got a stain on his shirt while doing an activity in the science laboratory. Which chemical should he use to remove the stain?

- A. Sodium carbonate
- B. Sodium hydrogencarbonate
- C. Sodium hydroxide
- D. Sodium chloride



Q16 Composition of air

What is the percentage of oxygen in air normally inhaled and exhaled by human beings?

- A. Around 18% in inhaled air and 10% in exhaled air
- B. Around 19% in inhaled air and 17% in exhaled air
- C. Around 20% in inhaled air and 2% in exhaled air
- D. Around 21% in inhaled air and 16% in exhaled air



Q17 Fertilizers and their nutrients (NPK)

Which of the following statements regarding fertilizers is FALSE?

- A. Nutrient amounts calculated in advance can be applied
- B. Leaches out with rains or irrigation water
- C. Never contaminate air and water
- D. Must be properly stored



Q18 Hard vs soft water

Hardness of water can be removed by using:

- A. vinegar
- B. POP
- C. common salt
- D. washing soda



Q19 Hard vs soft water

Which of the following is used for removing permanent hardness of water?

- A. CaOCl_2
- B. $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$
- C. NaCl
- D. NaHCO_3



Q20 Oxygen, nitrogen, hydrogen (properties)

How many oxygen atoms are present in one molecule of ozone?

A. 4

B. 3



C. 2

D. 1

Q21 Oxygen, nitrogen, hydrogen (properties)

When electrolysis of brine is done, a gas X is formed at the cathode, which gives a pop sound when a burning splinter is brought near it. The gas X is:

A. H_2



B. Cl_2

C. CO_2

D. O_2

Q22 Oxygen, nitrogen, hydrogen (properties)

Which gas is produced during electrolysis of brine, that burns with a pop sound?

A. H_2



B. Cl_2

C. N_2

D. O_2

Q23 Oxygen, nitrogen, hydrogen (properties)

The gas used to prevent the oxidation of chips is:

A. nitrogen



B. hydrogen

C. oxygen

D. argon



Q1 Solutions, suspensions, colloids

Which of the following solutions may scatter light?

- A. Electrolyte solution
- B. Acidic solution
- C. Colloidal solution
- D. Basic solution



Q2 Solutions, suspensions, colloids

Which of the following colloids has solid dispersed phase in a liquid dispersing medium?

- A. Emulsion
- B. Gel
- C. Sol
- D. Foam



Q3 Solutions, suspensions, colloids

The path of a beam of light is visible through a _____ solution in which the size of the particles is relatively larger.

- A. colloidal
- B. sugar
- C. water
- D. salt



Q4 States of matter and their properties

What is the process called when a substance's spontaneous movement from a high concentration to a low concentration takes place?

- A. Diffusion
- B. Osmosis
- C. Gaseous exchange
- D. Circulation



What is the physical state of a precipitate in a chemical reaction?

A. Liquid

B. Solid



C. Aqueous

D. Gaseous



Q1 Extraction of metals (metallurgy basics)

Which group of the following metals are obtained by reduction using carbon?

Na, Zn, Ca, Pb, Mg, Fe, Al, Cu, Ag

A. Na, Zn, Ca, Pb

B. Zn, Fe, Cu



C. Ca, Pb, Mg

D. Fe, Al, Cu, Ag

Q2 Extraction of metals (metallurgy basics)

Which of the following gases is released when zinc oxide reacts with carbon?

A. Carbon monoxide



B. Carbon dioxide

C. Methane

D. Ozone

Q3 Important metals (Fe/Cu/Al/Au/Ag) uses

Which of the following materials is preferably used for electrical transmission lines?

A. Nichrome

B. Copper



C. Tungsten

D. Tin-lead alloy



Q4 Important metals (Fe/Cu/Al/Au/Ag) uses

Which property/ properties of copper make it ideal for electrical transmission lines?

- (i) Low melting point
- (ii) High resistivity
- (iii) Low resistance

A. Only (i)

B. Only (iii)



C. Both (i) and (ii)

D. Both (i) and (iii)

Q5 Important metals (Fe/Cu/Al/Au/Ag) uses

The colour of CuCl_2 solution is:

A. blue-red

B. yellow-green

C. blue-green



D. red-green

Q6 Important metals (Fe/Cu/Al/Au/Ag) uses

Copper is used in _____ due to its low resistivity.

A. electric bulbs

B. heaters

C. transmission lines



D. toasters

Q7 Nonmetals and uses (C/S/P/halogens)

Which element has non-metallic properties?

A. Li

B. Na

C. Cl



D. K



Q8 Nonmetals and uses (C/S/P/halogens)

Which of the following statements about carbon is correct?

- A. Carbon is non-metal in nature. ✓
- B. Carbon is metal in nature.
- C. Carbon is metalloid in nature.
- D. Carbon is a noble gas.

Q9 Physical & Chemical Properties

Which of the given statements about non-metals is true?

- A. Non-metals are electronegative in nature and form bonds by losing electrons.
- B. Non-metals are electropositive in nature and form bonds by gaining electrons.
- C. Non-metals are electronegative in nature and form bonds by gaining electrons. ✓
- D. Non-metals are electropositive in nature and form bonds by losing electrons.

Q10 Physical/chemical properties of metals

Consider the below statements and identify the correct answer.

Statement I: Metals are electropositive in nature.

Statement II: Metals tend to lose electrons while forming bonds.

- A. Both statements are correct. Statement II is correct explanation of Statement I. ✓
- B. Both Statements are correct. Statement I is correct explanation of Statement II.
- C. Only Statement I is correct.
- D. Only Statement II is correct.

Q11 Physical/chemical properties of metals

Metals are electropositive in nature.

Which of the following is the correct explanation for the given assertion?

- A. Metals lose electrons to form anions.
- B. Metals gain electrons to form anions.
- C. Metals gain electrons to form cations.
- D. Metals lose electrons to form cations. ✓



Q12 Physical/chemical properties of metals

Which of the following statements regarding metals is NOT correct?

- A. Metals are electropositive in nature.
- B. Metals display electron losing tendency during bond formation.
- C. In general, metals form acidic oxides. ✓
- D. Metals are placed towards the left in the periodic table.

Q13 Reactivity Series

Arrange the following metals in the decreasing order of reactivity:

K, Na, Zn, Cu, Hg, Ag

- A. $K > Na > Zn > Cu > Hg > Ag$ ✓
- B. $K > Na > Zn > Cu > Ag > Hg$
- C. $K > Na > Zn > Hg > Cu > Ag$
- D. $K > Na > Zn > Ag > Hg > Cu$

Q14 Reactivity Series

Which of the following elements is the most reactive?

- A. Pb
- B. Al
- C. Ca ✓
- D. Mg

Q15 Reactivity Series

What happens when sodium metal reacts with water?

- A. Hydrogen gas and sodium hydroxide solution are produced. ✓
- B. Chlorine gas and sodium hydroxide solution are produced.
- C. No reaction takes place.
- D. Only sodium hydroxide solution is produced.



Q16 Reactivity Series

An element A reacts with water to form a solution which turns phenolphthalein solution pink. The element A is most likely to be:

A. S

B. Mg



C. C

D. Ag

Q17 Reactivity Series

Which of the following reactions will be possible?

A. $\text{MgCl}_2 + \text{Cu} \rightarrow \text{CuCl}_2 + \text{Mg}$

B. $\text{ZnSO}_4 + \text{Fe} \rightarrow \text{FeSO}_4 + \text{Zn}$

C. $\text{CuSO}_4 + \text{Ca} \rightarrow \text{CaSO}_4 + \text{Cu}$



D. $\text{Al}_2(\text{SO}_4)_3 + \text{Pb} \rightarrow \text{PbSO}_4 + \text{Al}$

Q18 Reactivity Series

Which of the following metals can displace aluminium from an aluminium sulphate solution?

A. Fe

B. Cu

C. Mg



D. Hg



Q19 Reactivity Series

Select the option that correctly indicates which of the following statements are true.

When a piece of magnesium metal is placed in copper sulphate solution:

- (i) magnesium displaces copper from copper sulphate solution.
- (ii) the blue colour of copper sulphate solution fades.
- (iii) a red brown deposit of copper metal is formed on the magnesium piece.

A. i, ii and iii



B. i and ii

C. i and iii

D. ii and iii

Q20 Reactivity Series

Which of the following metals are more reactive than hydrogen?

Mg, Zn, Hg, Ag, Sn, Pb, Au, Fe, Na

A. Mg, Zn, Hg, Pb, Fe, Na

B. Mg, Zn, Sn, Pb, Fe, Na



C. Mg, Zn, Sn, Pb, Au, Na

D. Mg, Zn, Ag, Pb, Fe, Na

Q21 Reactivity Series

Consider the below statements and identify the correct answer.

Statement-I: The metals high up in the reactivity series are very reactive.

Statement-II: The metals high up in the reactivity series can be obtained from their compounds by electrolytic reduction.

A. Both the statements are true.



B. Both the statements are false.

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

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



Q22 Reactivity Series

Which element is NOT more reactive than copper?

- A. Fe
- B. Zn
- C. Pb
- D. Ag

**Q23** Reactivity Series

Arun was performing an experiment in the laboratory. He took a solution of ferric chloride and added some smaller pieces of zinc. When the yellow colour of ferric chloride disappeared, which compound was formed?

- A. ZnCl_2
- B. FeCl_2
- C. Zn(OH)_2
- D. Fe(OH)_3

**Q24** Reactivity Series

Which of the following metals is less reactive than Al?

- A. Mg
- B. Ca
- C. Na
- D. Zn

**Q25** Reactivity Series

Which of the following displacement reactions is NOT possible?

- A. $\text{Fe(s)} + \text{CuSO}_4(\text{aq}) \rightarrow \text{FeSO}_4(\text{aq}) + \text{Cu(s)}$
- B. $\text{Cu(s)} + \text{PbCl}_2(\text{aq}) \rightarrow \text{CuCl}_2(\text{aq}) + \text{Pb(s)}$
- C. $\text{Pb(s)} + \text{CuCl}_2(\text{aq}) \rightarrow \text{PbCl}_2(\text{aq}) + \text{Cu(s)}$
- D. $\text{Zn(s)} + \text{CuSO}_4(\text{aq}) \rightarrow \text{ZnSO}_4(\text{aq}) + \text{Cu(s)}$



Q26 Reactivity Series

Which of the following metals is able to liberate hydrogen gas from dilute hydrochloric acid?

A. Cu

B. Pb



C. Hg

D. Ag

Q27 Reactivity Series

Which of the following aqueous solutions is formed when copper sulphate solution reacts with zinc metal?

A. Zinc oxide

B. Zinc sulphide

C. Zinc cuprite

D. Zinc sulphate



Q28 Reactivity Series

Which of the following will NOT react with oxygen at high temperature?

A. Copper

B. Nichrome



C. Aluminium

D. Iron

Q29 Reactivity Series

Which of the following metals is the most reactive?

A. Mg



B. Cu

C. Fe

D. Zn



Q30 Reactivity Series

Which of the following metals is the least reactive, as per the reactivity series of metals?

A. Lead



B. Zinc

C. Magnesium

D. Iron

Q31 Reactivity Series

Which of the following statements is not true?

A. Potassium is least reactive in the reactivity series



B. The metals in the middle of the reactivity series are moderately reactive.

C. The metals high up in the reactivity series can be obtained from their compounds by electrolytic reduction.

D. The reactivity series is a list of metals arranged in the order of their decreasing reactivities

Q32 Reactivity Series

In the displacement reaction between iron metal and copper sulphate solution _____.

A. iron displaces copper from copper sulphate solution because it is more reactive than copper



B. iron displaces sulphate from copper sulphate solution because it is more reactive than sulphate

C. iron displaces copper from copper sulphate solution because it is less reactive than copper

D. iron displaces sulphate from copper sulphate solution because it is less reactive than sulphate

Q33 Reactivity Series

Which of the following is the least reactive metal in the reactivity series?

A. Cu

B. Ag

C. Au

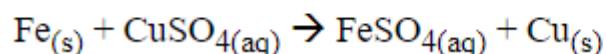


D. Hg



Q34 Reactivity Series

Which of the following explanations regarding the given reaction is correct?



- A. Iron displaces copper because iron is more reactive than copper. ✓
- B. Iron displaces copper because the atomic number of iron is less than copper.
- C. Iron displaces copper because the atomic mass of iron is less than copper.
- D. Iron displaces copper because iron is less reactive than copper.

Q35 Reactivity Series

Oxides of which of the following elements CANNOT be reduced by H_2 , CO and C?

- A. Ca ✓
- B. Fe
- C. Pb
- D. Cu

Q36 Reactivity Series

Which of the following metals is less reactive than silver?

- A. Fe
- B. Cu
- C. Hg
- D. Au ✓

Q37 Reactivity Series

Which of the following metals has least reactivity?

- A. Gold ✓
- B. Silver
- C. Sodium
- D. Mercury



Q38 Reactivity Series

Arrange the following metals in the correct order of reactivity.

K, Al, Fe, Au, Pb

A. $K > Al > Pb > Fe > Au$

B. $K > Fe > Al > Pb > Au$

C. $K > Al > Fe > Pb > Au$ ✓

D. $K > Al > Fe > Au > Pb$

Q39 Reactivity Series

Which of the following elements is more reactive than copper?

A. Gold

B. Platinum

C. Silver

D. Zinc ✓



Q1 Applied Agricultural Biology

Pesticides, though non-biodegradable, are both beneficial and harmful for agriculture. Select the **INCORRECT** option regarding pesticides.

- A. They reduce chlorophyll content of the plant and hence affect photosynthesis
- B. They reduce plant growth
- C. They alter nitrogen metabolism, so less protein content in plants
- D. They are used to control weeds, pests and plant diseases ✓

Q2 Applied Agricultural Biology

_____ are used in vermicomposting.

- A. Tapeworms
- B. Flatworms
- C. Earthworms ✓
- D. Roundworms



Q1 Asexual Reproduction & Regeneration

Which of the following is NOT an example of asexual reproduction?

- A. Budding
- B. Binary Fission
- C. Fragmentation
- D. Grafting



Q2 Asexual Reproduction & Regeneration

Which of the following uses spores to reproduce?

- A. Amoeba
- B. Yeast
- C. Mango
- D. Ferns



Q3 Asexual Reproduction & Regeneration

Some plants can also produce new plants from their roots. An example of such a plant is _____.

- A. Sweet Potato
- B. Cactus
- C. Ginger
- D. Bryophyllum



Q4 Asexual Reproduction & Regeneration

Select the option that shows the correct matching of Column I with Column II regarding Asexual Reproduction.

Column I	Column II
A. Leishmania	i) Regeneration
B. Yeast	ii) Binary fission
C. Plasmodium	iii) Multiple fission
D. Hydra	iv) Budding

A. A-i, B-ii, C-iii, D-iv

B. A-ii, B-iv, C-iii, D-i



C. A-iv, B-ii, C-i, D-iii

D. A-ii, B-i, C-iii, D-iv

Q5 Asexual Reproduction & Regeneration

Which of the following types of asexual reproduction is shown by the bread mould Rhizopus?

A. Spore formation



B. Budding

C. Fission

D. Regeneration



Q1 Biology HINDI - no English version saved

निम्न में से कौन सा जीवित/सजीव होने का एक सामान्य प्रमाण है?

- A. हमारी आंखों के सामने पौधों की दृश्यमान वृद्धि।
- B. पौधों की दृश्यमान गति।
- C. दृश्यमान गति के बिना कुछ प्राणी सांस ले सकते हैं।
- D. किसी भी प्रकार की गति, चाहे वृद्धि-संबंधी हो या श्वसन संबंधी। ☒



Q1 Cell Division (Mitosis, Meiosis)

Two types of cell divisions, A and B, are shown in the figure below. Which option provides the correct answer for:

- Types of cell division
- When and where does division B take place?

**A****B**

- A.** i. A - Mitosis, B - Meiosis
ii. Meiosis takes place in reproductive cells for the formation of gametes
- B.** i. A - Meiosis, B - Mitosis
ii. Meiosis takes place in reproductive cells for the formation of gametes
- C.** i. A - Mitosis, B - Meiosis
ii. Meiosis takes place in body cells for growth
- D.** i. A and B – Meiosis
ii. Meiosis takes place in body cells for growth

Q2 Cell Division (Mitosis, Meiosis)

How is the chromosome number maintained from one generation to another in sexually reproducing organisms?

- A.** Doubling of chromosomes during zygote formation
- B.** Halving of chromosomes during gamete formation
- C.** Doubling of chromosomes during gamete formation
- D.** Halving of chromosomes during zygote formation



Q3 Cell Division (Mitosis, Meiosis)

The normal cell of human being consists of 46 chromosomes, however, the germ cell has:

- A. 44 chromosomes
- B. 46 chromosomes
- C. 22 chromosomes
- D. 23 chromosomes



Q4 Cell Structure & Organelles

Which of the following terms describes the movement of water molecules across a selectively permeable membrane?

- A. Diffusion
- B. Translocation
- C. Exocytosis
- D. Osmosis



Q5 Cell as basic unit / cell theory

To which of the following organisms is the Cell Theory given by Schleiden and Schwann NOT applicable?

- A. Viruses
- B. Animals
- C. Fungi
- D. Algae



Q6 Cell as basic unit / cell theory

What is the measurement of an ostrich egg?

- A. 170 mm × 130 mm
- B. 170 μm × 130 μm
- C. 170 cm × 130 cm
- D. 170 m × 130 m



Q7 Cell organelles and functions

What important function is performed by SER in the liver cells of vertebrates?

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



Q8 Cell organelles and functions

Colourless plastids are called _____.

- A. chloroplastids
- B. chromoplastids
- C. leucoplastids
- D. apicoplastids



Q9 Cell organelles and functions

Selectively permeable membranes are those that allow penetration of _____.

- A. neither solvent nor solute molecules
- B. only solute molecules but not solvent molecules
- C. both solvent and solute molecules
- D. only solvent molecules but not solute molecules

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q10 Cell organelles and functions

What part of the plant is used to store waste material?

- A. Nucleus
- B. Plastids
- C. Vacuoles
- D. Lysosomes



Q11 Cell organelles and functions

Which of the following stores starch, proteins and oil granules in a plant cell?

- A. Chloroplast
- B. Chromoplast
- C. Leucoplast
- D. Protoplast



Q12 Cell organelles and functions

Which cell organelle detoxifies toxins and drugs?

- A. Mitochondria
- B. Golgi bodies
- C. Endoplasmic reticulum
- D. Ribosomes



Q13 Cell organelles and functions

In amoeba, the food is taken by the _____.

- A. mouth
- B. movement of flagella
- C. movement of cilia
- D. entire body surface area



Q14 Cell organelles and functions

Which structure is responsible for maintaining the amount of water in amoeba?

- A. Plasma membrane
- B. Contractile vacuole
- C. Food vacuole
- D. Cytoplasm



Q15 Cell organelles and functions

Name the process that causes living cells to expand in size and shape when placed in a hypotonic solution.

- A. Photosynthesis
- B. Transpiration
- C. Osmosis
- D. Diffusion



Q16 Cell organelles and functions

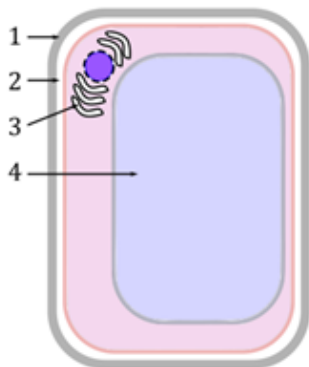
Which of the following organelles is/are known as the 'suicide bags' of a cell?

- A. Lysosomes
- B. Endoplasmic reticulum
- c. Golgi apparatus
- D. Ribosomes



Q17 Cell organelles and functions

Where can we find waste products in a plant cell shown in the following figure?



- A. Region shown by arrow 1
- B. Region shown by arrow 2
- c. Region shown by arrow 3
- D. Region shown by arrow 4



Q18 Cell organelles and functions

Why do plant cells have cell walls?

- A. They are required for photosynthesis
- B. They protect the plant cells from various environmental factors ✓
- C. They are living beings
- D. They do not have cell membrane

Q19 Cell organelles and functions

Which cell organelle is known as the 'suicide bags of a cell'?

- A. Centrosome
- B. Mitochondria
- C. Nucleus
- D. Lysosome ✓

Q20 Mitochondria (powerhouse) and ribosome

Why are mitochondria considered as a 'weird' organelle?

- A. Because they are the store of cellular contents
- B. Because they can digest microorganisms
- C. Because they are the power-house of the cell ✓
- D. Because they contain ribosomes and DNA

Q21 Mitochondria (powerhouse) and ribosome

What is the subunits composition of prokaryotic ribosomes?

- A. 50S and 40S
- B. 50S and 30S ✓
- C. 60S and 40S
- D. 60S and 30S



Q22 Mitochondria (powerhouse) and ribosome

Which of the following cellular components are known as the protein factories of a cell?

- A. Mitochondria
- B. Chloroplasts
- C. Ribosomes
- D. Golgi bodies



Q23 Mitochondria (powerhouse) and ribosome

Apart from nucleus of the cell, which two cell organelles have their own DNA and Ribosomes?

- A. Plastids and Golgi bodies
- B. Mitochondria and Lysosomes
- C. Plastids and Mitochondria
- D. Mitochondria and Golgi bodies



Q24 Mitochondria (powerhouse) and ribosome

In a plant cell, the act of respiration to take in oxygen and release energy and carbon dioxide from food occurs in the _____.

- A. peroxisomes
- B. vacuoles
- C. mitochondria
- D. chloroplasts and mitochondria



Q25 Nucleus, DNA, chromosomes basics

In a cell that is NOT dividing, DNA is present as part of the _____.

- A. nucleoplasm
- B. chromosome
- C. gene
- D. chromatin material



Q26 Plant vs animal cell differences

What is the main difference observed between a slide of human cheek cells and a slide of onion peel when viewed under a compound microscope?

- A. Presence of cell wall in onion peel cells ✓
- B. Presence of mitochondria in onion peel cells
- C. Presence of plastids in cheek cells
- D. Presence of cell wall in human cheek cells

Q27 Plant vs animal cell differences

When you put a plant cell, fungal cell or a bacterial cell in a very dilute external medium, the plant cell or fungal cell will absorb water but will not burst, whereas an animal cell will burst. Which part of the plant cell helps it to withstand the pressure of incoming water?

- A. Plasma membrane
- B. Cell wall ✓
- C. Nucleus
- D. Cytoplasm

Q28 Plant vs animal cell differences

Which of the following organelles are present only in plants?

- A. Mitochondria
- B. Plastids ✓
- C. Vacuoles
- D. Lysosomes

Q29 Prokaryotic vs eukaryotic cells

Which of the following cellular components is absent in most of the prokaryotes?

- A. Nuclear membrane ✓
- B. Ribosome
- C. Cell wall
- D. Cytoplasm



Q30 Prokaryotic vs eukaryotic cells

Some features of a prokaryotic cell are mentioned below. Select the **INCORRECT** option.

- A. Very small in size
- B. Single chromosome
- C. Membrane-bound cell organelles present**
- D. Nuclear region known as nucleoid



Q1 Animal Kingdom (Phyla Overview)

Which of the following is the respiratory organ in earthworms?

- A. Gill pouches
- B. Spiracles
- C. Skin
- D. Lungs (air sacs)



Q2 Animal Kingdom (Phyla Overview)

Insects have a network of air tubes for gas exchange. These are called _____.

- A. arteries
- B. capillaries
- C. tracheae
- D. spiracles

Q3 Five kingdom classification HINDI - no English version saved

जीवों का निम्न में से कौन सा समूह अन्य पौधों और जीवों को मारे बिना उनसे पोषण प्राप्त करता है?

- A. अमरबेल, ऑर्किड, यीस्ट, मशरूम
- B. कुटकी, जोंक, अमरबेल, ऑर्किड
- C. जूं, फीताकृमि, जोंक, अमरबेल
- D. फीताकृमि, शेर, यीस्ट, जूं



Q4 Five kingdom classification

A unicellular organism has a definite shape, takes food in at a specific spot, and uses hair like cilia to move food to that spot. Identify the organism,

- A. Lice
- B. Paramecium
- C. Plasmodium
- D. Euglena



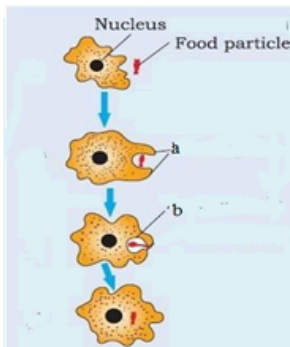
Q5 Five kingdom classification

Which of the following is a unicellular organism?

- A. Cuscuta
- B. Paramecium
- C. Bread mould
- D. Lice

Q6 Five kingdom classification

The following diagram shows nutrition in amoeba. Which option correctly identifies the labelling 'a' and 'b' along with their functions?



- A. a - Pseudopodia (take in food)
b - Food vacuole (digestion of food)
- B. a - Food vacuole (take in food)
b - Pseudopodia (absorption of food)
- C. a - Pseudopodia (take in food)
b - Food vacuole (egestion of food)
- D. a - Food vacuole (absorption of food)
b - Food vacuole (digestion of food)

Q7 Five kingdom classification

Which of the following is a heterotrophic organism?

- A. Tiger
- B. Neem tree
- C. Grass
- D. Algae



Q8 Five kingdom classification

What is the basic difference in food intake by Amoeba and Paramecium?

- A. Amoeba takes up food through specific spot while paramecium can take up from 2 spots
- B. Both of them can take up through the entire cell surface
- C. Amoeba can take up through entire cell surface and paramecium through 4 spots on its cells surface
- D. Amoeba can take up food from entire cell surface
Paramecium only through specific spot



Q9 Plant Kingdom (Divisions)

Where can we find spores in a fern plant?

- A. At the tips of older leaves
- B. In the central chamber of flowers
- C. At the underside of leaves
- D. On special branches called sporangia



Q10 Plant Kingdom (Divisions)

Which of the following plants is a parasite?

- A. Cuscuta
- B. Pitcher plant
- C. Cactus
- D. Mango



Q11 Vertebrate classes (fish to mammal)

In most of the vertebrate groups, there is double circulation of blood. However, one of the groups is an exception. Identify the group from the options below.

- A. Amphibians
- B. Aves
- C. Reptiles
- D. Pisces



Q12 Vertebrate classes (fish to mammal)

From the options given below, select the organism having a three-chambered heart.

A. Salamander



B. Pigeon

C. Fish

D. Tiger

Q13 Vertebrate classes (fish to mammal)

In which of the following animals does the body temperature NOT depend on the temperature in the environment?

A. Birds and mammals



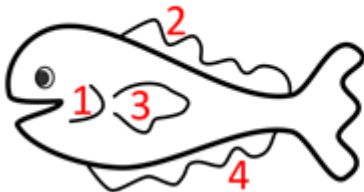
B. Birds and some reptiles

C. Birds and fishes

D. Fishes and mammals

Q14 Vertebrate classes (fish to mammal)

In the following figure of a fish, where are the gills located?



A. Position 1



B. Position 2

C. Position 3

D. Position 4

Q15 Vertebrate classes (fish to mammal)

In which of the following animals does blood go only once through the heart during one cycle of passage through the body?

A. Birds

B. Fishes



C. Mammals

D. Reptiles



Q16 Virus, bacteria, fungi, algae basics

Which of the following groups of organisms help in keeping the environment clean?

A. Algae and Protozoa

B. Protozoa and Lichens

C. Bacteria and Fungi



D. Algae and Lichens

Q17 Virus, bacteria, fungi, algae basics

What type of nutrition is observed in mushrooms?

A. Autotrophic

B. Saprotrophic



C. Chemotrophic

D. Symbiotic

Q18 Virus, bacteria, fungi, algae basics

Which of the following organisms break down food material outside the body and then absorb the digested food?

A. Mushroom



B. Lice

C. Amoeba

D. Deer

Q19 Virus, bacteria, fungi, algae basics

Which statement regarding molecular movement (living character) of viruses is correct?

A. A virus does not grow in an artificial medium.

B. Metabolism is absent in viruses.

C. Inactive until they infect some cell.



D. Viruses do not respire.



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Some bacteria are photosynthetic. Where are the photosynthetic pigments located in these cells?

A. In the infolding of the plasma membrane



B. In chloroplasts

C. On special membranes

D. In the cell cytoplasm



Q1 Affected organ by disease (match)

Which system is affected the most by AIDS?

A. Immune system



B. Excretory system

C. Nervous system

D. Circulatory system

Q2 Bacterial Diseases (TB, Cholera, etc.)

Which of the following diseases is NOT sexually transmitted?

A. AIDS

B. Syphilis

C. Hepatitis B

D. Tuberculosis



Q3 Disease-causing organism (pathogen match)

The figure given below shows the different stages of gradual decay of tooth in humans. All of the following statements related to tooth decay are correct except one. Which one is NOT correct?



A. Bacteria act on leftover food in the mouth

B. Bacteria break down sugars and produce acids

C. Acids soften the enamel, causing tooth ache and tooth loss

D. No role of bacteria, caused by a virus



Q4 Disease-causing organism (pathogen match)

One of the following is NOT a bacterial disease?

- A. Gonorrhoea
- B. AIDS
- C. Syphilis
- D. Tuberculosis



Q5 Non-communicable (Diabetes, Cancer, etc.)

Which disease in human beings is caused by UV radiation from the Sun?

- A. Skin cancer
- B. Smallpox
- C. Parkinson's disease
- D. Pneumonia



Q6 Non-communicable (Diabetes, Cancer, etc.)

Dental Caries result in _____.

- A. Foul-smelling breath
- B. Bleeding gums
- C. Softened enamel
- D. Broken tooth



Q7 Viral Diseases (COVID, Dengue, etc.)

Select the correct option for the full form of AIDS.

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



Q8 Viral Diseases (COVID, Dengue, etc.)

Which of the following is an example of a virus?

A. Elephantiasis

B. Anthrax

C. HIV



D. AIDS

Q9 Viral Diseases (COVID, Dengue, etc.)

Which of the following sexually transmitted diseases is transmitted by a virus?

A. Cold

B. AIDS



C. Syphilis

D. Gonorrhoea

Q10 Viral Diseases (COVID, Dengue, etc.)

All of the methods mentioned below are effective preventive methods of HIV infection that can be practiced. Select the one that is NOT practiced.

A. Safe and protected sex

B. Use of available vaccines



C. Use of sterile injection needles

D. Safe blood transfusion method

Q11 Viral Diseases (COVID, Dengue, etc.)

Which of the following is NOT a common route of transmission of HIV from one person to another?

A. Unprotected sexual contact with the infected person

B. Infected mother to foetus during pregnancy

C. Blood to blood contact with the infected people

D. Casual contacts like handshakes or hugs with the infected people



Q12 Viral Diseases (COVID, Dengue, etc.)

Which of the following sexually transmitted diseases is caused by a virus?

- A. Gonorrhoea
- B. Warts
- C. Syphilis
- D. Tuberculosis (Chlamydia)



Q13 Viral Diseases (COVID, Dengue, etc.)

In which of the following infections does the virus go to the immune system and damages its function?

- A. Cancer
- B. HIV-AIDS
- C. Typhoid
- D. Malaria



Q14 Viral Diseases (COVID, Dengue, etc.)

Warts are caused by:

- A. fungus
- B. bacterium
- C. virus
- D. algae



Q15 Viral Diseases (COVID, Dengue, etc.)

Is safe sex the only method to prevent transmission of HIV?

- A. Yes. It is the only method and usage of condoms is recommended
- B. No. The primary route of transmission of HIV is drug use only.
- C. No. The safest method is to avoid sex completely.
- D. No. There are other methods like preventing use of infected needles and transfusion of infected blood.



Q16 Viral Diseases (COVID, Dengue, etc.)

Which of the following statements is INCORRECT about AIDS?

- A. The virus can pass on to a normal person from an infected person by sharing the syringes used for injecting drugs.
- B. The virus can be transmitted to an infant from the infected mother through her milk.
- C. The virus can be transmitted through sexual contact with a person infected with HIV.
- D. The virus can be transmitted by shaking hands with a person infected with HIV. ✓

Q17 Viral Diseases (COVID, Dengue, etc.)

Out of the following options, which is the best strategy to avoid acquiring HIV?

- A. Simply by avoiding sex with people who have AIDS
- B. Only restrict sex with prostitutes
- C. Only avoid sex with drug addicts
- D. Restrict sex to a single known healthy person ✓

Q18 Viral Diseases (COVID, Dengue, etc.)

The HIV-AIDS virus CANNOT be transmitted by:

- A. shaking hand ✓
- B. blood transfusion
- C. sexual contact
- D. breast feeding

Q19 Viral Diseases (COVID, Dengue, etc.)

The disease AIDS is caused by:

- A. mycobacterium
- B. fungus
- C. bacterium
- D. virus ✓



Q20 Viral Diseases (COVID, Dengue, etc.) HINDI - no English version saved

निम्न में से किस रोग में शरीर उन अनेक छोटे-मोटे संक्रमणों से भी नहीं लड़ पाता है, जिनका हम प्रतिदिन सामना करते हैं?

- A. टाइफॉइड (Typhoid)
- B. निमोनिया (Pneumonia)
- C. एचआईवी-एड्स (HIV-AIDS) ✓
- D. सुजाक (Gonorrhoea)

Q21 Viral Diseases (COVID, Dengue, etc.) HINDI - no English version saved

एचआईवी (HIV) से संक्रमित होने से बचना क्यों महत्वपूर्ण है?

- A. क्योंकि एचआईवी (HIV) का कोई उपचार नहीं है ✓
- B. क्योंकि इसके कारण आंशिक पक्षाघात होता है
- C. क्योंकि यह माता-पिता से बच्चों में फैलता है
- D. क्योंकि इसकी वजह से पूरे परिवार का सामाजिक बहिष्कार होता है

Q22 Viral Diseases (COVID, Dengue, etc.)

Which of the following statements regarding HIV transmission is FALSE?

- A. HIV can be transmitted from an infected mother to her new born child.
- B. Transfusion of HIV infected blood transmits HIV.
- C. HIV can be transmitted through a mosquito bite after it has bitten an HIV infected person. ✓
- D. HIV can be transmitted through unsafe sexual contact with an infected person.

Q23 Viral Diseases (COVID, Dengue, etc.)

Why is HIV spread through sexual contact?

- A. The virus lives inside sperms
- B. Viral particles are abundant in seminal fluids ✓
- C. The virus is present in the skin of sex organs
- D. Blood is mixed during sexual contact



Q24 Viral Diseases (COVID, Dengue, etc.)

Which statement regarding HIV is FALSE?

- A. HIV can be transmitted through sexual intercourse with an infected partner.
- B. HIV attacks your immune system by entering your red blood cells. ✓
- C. HIV stops your immune system from being able to protect your body.
- D. Once HIV has weakened your immune system, germs can take over your body, and you become sick.

Q25 Viral Diseases (COVID, Dengue, etc.)

Which of the following sexually transmitted diseases affects our immune system?

- A. Gonorrhoea
- B. Warts
- C. Syphilis
- D. HIV-AIDS ✓

Q26 Viral Diseases (COVID, Dengue, etc.)

How will you diagnose if a person is infected with HIV a year ago?

- A. By low blood cell count
- B. By loss of weight and fatigue
- C. By anti-HIV antibodies in the blood ✓
- D. Persistent fever (over a month)

Q27 Viral Diseases (COVID, Dengue, etc.)

Which of the following is a sexually transmitted viral disease?

- A. Jaundice
- B. Gonorrhoea
- C. Syphilis
- D. AIDS ✓



Q28 Viral Diseases (COVID, Dengue, etc.)

There are many methods adopted to prevent transmission of HIV/AIDS. Which of the stated ones is INCORRECT?

- A. Transmission by way of drug abuse specially through sharing of needles must be prevented
- B. Adopting responsible sexual behaviour.
- C. The instruments used for ear piercing, acupuncture, etc., must be sterilised before use.
- D. Prevent HIV infected mosquito bite by using mosquito net. ☒



Q1 DNA, RNA, gene, chromosome

How many autosomes will be present in a sexually reproducing organism with the chromosome number $2n = 18$?

A. 16



B. 17

C. 15

D. 18

Q2 DNA, RNA, gene, chromosome

Some features of genes are mentioned below. Which option states the INCORRECT feature of genes?

A. They are segments of DNA.

B. They control traits by producing proteins.

C. They do not undergo any change.



D. Each germ cell has one gene set.

Q3 DNA, RNA, gene, chromosome

Humans have _____ pairs of autosomes.

A. 22



B. 23

C. 46

D. 2

Q4 DNA, RNA, gene, chromosome

What is the basic event in reproduction?

A. Replication of DNA



B. Replication of RNA

C. Making of proteins

D. Cell division



Q5 DNA, RNA, gene, chromosome

Which of following molecules govern the inheritance of a trait by the offspring?

A. Only paternal DNA

B. Paternal and maternal DNA



C. Proteins

D. Only maternal DNA

Q6 DNA, RNA, gene, chromosome

Genes control traits through the activity of:

A. enzymes

B. hormones



C. chromosomes

D. gametes

Q7 DNA, RNA, gene, chromosome

Which of the following statements is correct?

A. For every hormone, there is a specific protein.

B. For every hormone, there is a specific chromosome.

C. For every protein, there is a specific RNA.

D. For every protein, there is a specific gene.



Q8 DNA, RNA, gene, chromosome

What is the genetic material inherited from one generation to other?

A. Proteins

B. RNA

C. DNA



D. Enzymes



Q9 Fermentation and microbes in food

Yeast is used in making _____.

- A. curd
- B. wine
- C. cheese
- D. antibiotics

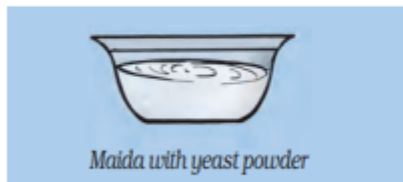
Q10 Fermentation and microbes in food

During fermentation in yeast, pyruvate is converted into which of the following products?

- A. Glucose and carbon dioxide
- B. Ethanol and carbon dioxide
- C. Water and carbon dioxide
- D. Lactic acid and carbon dioxide

Q11 Fermentation and microbes in food

Study the figures A and B carefully. What is the reason for the increase in volume in dough B?



A



B

- A. CO_2 produced during respiration increases the volume
- B. Alcohol is produced that increases the volume
- C. Lactic acid is produced that increases the volume
- D. Water is produced that increases the volume

Q12 Fermentation and microbes in food

The process of fermentation takes place in:

- A. Amoeba
- B. Euglena
- C. Paramecium
- D. Yeast



Q13 Fermentation and microbes in food

Absence of oxygen as in anerobic fermentations by yeast cells convert pyruvate into _____.

- A. Lactic acid + Energy
- B. Ethanol + lactic acid + Energy
- C. Ethanol + Carbon dioxide + Water + Energy
- D. Ethanol+ Carbon dioxide + Energy



Q14 Fermentation and microbes in food

Which of the following carbon compounds is formed by fermentation of molasses?

- A. Methane
- B. Ethane
- C. Ethanol
- D. Propanol



Q15 Genetic terms (dominant/recessive etc)

Mendel worked with a number of contrasting visible characters of garden pea. Some of them were:

- a) Round and wrinkled seeds
- b) tall and short plants
- c) white and violet flowers

Which of these are the recessive traits in the pea plant?

- A. Wrinkled, short and violet
- B. Round, short and white
- C. Wrinkled, short and white
- D. Violet, short and round



Q16 Genetic terms (dominant/recessive etc)

A man with blood group A, married to a woman blood group B, had a child with group AB. What does this mean in terms of genetics?

- A. Gene for blood group A is dominant and gene for blood group B is recessive.
- B. Gene for blood group B is dominant and gene for blood group A is recessive.
- C. Gene for blood group A and gene for blood group B are both dominant.** ✓
- D. Gene for blood group A and gene for blood group B are both recessive.

Q17 Heredity & Mendel's Laws

In which organism sex is not determined genetically?

- A. Snail** ✓
- B. Butterfly
- C. Sparrow
- D. Moth

Q18 Heredity & Mendel's Laws

In animals such as snails, individuals can change their sex. What does this signify?

- A. Sex is determined by genes.
- B. Sex is determined by temperature.
- C. Sex is not genetically determined.** ✓
- D. Sex may be determined by any of the environmental factor.

Q19 Heredity & Mendel's Laws

Which of the following can change sex, indicating that sex is not genetically determined?

- A. Snake
- B. Frog
- C. Fish
- D. Snail** ✓



Q20 Heredity & Mendel's Laws

In reptiles, the sex of the offsprings is determined by the temperature at which:

- A. ovum is kept
- B. sperm is kept
- C. fertilised egg is kept
- D. unfertilised egg is kept



Q21 Mendel laws of inheritance

Many scientists before Mendel had started studying the inheritance of traits in peas and other organisms, but Mendel succeeded in giving the laws of Inheritance. Some reasoning for Mendel's success are mentioned below. All are correct except one. Select the INCORRECT reasoning?

- A. He blended his knowledge of Science and Mathematics.
- B. He studied the inheritance of one character at a time, whereas scientists before him had considered the organism as a whole.
- C. He kept a count of individuals of a particular trait in each generation.
- D. He worked with a small sample size.



Q22 Mendel laws of inheritance

Given below are some conclusions of Mendel's work on pea plants. All of them are correct except one. Select the INCORRECT conclusion.

- A. Genes come in pairs.
- B. Genes are inherited as distinct units.
- C. Segregation of genes takes place during formation of gametes.
- D. Each gamete has two copies of the same gene.



Q23 Mendel laws of inheritance

Monohybrid cross is the combining of two plants with _____ different versions of a trait.

- A. two
- B. four
- C. six
- D. eight



Q24 Mendel laws of inheritance

Identify the correct statement from the ones given below based on the way Mendel conducted his experiments.

- A. Only cross-fertilisation was performed.
- B. Only self-fertilisation was performed.
- C. Cross-fertilisation of plants was performed initially, followed by self-fertilisation. ✓
- D. Self-fertilisation of plants was performed initially, followed by cross-fertilisation.

Q25 Mendel laws of inheritance

In Mendel's experiment, when F1 generation plants were self-pollinated, what was the genotypic ratio?

- A. 1 : 2 : 1 ✓
- B. 2 : 2 : 1
- C. 3 : 2 : 1
- D. 1 : 2 : 3

Q26 Mendel laws of inheritance

Who gave the laws of inheritance?

- A. Carl Linnaeus
- B. Charles Darwin
- C. Watson and Crick
- D. Gregor Mendel ✓

Q27 Mendel laws of inheritance

What did Mendel discover about the factors that influence heredity?

- A. Self-fertilisation shows paternal traits only.
- B. Traits are expressed due to production of hormones.
- C. All offspring in one generation appear like only one of the parents.
- D. A pair of factors in sexually reproducing organisms defines their characteristics. ✓



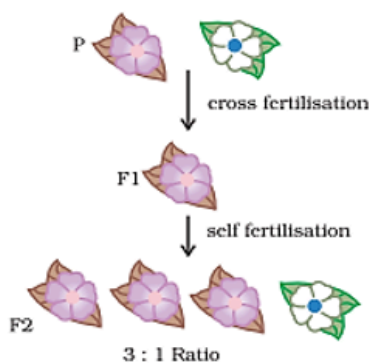
Q28 Mendel laws of inheritance

A true breeding tall pea plant with yellow seeds was crossed with a true breeding dwarf pea plant with green seeds. In the F₁ generation, all the plants were tall. What conclusion can be drawn from this experiment?

- A. Parent plants were heterozygous.
- B. This shows independent assortment of genes.
- C. Tallness was dominant over dwarfness. ✓
- D. One parent plant was homozygous and the other was heterozygous.

Q29 Mendel laws of inheritance

The image below shows a cross between two plants up to F₂ generation. Some conclusions that can be drawn from this cross are stated below. Which option gives the INCORRECT conclusion?



- A. Only red colour is dominant.
- B. Both red and green are dominant though less number of green are produced. ✓
- C. Green is recessive.
- D. Traits are inherited but not expressed.

Q30 Mendel laws of inheritance

Which of the following characteristics of the pea plant was NOT used by Mendel in his experiments?

- A. Shape of seeds
- B. Colour of flowers
- C. Length of pea plant
- D. Shape of leaves ✓



Q31 Mendel laws of inheritance

Which plant was used by Mendel for his experiments?

- A. Rose plant
- B. Garden peas
- C. Lily
- D. Chilli



Q32 Mendel laws of inheritance

One of the contrasting pairs of characters studied by Mendel was _____.

- A. purple and white flowers
- B. yellow and purple flowers
- C. white and yellow flowers
- D. blue and white flowers



Q33 Mendel laws of inheritance

What will be the percentage of tW gametes formed by a plant with genotype TtWw?

- A. 25%
- B. 50%
- C. 75%
- D. 37.5%



Q34 Mendel laws of inheritance

When a round, green seeded plant is crossed with a wrinkled, yellow seeded pea plant the F1 generation results in:

- A. round and yellow seeds
- B. round and green seeds
- C. wrinkled and yellow seeds
- D. wrinkled and green seeds



Q35 Mendel laws of inheritance

As per Mendel's experiments with pea plants, tallness was called a 'dominant' trait compared to shortness because _____.

- A. tall plants are larger in size than short plants
- B. in all organisms, including peas, tall individuals are more common than short individuals
- C. a plant was tall regardless of whether it had one gene (allele) or two genes (alleles) for tallness ✓
- D. the symbol for the gene for tallness was 'T', while the symbol for the gene for shortness was 't'

Q36 Mendel laws of inheritance

In Mendel's cross, a pure tall plant (TT) is crossed with a dwarf plant (tt). The Phenotypic ratio in F₂ generation is:

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

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q37 Mendel laws of inheritance

Every germ cell will take one chromosome from each pair and these may be of either maternal or paternal origin. When two germ cells combine, they will restore the normal number of chromosomes in the progeny, ensuring the stability of the DNA of the species. Such a mechanism of inheritance is explained in:

- A. mutation in species
- B. variation in chromosomal number
- C. speciation of organisms
- D. the results of the Mendel's experiments ✓

Q38 Mendel laws of inheritance

Which of the following statements is FALSE?

- A. Genes are located on chromosomes.
- B. Each gene controls one character.
- C. The two alleles are brought together at the time of gamete formation ✓
- D. Every germ cell will take one chromosome from each pair.



Q39 Mendel laws of inheritance

In Mendel's experiments, crossing a pea plant bearing yellow-coloured peas with a plant bearing green-coloured peas gave plants that all had yellow-coloured peas. If these plants were allowed to self-pollinate and 500 peas were collected from them, how many would be green-coloured?

A. Around 110



B. Around 220

C. Around 330

D. Around 440

Q40 Mendel laws of inheritance

One reason why Mendel was successful in discovering the laws governing inheritance of traits was _____.

A. he used plants instead of animals

B. he kept numerical count of the progeny



C. he was trained in scientific methods

D. he used his knowledge of evolutionary processes

Q41 Mendel laws of inheritance

A cross between a tall plant (TT) and short plant (tt) resulted in F1 progeny which were all tall plants because:

A. The plant height is governed by T or t

B. The plant height is governed by T and t

C. The plant height is governed by t only

D. The plant height is governed by T only



Q42 Mendel laws of inheritance

Why did Mendel study seven different characters?

A. To uncover the universal principles of inheritance



B. To create many new varieties of pea plants

C. To find out which plants were the best

D. To produce enough peas for his monastery



Q43 Mendel laws of inheritance

Dihybrid cross between two traits in Mendel's experiments resulted in the ratio of:

- A. 1 : 3 : 9 : 3
- B. 9 : 3 : 3 : 1
- C. 9 : 1 : 3 : 3
- D. 9 : 4 : 2 : 1

Q44 Mendel laws of inheritance

Mendel did two experiments: (1) Pollen from tall plants was taken to fertilise ovules of short plants, and (2) pollen from short plants was taken to fertilise ovules of tall plants. If we compare the plants produced from these two experiments, we will see that _____.

- A. experiment 1 will produce tall plants and experiment 2 will produce short plants
- B. experiment 1 will produce short plants and experiment 2 will produce tall plants
- C. experiment 1 will produce tall plants and experiment 2 will also produce tall plants
- D. experiment 1 will produce short plants and experiment 2 will also produce short plants

Q45 Mendel laws of inheritance

Who among the following was the first to blend his knowledge of science and mathematics to keep count of individuals exhibiting a particular trait in each generation

- A. Gregor Johann Mendel
- B. Charles Robert Darwin
- C. JBS Haldane.
- D. Stanley L Miller

Q46 Mendel laws of inheritance

Mendel's law of independent assortment was based on parent pea plants differing in how many traits?

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

Q47 Mendel laws of inheritance

When Mendel crossed tall pea plants with short pea plants, the progeny was all tall plants. When he crossed plants bearing round seeds with plants bearing wrinkled seeds, the progeny was all round seeds. If he crossed tall plants bearing wrinkled seeds with short plants bearing round seeds, what would the progeny plants look like?

- A. Tall plants with wrinkled seeds
- B. Tall plants with round seeds
- C. Short plants with wrinkled seeds
- D. Short plants with round seeds

Q48 Mendel laws of inheritance

What was the main reason behind Mendel's success in deriving the laws of inheritance?

- A. He chose parents that were identical.
- B. He studied only one character at a time in his crosses.
- C. He counted the individuals exhibiting a particular trait in each generation.
- D. He selected the pea plant.

Q49 Mendel laws of inheritance

What would have happened if Mendel had NOT studied the F₂ generation?

- A. He would not have discovered which traits were dominant
- B. He would not have discovered that recessive traits are not lost
- C. He would not have been able to get hybrid plants
- D. He would not have been able to study multiple characters

Q50 Sex determination in humans

_____ determines the sex of fertilised eggs in a few reptiles.

- A. Autosome
- B. Allosome
- C. Moisture
- D. Temperature



Q51 Sex determination in humans

Which of the following environmental factors plays an important role in deciding the sex of a developing organism in some animals?

- A. Wind
- B. Humidity
- C. Temperature
- D. Light



Q52 Sex determination in humans

In human males, the sex chromosomes present are XY. What is the difference between them?

- A. X-chromosome is bigger, whereas Y is smaller.
- B. Y chromosome is bigger, whereas X is smaller.
- C. There is no difference in size.
- D. Y chromosome has more genes than X chromosome.



Q53 Sex determination in humans

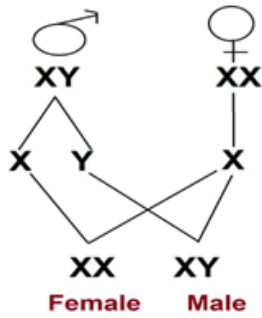
The sex of a person is determined by _____.

- A. the chromosomes present in both sperm and ovum
- B. the chromosomes present in sperm
- C. the chromosomes present in ovum
- D. the chromosomes present in both sperm and ovum and dietary habits of parents



Q54 Sex determination in humans

A flow chart of sex determination in human beings is shown below. Some conclusions that can be drawn from it are mentioned in the options. Select the **INCORRECT** option.



- A. The female decides the sex of the offspring. ✓
- B. The male decides the sex of the offspring.
- c. The chances of a child being male or female is 50%.
- D. All children inherit X chromosome from their mother.

Q55 Sex determination in humans HINDI - no English version saved

मानव नर द्वारा उत्पन्न आधे युग्मकों में कौन सा गुणसूत्र पूरक होगा?

- A. 22 + X ✓
- B. 22 + XX
- C. 22 + XY
- D. 23 + X

Q56 Sex determination in humans

In which of the following classes does temperature determine the sex in some species?

- A. Aves
- B. Amphibians
- c. Reptiles ✓
- D. Mammals



Q57 Sex determination in humans

_____ are responsible for the determination of sex.

A. Allosomes



B. Autosomes

C. Pleiotropic genes

D. Germ cells

Q58 Sex determination in humans

In humans, the sex of the offspring is determined by the _____.

A. maternal chromosome

B. paternal chromosome



C. both maternal and paternal chromosomes

D. autosomes

Q59 Sex determination in humans

How many pairs of sex chromosomes are present in humans?

A. 2 pairs

B. 4 pairs

C. 1 pair



D. 3 pairs



Q60 Sex determination in humans

Which of the following statements are correct?

- (A) All children will inherit an X chromosome from their mother.
- (B) A child who inherits an X chromosome from her mother will be a girl.
- (C) Women have a perfect pair of sex chromosomes; both are called X.
- (D) A child who inherits a Y chromosome from his father will be a boy.

A. A, C and D



B. B and D

C. A and D

D. B and C

Q61 Sex determination in humans

Which of the following statement is INCORRECT?

- A. Sex is determined by different factors in various species.
- B. All human chromosomes are not paired.
- C. All children will inherit a Y chromosome from their mother.
- D. Animals, such as snails, individuals can change sex.



Q62 Sex determination in humans

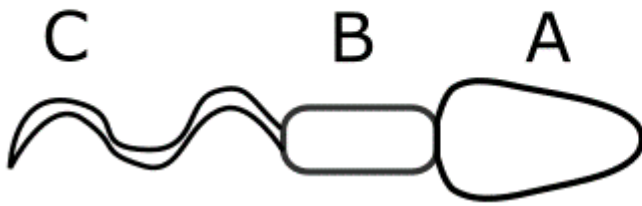
Is there a visible difference between sperms which contain X chromosomes and sperms which contain Y chromosomes?

- A. Yes, the X-containing sperms are larger.
- B. Yes, the Y-containing sperms are more motile.
- C. No, there is no difference in size but there is difference in motility
- D. No, there is no difference in size or motility.



Q63 Sex determination in humans

Which part of the human sperm is responsible for determination of sex of the zygote?



A. Part A only



B. Parts A and B

C. Part B only

D. Parts B and C

Q64 Sex determination in humans

A perfect pair of sex chromosomes is found in:

A. snakes

B. starfish

C. human women



D. human men

Q65 Sex determination in humans

Identify the true statement.

A. Sperms containing X chromosome have 23 chromosomes but sperms containing Y chromosome have 22 chromosomes.

B. Sperms containing X chromosome have 22 chromosomes but sperms containing Y chromosome have 23 chromosomes.

C. Sperms containing X chromosome have 23 chromosomes and sperms containing Y chromosome also have 23 chromosomes.



D. Sperms containing X chromosome have 22 chromosomes and sperms containing Y chromosome also have 22 chromosomes.

Q66 Theory of Evolution

Who suggested that the origin of life must have been from simple inorganic substances?

A. Gregor Mendel

B. Charles Darwin

C. JBS Haldane



D. Stanley L Miller



Q1 Absorption and role of small intestine

Which of the following organisms has a longer small intestine?

- A. Human
- B. Tiger
- C. Cow
- D. Lion



Q2 Absorption and role of small intestine

Some features of villi of the small intestine in humans are given below:

- (i) They are finger-like with very thin walls
- (ii) Provide a large surface area
- (iii) Have small pores for food to pass
- (iv) Richly supplied by blood capillaries

Which option/options shows/show the features that enable the villi to absorb food?

- A. Only (i)
- B. Only (ii) and (iii)
- C. Only (i) and (iii)
- D. (i), (ii) and (iv)



Q3 Absorption and role of small intestine

What are the finger like projections that increase the area of absorption of the small intestine called?

- A. Villi
- B. Cilia
- C. Sphincters
- D. Glands



Q4 Absorption and role of small intestine

The site of complete digestion of carbohydrates, proteins and fat is:

- A. the small intestine
- B. the large intestine
- C. the stomach
- D. the rectum

Q5 Absorption and role of small intestine

In which part of the human body are villi present?

- A. Liver
- B. Eye
- C. Small intestine
- D. Kidney

Q6 Arteries, veins, capillaries

All the veins in the human circulatory system carry blood towards the heart. What is the difference between a pulmonary vein and other veins?

- A. Pulmonary vein carries oxygenated blood
- B. Blood flows with pressure in the pulmonary vein
- C. Pulmonary vein has a small lumen
- D. Pulmonary vein has no valves

Q7 Arteries, veins, capillaries

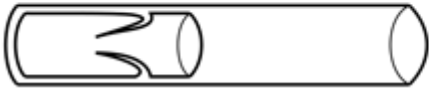
Which of the following options correctly describes the features of arteries?

- A. Thick walls, blood flows under low pressure, collect blood from different parts of the body
- B. Thin walls with valves, blood flows under low pressure, collect blood from different parts of the body
- C. Thin walls with valves, blood flows under high pressure, carry blood to different parts of the body
- D. Thick walls, no valves, blood flows under high pressure, carry blood to different parts of the body



Q8 Arteries, veins, capillaries

The following diagram shows which component of the human circulatory system?



A. Artery

B. Vein



c. Capillary

D. Aorta

Q9 Arteries, veins, capillaries

Match the columns.

Group-I	Group-B
I. Heart	A. Pumping organ
II. Arteries	B. Carries deoxygenated blood
III. Veins	C. Carries oxygenated blood

A. I-A; II-B; III-C

B. I-C; II-A; III-B

C. I-A; II-C; III-B



D. I-C; II-B; III-A

Q10 Arteries, veins, capillaries

Throbbing movements called pulse is felt due to:

A. blood flowing in the arteries



B. blood flowing in the veins

c. blood flowing in the heart

D. blood flowing in the lungs



Q11 Arteries, veins, capillaries

Which of the following vessels carries blood away from the heart to various organs of the body, except the lungs?

- A. Vena cava
- B. Pulmonary artery
- C. Pulmonary vein
- D. Aorta



Q12 Blood composition (RBC/WBC/platelets)

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

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



Q13 Blood composition (RBC/WBC/platelets)

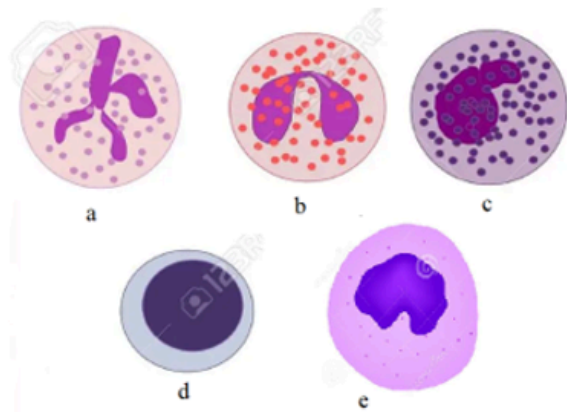
Which of the following blood components aid in the formation of clots?

- A. Red blood cells
- B. White blood cells
- C. Platelets
- D. Plasma proteins



Q14 Blood composition (RBC/WBC/platelets)

The diagram below shows the different types of white blood cells. Identify the option with correct labelling.



A. a - Neutrophil, b - Eosinophil, c - Basophil, d - Lymphocyte, e - Monocyte



B. a - Neutrophil, b - Basophil, c - Lymphocyte, d - Eosinophil, e - Monocyte

C. a - Eosinophil, b - Neutrophil, c - Basophil, d - Monocyte, e - Lymphocyte

D. a - Neutrophil, b - Monocyte, c - Eosinophil, d - Basophil, e - Lymphocyte

Q15 Blood composition (RBC/WBC/platelets)

Which blood group is referred to as the 'Universal Donor'?

A. A

B. B

C. AB

D. O



Q16 Blood composition (RBC/WBC/platelets)

Which of the following transports food, carbon dioxide and nitrogenous wastes in dissolved form?

A. Plasma



B. WBC

C. RBC

D. Platelets



Q17 Blood composition (RBC/WBC/platelets)

Which of the following circulates around the body and plugs the leaks by helping to clot the blood at the points of injury?

A. Plasma

B. Platelets



C. RBC

D. WBC

Q18 Blood composition (RBC/WBC/platelets)

What is the fluid matrix of blood called?

A. RBC (Red Blood Corpuscles)

B. WBC (White Blood Corpuscles)

C. Plasma



D. Platelets

Q19 Blood composition (RBC/WBC/platelets)

Blood coagulation occurs with the help of:

A. red blood cells

B. blood plasma

C. white blood cells

D. platelet cells



Q20 Blood composition (RBC/WBC/platelets)

Which blood cells help in clotting of blood and stop bleeding?

A. Red blood cells

B. White blood cells

C. Platelets



D. Both platelets and red blood cells



Q21 Blood composition (RBC/WBC/platelets)

Ravi injured his knee while playing and it was bleeding. After some time, he noticed that the bleeding had stopped and a dark red clot had plugged the wound. Which type of cells help in blood clotting?

- A. Red blood corpuscles
- B. Lymphocytes
- C. Eosinophils
- D. Platelets



Q22 Blood composition (RBC/WBC/platelets)

Which of the following components of blood promotes immunity and helps the body fight against germs?

- A. Red blood cells
- B. White blood cells
- C. Blood platelets
- D. Blood plasma



Q23 Blood pressure and heartbeat

Which of the following events takes place during diastole in the human heart?

- A. Blood enters the lungs
- B. Blood leaves the ventricle
- C. Blood enters the aorta
- D. Blood enters the ventricle



Q24 Blood pressure and heartbeat

Some features of the circulatory system in humans are mentioned below. Select the INCORRECT option.

- A. Platelets help in clotting of blood
- B. Capillaries join to form veins
- C. Hypertension is caused by constriction of veins
- D. Lymph is also called tissue fluid



Q25 Blood pressure and heartbeat

The normal systolic and diastolic pressure in humans is _____, respectively.

- A. 140 and 90 mm of Hg
- B. 120 and 80 mm of Hg
- C. 100 and 60 mm of Hg
- D. 150 and 75 mm of Hg

Q26 Blood pressure and heartbeat

Systolic blood pressure is exerted by the blood against the walls of the artery during which of the following phases?

- A. Ventricular contraction
- B. Auricular contraction
- C. Ventricular relaxation
- D. Auricular relaxation

Q27 Blood pressure and heartbeat

Which of the following instruments is used to measure blood pressure?

- A. Spectrophotometer
- B. Sphygmomanometer
- C. Urinometer
- D. Haemoglobin meter

Q28 Blood pressure and heartbeat

Which instrument aids in the detection of the heartbeat?

- A. Stethoscope
- B. Sphygmomanometer
- C. Spirometer
- D. Thermometer



Q29 Blood pressure and heartbeat

What is the normal systolic and diastolic pressure in humans?

- A. 130 mm of Hg / 80 mm of Hg
- B. 130 mm of Hg / 90 mm of Hg
- C. 120 mm of Hg / 90 mm of Hg
- D. 120 mm of Hg / 80 mm of Hg



Q30 Blood pressure and heartbeat

Name the instrument used by the physicians to measure blood pressure.

- A. Echocardiogram
- B. Sphygmomanometer
- C. Stethoscope
- D. Spirometer



Q31 Blood pressure and heartbeat

Systolic pressure is a measure of _____.

- A. ventricular relaxation
- B. ventricular contraction
- C. atrial relaxation
- D. atrial contraction



Q32 Blood pressure and heartbeat

High blood pressure is also called as Hypertension which is caused due to _____.

- A. Constriction of arterioles
- B. Relaxation of arterioles
- C. Relaxation of veins
- D. Contraction of heart muscles



Q33 Blood pressure and heartbeat

The hearts muscles contract and relax rhythmically, this rhythmic contraction followed by its relaxation constitute a heartbeat. Which instrument is used to measure heartbeats?

A. Stethoscope



B. Sphygmomanometer

C. Oximeter

D. Potometer

Q34 Blood pressure and heartbeat

Which of the following statements regarding blood pressure is FALSE?

A. The pressure is measured using a sphygmomanometer.

B. The pressure is much greater in veins than in arteries.



C. The pressure during ventricular contraction is called systolic pressure and during ventricular relaxation is called diastolic pressure.

D. The normal systolic pressure is about 120 mm of Hg and diastolic pressure is 80 mm of Hg.

Q35 Brain parts and functions

Which part of the human brain controls the involuntary action of vomiting?

A. Midbrain

B. Forebrain

C. Hindbrain



D. Spinal cord

Q36 Cellular respiration (aerobic/anaerobic)

In which of the following reactions of respiration is oxygen required?

A. Conversion of glucose to pyruvate

B. Conversion of pyruvate to ethanol

C. Conversion of pyruvate to CO_2 , H_2O and energy



D. Conversion of pyruvate to CO_2



Q37 Cellular respiration (aerobic/anaerobic)

Which of the following statements is FALSE?

- A. In the mitochondria, acetic acid is broken down utilising oxygen. ✓
- B. Oxygen is not necessary for the fermentation process.
- C. In the first stage of respiration, breakdown of glucose takes place.
- D. Pyruvic acid is produced in the first stage of respiration.

Q38 Cellular respiration (aerobic/anaerobic)

Which of the following is the common product produced during aerobic and anaerobic respiration initially in the first step?

- A. Lactic acid
- B. Ethanol
- C. Water
- D. Pyruvate ✓

Q39 Cellular respiration (aerobic/anaerobic)

Pyruvate is formed from glucose in the _____ of a cell.

- A. cytoplasm ✓
- B. nucleus
- C. ribosome
- D. mitochondria

Q40 Cellular respiration (aerobic/anaerobic)

What is the similarity between fermentation in yeast and anaerobic respiration taking place in muscle cells of humans?

- A. Take place in mitochondria
- B. Take place in Cytoplasm ✓
- C. Ethanol is formed
- D. Lactic acid is formed

Q41 Cellular respiration (aerobic/anaerobic)

Which molecule is known as the 'Energy Currency' of the cell

A. Pyruvic acid

B. Glucose

C. ADP

D. ATP



Q42 Cellular respiration (aerobic/anaerobic)

Where in the human body does pyruvate undergo aerobic breakdown?

A. Cytoplasm

B. Nucleus

C. Mitochondria



D. Muscles

Q43 Cellular respiration (aerobic/anaerobic)

You get cramps after participating in a 400 m race. Which option best explains the reason for the same?

A. Lack of oxygen and pyruvate converted to lactic acid



B. Lack of oxygen and pyruvate is converted to ethanol

C. Enough oxygen and pyruvate converted to lactic acid

D. Lack of oxygen and pyruvate is converted to glucose

Q44 Cellular respiration (aerobic/anaerobic)

Aerobic respiration requires the presence of _____.

A. carbon dioxide

B. oxygen



C. hydrogen

D. nitrogen



Q45 Cellular respiration (aerobic/anaerobic)

When the terminal phosphate linkage in ATP is broken using water, what is the amount of energy released?

A. 30.5 kJ/mol

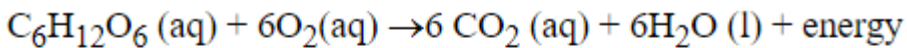


B. 32 kJ/mol

C. 32.5 kJ/mol

D. 33 kJ/mol

Q46 Cellular respiration (aerobic/anaerobic)



The special name for the given reaction is:

A. respiration



B. digestion

C. metabolism

D. energy conversion

Q47 Cellular respiration (aerobic/anaerobic)

How much energy is released when water is used to break down the terminal link of ATP?

A. 30.5 kJ/mol



B. 31.5 kJ/mol

C. 35.6 kJ/mol

D. 37.2 kJ/mol

Q48 Cellular respiration (aerobic/anaerobic)

In the process of storing and transferring ADP into ATP molecules, which of the following minerals is critical?

A. Phosphorus



B. Calcium

C. Iron

D. Sodium



Q49 Cellular respiration (aerobic/anaerobic)

Which of the following molecules has three carbon atoms in it?

A. Pyruvic acid



B. Carbon dioxide

C. Glucose

D. Ethanol

Q50 Cellular respiration (aerobic/anaerobic)

During the process of respiration, how many oxygen molecules combine with one molecule of glucose?

A. Four

B. Five

C. Six



D. Seven

Q51 Cellular respiration (aerobic/anaerobic)

Which of the following gases is essential for all aerobic forms of life?

A. CO₂

B. O₂



C. O₃

D. CO

Q52 Cellular respiration (aerobic/anaerobic)

In a cell, where does the process of breakdown of glucose, a 6-carbon molecule, to pyruvate, a 3-carbon molecule, take place?

A. Mitochondria

B. Cytoplasm



C. Chloroplast

D. Golgi apparatus



Q53 Cellular respiration (aerobic/anaerobic)

Which of the following statements is correct with reference to aerobic respiration?

- A. In mitochondria, one molecule of pyruvate breaks down to give three molecules of carbon dioxide. ☒
- B. The release of energy in aerobic respiration is lower than that in anaerobic respiration.
- C. Aerobic respiration takes place in the absence of oxygen.
- D. Only carbon dioxide is released in the process of aerobic respiration.

Q54 Cellular respiration (aerobic/anaerobic)

How many molecules of carbon dioxide are formed during the breakdown of pyruvate using oxygen in the mitochondria?

- A. Two
- B. Three ☒
- C. Five
- D. Six

Q55 Cellular respiration (aerobic/anaerobic)

Which of the following statements is INCORRECT?

- A. Carbon dioxide is more soluble in water than oxygen.
- B. The respiratory pigment is present in the white blood corpuscles. ☒
- C. The pyruvate is converted into lactic acid which is a three-carbon molecule.
- D. The walls of the alveoli contain an extensive network of blood-vessels.

Q56 Cellular respiration (aerobic/anaerobic)

Which of the following can cause cramps in our muscles?

- A. Lack of CO_2
- B. Lack of O_2 ☒
- C. Excess of O_2
- D. Excess of CO_2



Q57 Cellular respiration (aerobic/anaerobic)

What is the cause of muscle cramps?

- A. Insufficiency of oxygen supply to muscles ✓
- B. Excessive excitation of neuromuscular junctions
- C. Fatigue and weakness of the body
- D. Low glucose level in the blood (hypoglycaemia)

Q58 Cellular respiration (aerobic/anaerobic)

What is the energy currency for most of the cellular processes?

- A. ADP
- B. ATP ✓
- C. Glucose
- D. Pyruvate

Q59 Cellular respiration (aerobic/anaerobic)

In which of the following processes is the pyruvate converted into ethanol and carbon dioxide?

- A. Translocation
- B. Diffusion
- C. Transpiration
- D. Fermentation ✓

Q60 Cellular respiration (aerobic/anaerobic)

In which cell organelle, the first step of cellular respiration, which is the breakdown of glucose, a six-carbon molecule, into a three-carbon molecule called pyruvate takes place?

- A. Mitochondria
- B. Cytoplasm ✓
- C. Lysosomes
- D. Nucleus



Q61 Cellular respiration (aerobic/anaerobic)

The full form of ATP is _____.

- A. Adenosine Triphosphate ✓
- B. Adenosine Tetraphosphate
- C. Adenine Triphosphate
- D. Adenine Tetraphosphate

Q62 Cellular respiration (aerobic/anaerobic)

Which of the following are the three-carbon molecules formed during respiration?

- A. Ethanol and lactic acid
- B. Lactic acid and pyruvate ✓
- C. Pyruvate and ethanol
- D. Ethanol and malic acid

Q63 Cellular respiration (aerobic/anaerobic)

Anaerobic respiration of glucose in the muscles produces _____.

- A. pyruvic acid
- B. lactic acid ✓
- C. acetoacetic acid
- D. citric acid

Q64 Cellular respiration (aerobic/anaerobic)

Where in a human body can anaerobic respiration take place?

- A. Only in red blood cells in the veins
- B. In mitochondria of all cells
- C. Only in striated muscle cells
- D. In the cytoplasm of cells ✓



Q65 Cellular respiration (aerobic/anaerobic)

Breakdown of pyruvate using oxygen takes place in the:

- A. cytoplasm
- B. mitochondria
- C. nucleoplasm
- D. chloroplast

Q66 Cellular respiration (aerobic/anaerobic)

Complete the given step of anaerobic respiration:

Glucose ($C_6H_{12}O_6$) $\rightarrow$ _____ + Carbon Dioxide (CO_2) + Energy (ATP)

- A. Ethanol (C_2H_5OH)
- B. Water
- C. Lactic Acid
- D. Pyruvate

Q67 Cellular respiration (aerobic/anaerobic)

During heavy exercise when the demand for energy is high, but the supply of oxygen to produce the energy is limited, the muscle cells show _____.

- A. loss of water
- B. accumulation of pyruvate
- C. synthesis of ethanol
- D. formation of lactic acid

Q68 Digestive enzymes and functions

Consider the below statements and identify the correct answer.

Statement- I: Human stomach produces nitric acid.

Statement-II: Hydrochloric acid helps in the digestion of food without harming the stomach.

- A. Both statements are correct. Statement II is correct explanation of Statement I.
- B. Both Statements are correct. Statement I is correct explanation of Statement II.
- C. Only Statement I is correct.
- D. Only Statement II is correct. ✓

Q69 Digestive enzymes and functions

Which of the following is a protein-splitting enzyme?

- A. Pepsin ✓
- B. Amylase
- C. Ptyalin
- D. Lipase

Q70 Digestive enzymes and functions

Which digestive enzyme is present in saliva?

- A. Amylase ✓
- B. Peptidase
- C. Enterokinase
- D. Lipase



Q71 Digestive enzymes and functions HINDI - no English version saved

पाचन के दौरान, भोजन सरल पदार्थों में विघटित होता है। उदाहरण के लिए, चावल, आलू और ब्रेड में _____ होते हैं। ये विघटित होकर _____ का निर्माण करते हैं।

- A. ग्लूकोज, कार्बोहाइड्रेट
- B. कार्बोहाइड्रेट, ग्लूकोज
- C. कार्बोहाइड्रेट्स, एमिनो अम्ल
- D. प्रोटीन, ग्लूकोज

Q72 Digestive enzymes and functions

Which enzyme requires the presence of hydrochloric acid for its action in the process of digestion?

- A. Lipase
- B. Trypsin
- C. Pepsin
- D. Amylase

Q73 Digestive enzymes and functions

Salivary amylase helps in the digestion of _____.

- A. protein
- B. starch
- C. lipid
- D. Cellulose

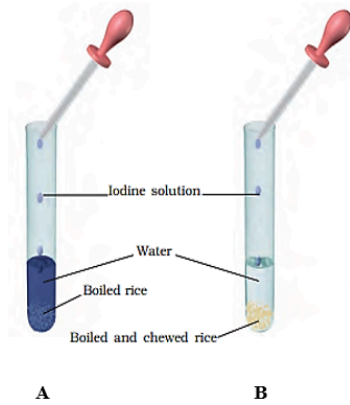
Q74 Digestive enzymes and functions

Which of the following enzymes in the saliva breaks down starch which is a complex molecule to give simple sugar?

- A. Salivary amylase
- B. Salivary pepsin
- C. Salivary lipase
- D. Salivary trypsin

Q75 Digestive enzymes and functions

Study the figure given below carefully. Which option is correct regarding the non-appearance of blue colour in test tube B?



A. Starch was digested by salivary amylase in the saliva



B. Starch was digested by pepsin in the saliva

C. Starch was digested by lipase in the saliva

D. Starch was digested by trypsin in the saliva

Q76 Digestive enzymes and functions

The enzymes responsible for final conversion of Proteins into amino acids, complex carbohydrates into glucose and fats into fatty acids and glycerol is present in the:

A. intestinal juice



B. pancreatic juice

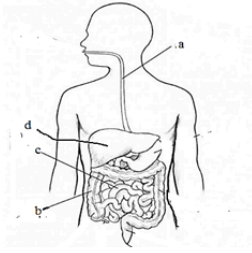
C. gastric juice

D. bile juice



Q77 Digestive tract organs and sequence

The diagram of the human alimentary canal is given below. Select the option that shows the correct matching of Column I with Column II.



Column I	Column II
a	i) Villi absorb water from food
b	ii) Length depends on food the organism eats
c	iii) Helps in emulsification of fats
d	iv) No digestion

A. a-i, b-ii, c-iii, d-iv

B. a-ii, b-iii, c-iv, d-i

C. a-iii, b-ii, c-i, d-iv

D. a-iv, b-i, c-ii, d-iii

**Q78 Digestive tract organs and sequence**

Which of the following parts of the alimentary canal carries out the complete digestion of carbohydrates, proteins and fats?

A. Oesophagus

B. Stomach

C. Small intestine



D. Large intestine

Q79 Digestive tract organs and sequence

In which of the following places is the cellulose of food digested by the action of certain bacteria in animals like horses, rabbit, etc.?

A. Stomach

B. Small intestine

C. Caecum



D. Oesophagus



Q80 Digestive tract organs and sequence

Match the columns.

Group-I	Group-II
I. Mouth	A. Chewing of food
II. Teeth	B. Rolling of food
III. Tongue	C. Intake of whole food
IV. Saliva	D. Swallowing of food

A. I-A; II-B; III-C; IV-D

B. I-C; II-A; III-B; IV-D



C. I-B; II-C; III-D; IV-C

D. I-A; II-D; III-A; IV-A

Q81 Digestive tract organs and sequence

What is the rumen?

A. A sac-like structure of the oesophagus

B. A chamber of the stomach to store food



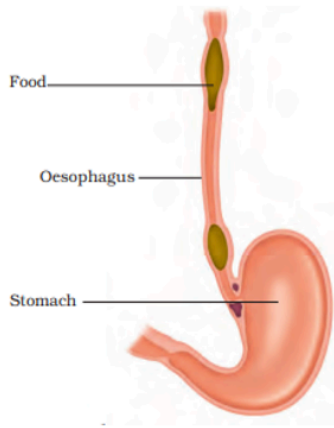
C. The region of the gut where cud is formed

D. The first part of the duodenum of a cow



Q82 Digestive tract organs and sequence

The diagram below shows a part of the human alimentary canal. Which process is taking place and how?



- A. Peristalsis, due to rhythmic contraction and relaxation of muscular walls ☒
- B. Digestion, due to enzymes present
- c. Peristalsis, due to enzymes present
- D. Digestion, due to rhythmic contraction and relaxation of muscular walls

Q83 Digestive tract organs and sequence

An adult human being has only _____ incisors in his/her mouth.

- A. four
- B. eight ☒
- C. ten
- D. twelve

Q84 Digestive tract organs and sequence

Identify the FALSE statement in the context of digestion.

- A. Digestion comes before egestion but after ingestion.
- B. Absorption comes before assimilation but after digestion.
- c. Assimilation comes before ingestion but after absorption. ☒
- D. Assimilation and absorption both occur before egestion.



Q85 Endocrine glands and locations

Which of the following is/are NOT an endocrine gland in our body?

- A. Pituitary gland
- B. Thyroid gland
- C. Adrenal gland
- D. Salivary glands



Q86 Excretory System (Kidney)

Which of the following is NOT an animal-produced nitrogenous waste product?

- A. Urea
- B. Uric acid
- C. Ammonia
- D. Lactic acid



Q87 Excretory organs (skin/lungs/kidney)

The _____ DOES NOT function as an excretory organ in humans.

- A. skin
- B. lungs
- C. small intestine
- D. large intestine



Q88 Excretory organs (skin/lungs/kidney)

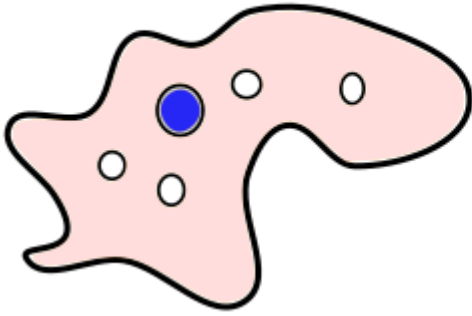
Which of the following is NOT a part of the human excretory system?

- A. Ureters
- B. Urinary bladder
- C. Bronchioles
- D. Urethra



Q89 Excretory organs (skin/lungs/kidney)

How does the following organism get rid of its nitrogenous wastes?



- A. By secretion
- B. By simple diffusion
- C. Through excretory vacuoles
- D. By depositing crystals in vacuoles

Q90 Excretory organs (skin/lungs/kidney)

Aquatic animals like fishes, excrete waste in which of the following forms?

- A. Ammonia
- B. Urea
- C. Uric acid
- D. Sweat salts

Q91 Fertilization and development basics

In some women, oviducts are blocked. These women are unable to bear babies because sperms cannot reach the egg for fertilisation. The doctors advise IVF (invitro fertilisation) in such cases. Below are given some steps of the procedure. Select the INCORRECT step.

- A. Fusion of egg and sperms is done outside the body
- B. Zygote is formed and after a week placed in the uterus
- C. Complete development takes place in the uterus
- D. Zygote is kept outside and development takes place in a test tube



Q92 Fertilization and development basics

Which of the following is the INCORRECT feature related to animal reproduction?

- A. Regeneration is not the same as reproduction
- B. In Amoeba, splitting of two cells takes place in any plane
- C. Seminal vesicle is a gland present in human males
- D. Fertilisation of egg takes place in the uterus in human female



Q93 Fertilization and development basics HINDI - no English version saved

‘इन विट्रो फर्टिलाइज़ेशन (IVF)’ विधि में शिशुओं का जन्म निम्न में से किस प्रक्रिया द्वारा होता है?

- A. शुक्राणु और डिंब का बाह्य निषेचन
- B. परखनली के अंदर गर्भ का विकास
- C. एकल माता-पिता से गर्भ का विकास
- D. शुक्राणु और डिंब का आंतरिक निषेचन और भ्रूण का बाह्य विकास



Q94 Fertilization and development basics

The process by which an organism begins life as a female and then transforms into a male is known as:

- A. protandry
- B. protogyny
- C. homozygous
- D. heterozygous



Q95 Fertilization and development basics

Which of the following continues to grow and develop organs to become a foetus?

- A. Zygote
- B. Egg
- C. Embryo
- D. Placenta



Q96 Fertilization and development basics

The nutrients are supplied to the foetus from the mother through:

- A. cervix
- B. zygote
- C. placenta
- D. endosperm



Q97 Fertilization and development basics

Sexual reproduction in human beings involves the introduction of sperm in the vagina of the female. Where does fertilisation occur?

- A. In the vagina
- B. In the uterus
- C. In the fallopian tube
- D. In the cervix



Q98 Haemoglobin and its role

Where is the respiratory pigment in human body present?

- A. In blood plasma
- B. In red blood cells
- C. In white blood cells
- D. In both plasma and white blood cells



Q99 Haemoglobin and its role

Which of the following pigments has a high affinity for oxygen?

- A. Haemoglobin
- B. Haemocyanin
- C. Melanin
- D. Bilirubin



Q100 Haemoglobin and its role

Which of the following is required for the formation of human blood?

A. Copper

B. Cobalt

C. Iron



D. Nickel

Q101 Haemoglobin and its role

The respiratory pigment, haemoglobin is present in:

A. red blood corpuscles



B. white blood corpuscles

C. blood plasma

D. blood platelets

Q102 Heart structure and chambers

'Double Circulation' CANNOT be observed in _____.

A. fish

B. frog



C. snake

D. eagle

Q103 Heart structure and chambers

What aids in preventing the mixing of oxygen-rich and carbon dioxide-rich blood in the heart?

A. Tricuspid valve

B. Pulmonary valve

C. Aortic valve

D. The wall between the chambers



Q104 Heart structure and chambers

Which of the following organisms has a three chambered heart?

- A. Fish
- B. Man
- C. Frog
- D. Bird



Q105 Heart structure and chambers

Identify the FALSE statement regarding circulation of blood in fishes.

- A. The two chambered heart provides double circulation.
- B. Blood from the ventricle goes only to the gills.
- C. Blood is sent from the gills to the rest of the body.
- D. Blood from the body enters the auricle.



Q106 Heart structure and chambers

Why is deoxygenated blood kept separate from oxygenated blood in the hearts of some animals like human beings?

- A. To help in keeping the body temperature constant
- B. To maximise oxygenation of blood in the lungs
- C. To provide oxygen to a large-bodied animal
- D. To help in the growth and functioning of muscles



Q107 Heart structure and chambers

Which of the following animals have two-chambered heart?

- A. Mammals
- B. Birds
- C. Reptiles
- D. Fishes

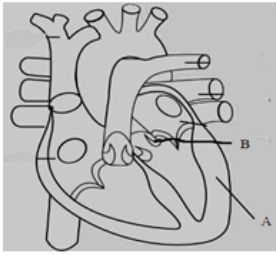


Q108 Heart structure and chambers

Two questions based on the transverse section of human heart are given below. Find the option that gives the correct answers to both the questions.

Q. Why does the part labelled 'A' have thick walls?

Q. What is the function of the part labelled 'B' ?



- A. A – Because it pumps blood to different parts of the body
B – Prevents back flow of blood



- B. A – Because it pumps blood to the left auricle
B – Does not let the blood flow forward

- C. A – Because it pumps blood to the pulmonary artery
B – Pumps blood to aorta

- D. A – Because it pumps blood to the right auricle
B – Prevents back flow of blood

Q109 Heart structure and chambers

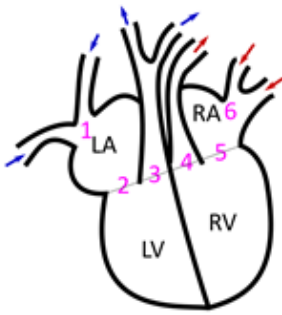
In which of the following animals does blood go through the heart twice during each cycle?

- A. Mammals, birds and reptiles
B. Mammals, birds and fishes
C. Mammals, fishes and reptiles
D. Fishes, birds and reptiles



Q110 Heart structure and chambers

The following figure shows the human heart. LA = left auricle; LV = left ventricle; RA = right auricle; RV = right ventricle. Where are the valves located?



- A. At positions 1, 2, 4 and 6
- B. At positions 2, 3, 4 and 5
- c. At positions 4, 5 and 6
- D. At all positions: 1, 2, 3, 4, 5 and 6

Q111 Heart structure and chambers

In the human heart, the pulmonary vein is connected to the _____.

- A. left ventricle
- B. right ventricle
- C. left auricle
- D. right auricle

Q112 Hormones and functions (match)

Which of the following is an example of an ovarian hormone?

- A. Testosterone
- B. Oestrogen
- c. Thyroxin
- D. Adrenalin

Q113 Hormones and functions (match)

Which hormone helps the body to adjust to stress when one is very angry, embarrassed or worried?

A. Testosterone

B. Estrogen

C. Adrenalin



D. Thyroxine

Q114 Human Body & Physiology

Maintenance processes are needed in life processes to:

A. transfer a source of energy from inside the body of organism

B. prevent damage and breakdown



C. add raw material from inside the body

D. transfer food material outside the body

Q115 Insulin and diabetes

Deficiency of which hormone is responsible for diabetes mellitus?

A. Oxytocin

B. Adrenalin

C. Insulin



D. Thyroxin

Q116 Kidney structure and function

Kidney is an organ of excretion and osmoregulation in humans. Regulation of which two substances is done by the kidneys?

A. CO₂ and proteins

B. Sugar and salts

C. Water and salts



D. Water and O₂



बोमेन संपुट (Bowman's capsule) मानव शरीर में कहां स्थित होता है?

A. वृक्क में



B. आमाशय में

C. फेफड़ों में

D. यकृत में

Which of the following constitutes the human excretory system?

A. One pair of kidneys, single ureter, single urinary bladder and single urethra

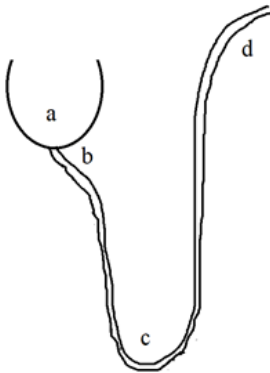
B. Single kidney, single ureter, one pair of urinary bladder and single urethra

C. One pair of kidneys, one pair of ureters, single urinary bladder and single urethra



D. One pair of kidneys, single urinary bladder, single ureter and one pair of urethra

Which letter represents the region Bowman's capsule in the diagram below?



A. Region a



B. Region b

C. Region c

D. Region d



Q120 Kidney structure and function

Which of the following part connects the urinary bladder and the kidney?

- A. Nephrons
- B. Tubules
- C. Ureters
- D. Urethra



Q121 Kidney structure and function

Which nitrogenous waste produced in the body is removed by the human kidney?

- A. Urea and uric acid
- B. Urea and ammonia
- C. Only ammonia
- D. Ammonia and uric acid



Q122 Kidney structure and function

Identify the correct sequential order of the excretory system in human beings.

- A. Kidney, ureters, urinary bladder, urethra
- B. Kidney, urethra, ureters, urinary bladder
- C. Kidney, ureters, urethra, urinary bladder
- D. Kidney, urinary bladder, ureters, urethra



Q123 Kidney structure and function HINDI - no English version saved

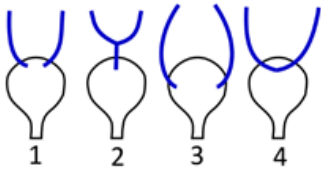
कृत्रिम किडनी के उपयोग से नाइट्रोजनयुक्त अपशिष्ट को हटाने की प्रक्रिया _____ कहलाती है।

- A. एंजियोग्राम (angiogram)
- B. हीमोडायलिसिस (haemodialysis)
- C. राइनोप्लास्टी (rhinoplasty)
- D. ट्रांसप्लांटेशन (transplantation)



Q124 Kidney structure and function

Which of the following diagrams depicts the positions of the ureters (shown as blue lines) and the urinary bladder in the human excretory system?



A. Diagram 1



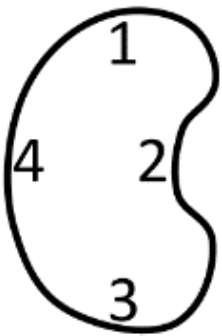
B. Diagram 2

C. Diagram 3

D. Diagram 4

Q125 Kidney structure and function

The following figure shows the right human kidney. At which point does the ureter exit the kidney?



A. Point 1

B. Point 2



C. Point 3

D. Point 4

Q126 Kidney structure and function

Where can we find the glomerulus in a human being?

A. In the kidney



B. In the bone marrow

C. In the liver

D. In the uterus



Q127 Kidney structure and function

How is urea removed from the blood by an artificial kidney?

- A. By filtration
- B. By osmosis
- C. By absorption
- D. By enzymatic action

Q128 Kidney structure and function

Hemodialysis consists of several tubes having semi-permeable lining suspended in tank having fluid that has _____.

- A. Same composition as renal filtrate
- B. Same osmotic pressure as blood and is devoid of nitrogenous wastes
- C. Same composition as blood except that it has more heparin
- D. Low osmotic pressure to enable movement of molecules

Q129 Liver, pancreas, gall bladder roles HINDI - no English version saved

मनुष्य के पाचन तंत्र में होने वाली कौन सी क्रिया गंदगी पर साबुन के पायसीकरण की क्रिया के समान होती है?

- A. पित्त रस द्वारा क्षारीय माध्यम प्रदान किया जाना
- B. पित्त लवणों द्वारा बड़ी वसा गोलिकाओं को छोटी गोलिकाओं में विघटित किया जाना
- C. पित्त रस एंजाइमों द्वारा स्टार्च के पाचन में सहायता करना
- D. पित्त रस द्वारा अम्लीय माध्यम प्रदान किया जाना

Q130 Liver, pancreas, gall bladder roles

_____ aid (s) in the emulsification of fat.

- A. Pepsin
- B. HCl
- C. Bile salts
- D. Vit- K Trypsin



Q131 Liver, pancreas, gall bladder roles

_____ reduce (s) the size of large fat globules, allowing enzymes to work more effectively.

- A. Succus entericus
- B. Pancreatic juice
- C. Hydrochloric acid
- D. Bile salts



Q132 Liver, pancreas, gall bladder roles

The 'Urea Cycle' takes place in the human _____.

- A. liver
- B. kidney
- C. lungs
- D. pancreas



Q133 Liver, pancreas, gall bladder roles

The functions of bile juice are mentioned below. Select the option that is NOT the function of bile juice.

- A. Provides alkaline medium to the food for the action of pancreatic enzymes
- B. Breaks down large fat globules into smaller ones
- C. Has a protein digesting enzyme that helps in the digestion of proteins
- D. Increases the efficiency of the action of pancreatic enzymes



Q134 Liver, pancreas, gall bladder roles

Which of the following is involved in emulsification of fats?

- A. Liver
- B. Pancreas
- C. Spleen
- D. Stomach



Q135 Liver, pancreas, gall bladder roles

What is the effect of bile salts in the digestion of food?

- A. They digest fat globules to release fatty acids.
- B. They break up big fat globules into small globules. ✓
- C. They activate lipases to begin digestion of proteins.
- D. They contains fat-digestive enzymes called lipases.

Q136 Liver, pancreas, gall bladder roles

Why do fats in diet form large globules in the small intestine?

- A. Because fats do not mix well with watery slurry produced in the stomach ✓
- B. Because lipase enzymes in the stomach do not digest fats completely
- C. Because proteins and fats clump together to produce colloidal matter
- D. Because fats get trapped in fibrous carbohydrates during food churning in the stomach

Q137 Liver, pancreas, gall bladder roles

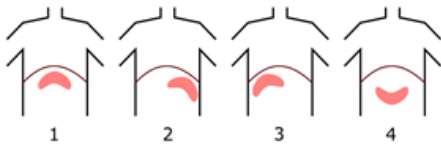
Which of the following converts acidic food into alkaline in the alimentary canal?

- A. Intestinal juice
- B. Bile juice ✓
- C. Gastric juice
- D. Pancreatic juice



Q138 Liver, pancreas, gall bladder roles

Which figure shows the correct location of the liver (shown as the pink shape) in the human body (given that the person is facing you, the reader)?



A. Figure 1

B. Figure 2

C. Figure 3



D. Figure 4

Q139 Lungs and alveoli function

Some features of alveoli are mentioned below. Select the INCORRECT option.

A. Are finger-like structures



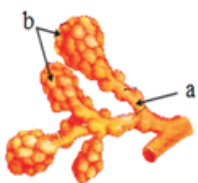
B. Have large surface area

C. Are thin walled

D. Have extensive network of blood vessels

Q140 Lungs and alveoli function

The diagram below shows a part of the respiratory system in humans. Which option shows the correct labelling of 'a' and 'b' and the function of 'b'?



A. a - Bronchi, b - Alveoli (exchange of gases)

B. a - Bronchioles, b - Alveoli (exchange of gases)



C. a - Bronchi, b - Bronchioles (exchange of gases)

D. a - Bronchioles, b - Bronchi (exchange of gases)



Q141 Lungs and alveoli function

What is/are the balloon like structure(s) present in lungs, where exchange of gases take(s) place, called?

A. Trachea

B. Alveoli



C. Bronchi

D. Cilia

Q142 Lungs and alveoli function

What is the reason that the lungs have alveoli?

A. To increase the surface area



B. To provide pumping action for the lungs

C. To increase the volume of the lungs

D. To give mechanical support to the lungs

Q143 Lymphatic system basics

Some functions of lymph are given below. Select the option with the correct functions.

a) Carries digested and absorbed fat from intestine

b) Carries CO₂ to lungs

c) Carries RBCs to the lymph nodes

d) Drains excess fluid from extracellular space back into blood

A. a and b

B. b and c

C. c and d

D. a and d



Q144 Lymphatic system basics

Lymph transports digested and absorbed intestinal _____.

- A. carbohydrates
- B. proteins
- C. fats
- D. enzymes



Q145 Lymphatic system basics

Which of the following carry/carries digested and absorbed fat from the intestine?

- A. Plasma
- B. Lymph
- C. Platelets
- D. Veins



Q146 Male and female reproductive organs

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

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



Q147 Male and female reproductive organs

In human males, why are testes present outside the abdominal cavity in a pouch called scrotum?

- A. It is richly supplied by blood vessels needed for sperm formation
- B. It helps in maintaining temperature 2-3 degrees lower than the body for sperm formation
- C. It helps in maintaining low pressure than the body for sperm formation
- D. It secretes hormones for sperm formation



Q148 Male and female reproductive organs

Which of the following is NOT a change that marks the onset of puberty

- A. Sudden increase in height
- B. Growth of nails
- C. change in voice
- D. change in body shape



Q149 Male and female reproductive organs

Which option correctly shows the path that the sperms take when they are released from the human male reproductive system?

- A. Testis → Ureter → Urethra → Penis
- B. Testis → Vas deferens → Ureter → Penis
- C. Testis → Ureter → Vas deferens → Penis
- D. Testis → Vas deferens → Urethra → Penis



Q150 Male and female reproductive organs

Which of the following is NOT a part of the female reproductive system?

- A. Ovaries
- B. Uterus
- C. Urethra
- D. Fallopian tubes



Q151 Male and female reproductive organs

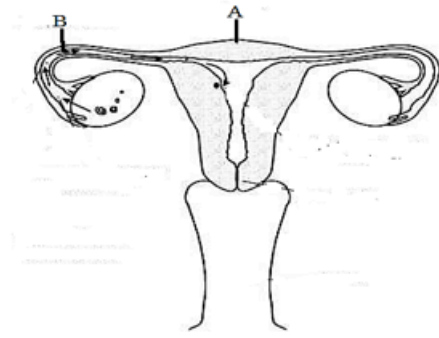
What specialisations are found in the germ cells of sexually reproducing animals with complex body designs?

- A. Male germ cell - small and motile, Female - large with food store
- B. Male germ cell - small with food store, Female - large and motile
- C. Male germ cell - large with food store, Female - small and motile
- D. Male germ cell - large and motile, Female - small with food store



Q152 Male and female reproductive organs

The figure given below shows the sectional view of the human female reproductive system. Identify the option stating correct functions of the labelled parts A and B.



- A. A - Implantation and development of embryo, B - Fertilisation of egg ✓
- B. A - Fertilisation of egg, B - Formation of egg
- C. A - Formation of egg, B - Fertilisation of egg
- D. A - Fertilisation of egg, B - Implantation and development of embryo

Q153 Male and female reproductive organs

Which of the following is NOT a part of the female reproductive system?

- A. Vas deferens ✓
- B. Fallopian tube
- C. Ovaries
- D. Oviduct

Q154 Male and female reproductive organs

Which among the following is not a change noticed among children who entered teenage (boys and girls)?

- A. Hair growth in some parts of the body
- B. Skin in many becomes oily
- C. Hair growth is seen in all parts of the body ✓
- D. Some develop pimples



Q155 Mechanism of breathing / gaseous exchange

All of the statements given below regarding inhalation in humans are correct except one. Which one is NOT correct?

- a) Ribs move inward and diaphragm is raised.
- b) Ribs are lifted up and diaphragm becomes flat.
- c) Chest cavity becomes larger.
- d) Air is sucked into the lungs.

A. b

B. a



C. c

D. d

Q156 Mechanism of breathing / gaseous exchange

During each breathing cycle, when air is taken in and thrown out, the lungs always contain some amount of air so that there is sufficient time for oxygen to be absorbed and carbon dioxide to be released. What is this amount of air called?

A. Residual volume



B. Pulmonary volume

C. Alveolar volume

D. Breathing volume

Q157 Mechanism of breathing / gaseous exchange

Which of the following has the fastest breathing rate?

A. Elephant

B. Human

C. Pigeon

D. Fish



Q158 Mechanism of breathing / gaseous exchange

How many times does an adult human breathe per minute at rest?

A. 12-15

B. 15-18



C. 70-72

D. 72-75



Q159 Mechanism of breathing / gaseous exchange

In terrestrial animals, exchange of gases takes place by diffusion. Which among the following statements are true about respiration in these animals?

- a. Diffusion through their surface
- b. They have fine and delicate surface that enables exchange of gases
- c. They may have passages for flow of air
- d. They have less surface area but heavy blood flow for respiration

A. a and b

B. a, c and d

C. a, b and c



D. a and d

Q160 Mechanism of breathing / gaseous exchange

Why is the breathing rate of aquatic organisms much faster than the terrestrial ones?

A. Because of less CO_2 in water

B. Because water is polluted

C. Because of less O_2 in water



D. Because of more O_2 in water

Q161 Mechanism of breathing / gaseous exchange

What happens when we exhale during normal breathing?

A. The diaphragm is flattened

B. The lungs are contracted

C. All carbon dioxide is expelled from the body

D. A residual amount of air remains in the lungs



Q162 Mechanism of breathing / gaseous exchange

Name the process through which gaseous exchange takes place across the cell membrane.

A. Diffusion



B. Osmosis

C. Endocytosis

D. Absorption



Q163 Mechanism of breathing / gaseous exchange

Breathing is harder at high altitudes compared to the sea level because _____.

- A. colder temperature constricts airways
- B. the concentration of oxygen is very high at high altitudes
- C. the rate of diffusion of gases is decreased at high altitudes
- D. the atmosphere is less dense at high altitudes



Q164 Mechanism of breathing / gaseous exchange

How many times on an average does an adult human being at rest breathe in and out in a minute?

- A. 15–18 times
- B. 18–21 times
- C. 20–23 times
- D. 12–15 times



Q165 Menstrual cycle basics

During puberty, a woman's first menstrual flow is known as _____.

- A. menopause
- B. menarche
- C. amenorrhea
- D. menorrhagia



Q166 Menstrual cycle basics

_____ refers to the cessation of menstruation.

- A. Menopause
- B. Menarche
- C. Menses
- D. Hypermenorrhea



Q167 Menstrual cycle basics

The first menstrual flow begins at puberty and is termed as:

- A. menarche
- B. menopause
- C. menstruation
- D. ovulation



Q168 Menstrual cycle basics

What happens during menstruation?

- A. A mature egg is released from an ovary
- B. The wall of the uterus becomes vascular
- C. There is failure of fertilisation of the ovum
- D. The uterine lining is shed.



Q169 Menstrual cycle basics

Girls should take special care with respect to health and hygiene during the time of menstrual flow to avoid infections and ill health. Which of the following statements in this regard is FALSE?

- A. Girls should keep track of their menstrual cycle and be prepared for the onset of menstruation.
- B. Girls should use sanitary napkins or clean homemade pads.
- C. Girls should change pads after every 4–5 hours or as per the requirement.
- D. Girls should consume chips and packed or tinned snacks to meet nutritional needs.



Q170 Menstrual cycle basics

The uterine wall in females prepares itself to receive the developing fertilised egg. In case there is no fertilisation, the thickened lining of the uterine wall breaks down and goes out of the body along with blood. This is called:

- A. menstruation
- B. menopause
- C. secondary sexual characters
- D. Adam's apple



Q171 Muscle types (skeletal/smooth/cardiac)

Movement in most of the animals is a co-ordinated activity of which of the following system/systems?

A. Muscular, skeletal and nervous systems



B. Only skeletal and nervous systems

C. Only muscular system

D. Only nervous system

Q172 Muscle types (skeletal/smooth/cardiac)

The movement of food in the alimentary canal is brought about by the smooth muscles in the body. Which of the following options has all the organs having smooth muscles?

A. Bones, ureters, bronchi of lungs

B. Iris of the eye, bronchi of lungs, ureters



C. Heart, iris of the eye, bones

D. Blood vessels, ureters, bones

Q173 Muscle types (skeletal/smooth/cardiac)

What is the difference between striated and smooth muscle cells?

A. Smooth muscles are not connected to the nerves while striated muscles are connected.

B. Striated muscles lack nuclei while smooth muscles are binucleated

C. Smooth muscles cannot contract at will, while voluntary muscles contract at will



D. All striated muscles work by reflex action as compared to smooth muscles.

Q174 Muscle types (skeletal/smooth/cardiac)

Which of the following statements is INCORRECT about voluntary muscles?

A. These muscles are also called skeletal muscles.

B. They are mostly attached to bones.

C. These muscles show alternate light and dark bands.

D. Cells are long, cylindrical, unbranched and uninucleate.



Q175 Muscle types (skeletal/smooth/cardiac)

Which of the following statements is correct about striated muscles?

- A. Cells are long, cylindrical, non-tapering and are unbranched
- B. Cells are long with tapering ends and are unbranched
- C. Cells are non-tapering and cylindrical in shape and are branched
- D. Prominent light and dark bands are present



Q176 Nephron and urine formation

Formation of urine in the kidneys involves the given three processes in which of the following sequences?

- A. Filtration, elimination, selective reabsorption
- B. Selective reabsorption, filtration, elimination
- C. Filtration, selective reabsorption, Elimination
- D. Selective reabsorption, elimination, filtration



Q177 Nephron and urine formation

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

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



Q178 Nephron and urine formation

Which of the following sequences of events occurs during the formation of urine in the human body?

- A. Filtration, reabsorption, secretion
- B. Filtration, secretion, reabsorption, secretion
- C. Secretion, filtration, reabsorption
- D. Reabsorption, filtration, secretion, storage



Q179 Nephron and urine formation

What is the average amount of urine that an adult human produces in 24 hours?

- A. 1-1.5 litres
- B. 1-1.8 litres
- C. 1.5-2 litres
- D. 1.5-2.5 litres

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q180 Nephron and urine formation

Urine is composed of _____ water.

- A. 68%
- B. 79%
- C. 83%
- D. 95%



Q181 Nephron and urine formation

The kidney of a healthy adult produces 180 L of filtrate daily, but a person throws out only 1 L or 1.5 L of urine. The amount of filtrate reabsorbed depends on which factor/ factors?

- A. Amount of excess water and amount of dissolved waste to be excreted
- B. Amount of excess water
- C. Amount of dissolved waste to be excreted
- D. No effect of these factors



Q182 Nephron and urine formation

Which of the following statements is INCORRECT?

- A. Kidneys are located in the abdomen, one on either side of the backbone
- B. The human excretory system includes a pair of kidneys, a pair of ureters, a urinary bladder and a urethra.
- C. Each kidney has large numbers of the filtration units called neurons packed close together.
- D. Normally, in a healthy adult, the initial filtrate in the kidneys is about 180 L daily



Q183 Nephron and urine formation

Is there any advantage of the structure of the nephron as a long tubular structure?

- A. No, the long tubular structure has no advantage because filtration occurs at the cup-shaped end.
- B. Yes, the long tube gives time and space for re-absorption of excess water from the initial filtrate. ✓
- C. No, all nephrons are not long – some are short and others are long, but all are functional.
- D. Yes, the long tubes can be coiled and packed at high density to give firmness to the kidney.

Q184 Nephron and urine formation

Normally, in a healthy adult, the initial filtrate in the kidneys is about 180 L daily. However, the volume actually excreted is only:

- A. 1 litre or 2 litres a day ✓
- B. 2 litres or 3 litres a day
- C. 3 litres or 3.5 litres a day
- D. 2 litres or 3.5 litres a day

Q185 Nephron and urine formation

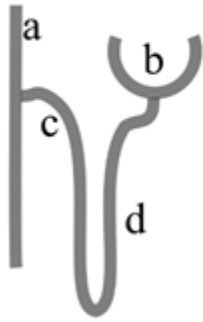
Which of the following substances is/are NOT reabsorbed by the kidneys?

- A. Creatinine ✓
- B. Amino acids
- C. Glucose
- D. Salts



Q186 Nephron and urine formation

The following figure shows a human nephron. Which part is the collecting duct?



A. Region a



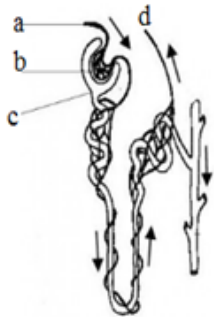
B. Region b

c. Region c

D. Region d

Q187 Nephron and urine formation

Given below is the diagram of a nephron. Select the option with the correct labelling for a, b, c and d parts.



A. a - Branch of renal vein, b – Bowman's capsule, c - Glomerulus, d - Branch of renal artery

B. a - Branch of renal artery, b – Bowman's capsule, c - Glomerulus, d - Branch of renal vein

c. a - Branch of renal vein, b - Glomerulus, c – Bowman's capsule, d - Branch of renal artery

D. a - Branch of renal artery, b - Glomerulus, c – Bowman's capsule, d - Branch of renal vein



Q188 Nephron and urine formation

A normal adult human being produces _____ mL per day of urine daily.

- A. 10 – 20
- B. 100 – 200
- C. 1000 – 2000
- D. 10000 – 20000



Q189 Nephron and urine formation

Bowman's capsule encloses _____.

- A. nephrons
- B. the glomerulus
- C. neurons
- D. platelets



Q190 Nephron and urine formation

An adult human urine consists of:

- A. 95% water, 2.5% urea and 2.5% other waste products
- B. 85% water, 2.5% urea and 2.5% ammonia
- C. 85% water, 2.0% urea and 2.0% creatinine
- D. 95% water, 2.0% urea and 2.0% ammonia



Q191 Nephron and urine formation

Normally, in a healthy adult, the initial filtrate in the kidneys is about _____ daily.

- A. 180 L
- B. 150 L
- C. 160 L
- D. 130 L



Q192 Neuron structure and function

Identify the following cell.



- A. Bone cell
- B. Nerve cell
- C. Muscle cell
- D. Kidney cell



Q193 Reproductive System

Which of the following DOES NOT constitute a part of pubertal development?

- A. Voice change
- B. Getting pimples
- C. Menstruation
- D. Obesity



Q194 Reproductive health / contraception basics

A contraceptive technique that increases phagocytosis of sperms within the uterus is:

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



Q195 Reproductive health / contraception basics

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

Choose the incorrect option.

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

Q196 Reproductive health / contraception basics

Oral contraceptive pills work by stopping _____.

- A. ovulation and implantation
- B. fertilisation and implantation
- C. ovulation and fertilisation ✓
- D. ovulation

Q197 Reproductive health / contraception basics

Oral pills used for birth control change the hormonal balance of the body. How do these prevent pregnancy? Select the correct option.

- A. Eggs are not released and no fertilisation ✓
- B. No formation of eggs
- C. Lining of uterus breaks off
- D. Eggs are released but no fertilisation

Q198 Reproductive health / contraception basics HINDI - no English version saved

यदि कोई महिला परिवार बढ़ाने की योजना बना रही है, तो निम्नलिखित में से कौन सा उसके लिए सहायक नहीं होगा?

- A. उच्च प्रोटीन युक्त खाद्य पदार्थों का सेवन करना
- B. स्वस्थ शारीरिक वजन बनाए रखना या रखने का प्रयास करना
- C. धूम्रपान और शराब का सेवन ✓
- D. घर में तनाव मुक्त वातावरण



Q199 Reproductive health / contraception basics

Which of the following sterilisation methods is permanent?

- A. Use of condom
- B. Use of copper-T
- C. Use of birth control pills
- D. Surgical methods



Q200 Reproductive health / contraception basics

Which of the following statements is INCORRECT regarding the surgical methods of birth control?

- A. They block gamete transport and prevent fertilisation
- B. They are also called sterilisation procedures
- C. In males vas deferens and in females fallopian tube is blocked
- D. They are not very effective methods



Q201 Reproductive health / contraception basics

Which of the following methods is a surgical method that is used to prevent sperm transfer from males?

- A. Vas deferens is blocked
- B. Fallopian tubes are blocked
- C. Copper T is inserted
- D. Condom is used



Q202 Reproductive health / contraception basics

What is a possible reason for young females becoming teen mothers?

- A. Familial and societal pressure
- B. Good education to the females
- C. Females belonging to educated families
- D. Good support from family and society



Q203 Reproductive health / contraception basics

All of the following statements about usage of contraceptive devices are true except one. Select the **INCORRECT** option.

- A. They are practiced against natural reproductive events.
- B. They are used to prevent or delay pregnancy.
- C. They have no side effects. ☒
- D. They have significant role in checking uncontrolled growth of population.

Q204 Reproductive health / contraception basics

How do contraceptive pills help in birth control?

- A. By preventing release of eggs from the ovary ☒
- B. By killing the zygote
- C. By blocking sperm production
- D. By inhibiting menstruation

Q205 Reproductive health / contraception basics

Which factor is the most important for deciding the success rate of birth control programmes in controlling population growth?

- A. Tubectomy
- B. Use of contraceptives
- C. Vasectomy
- D. Acceptability of the contraceptive methods by the people ☒

Q206 Reproductive health / contraception basics

What is the form of contraception that can help stop the spread of sexually transmitted diseases to some extent?

- A. Vasectomy
- B. Oral contraceptive pills
- C. IUD
- D. Condoms ☒



Q207 Reproductive health / contraception basics

Select the correct example for mechanical barrier method of contraception from the options given below.

- A. Use of contraceptive pills
- B. Use of copper-T
- C. Use of condom ✓
- D. Vasectomy

Q208 Reproductive health / contraception basics

The different points mentioned below constitute Reproductive Health. Select the INCORRECT option.

- A. Knowledge of reproductive processes and organs
- B. Safe and effective family planning methods
- C. Determining the sex of the unborn child ✓
- D. Prevention of Sexually transmitted diseases

Q209 Reproductive health / contraception basics

Formal health education is important for women for various reasons listed below. Which of the following is an INCORRECT option with regard to formal health education in women?

- A. Helps to reduce child and maternal deaths
- B. Provides knowledge about sexually transmitted diseases
- C. Provides information about nutritional needs of children
- D. Empowers them to decide about child bearing ✓

Q210 Reproductive health / contraception basics

Which of the following contraceptive methods is useful for controlling both unwanted pregnancies and STDs?

- A. Copper-T
- B. Oral pills
- C. Condom ✓
- D. Surgical method



Q211 Reproductive health / contraception basics

Why are contraceptive methods used?

- A. To overcome fatigue
- B. To reduce blood pressure
- C. To prevent bacterial infection
- D. To avoid pregnancy



Q212 Reproductive health / contraception basics

Adolescence begins around the age of 11 and lasts upto:

- A. 18 or 19 years of age
- B. 16 or 17 years of age
- C. 19 or 20 years of age
- D. 15 or 16 years of age



Q213 Reproductive health / contraception basics

Which of the following methods is used to prevent STDs to some extent?

- A. Vasectomy
- B. Tubectomy
- C. Copper-T
- D. Condoms



Q214 Reproductive health / contraception basics

Match the columns.

Group-I	Group-II
I. Mechanical barrier	A. Copper-T
II. Chemical method	B. Vasectomy
III. Device	C. Condom
IV. Surgical method	D. Pill

A. I-C; II-A; III-D; IV-B

B. I-C; II-D; III-A; IV-B



C. I-C; II-B; III-D; IV-A

D. I-C; II-A; III-B; IV-D

Q215 Reproductive health / contraception basics

The WHO has found that young adolescents (ages 10-14) face a higher risk of complications and death as a result of pregnancy than other women. What is the most likely reason for higher MMR (maternal mortality rate) in young women?

A. They are the group with the highest pregnancy rate

B. Their bodies do not support a foetus formation

C. Their body size is often too small to deliver a baby



D. They are ignorant or negligent about health guidelines

Q216 Reproductive health / contraception basics

Which of the following is an example of the barrier method of contraception?

A. Loops

B. Oral pills

C. Condoms



D. Vasectomy



Q217 Reproductive health / contraception basics HINDI - no English version saved

वह महिला, जो बच्चे को जन्म देने वाली है (A Woman About To Give Birth), के लिए सर्वोत्तम विकल्प कौन सा है?

- A. बच्चे को निकालने के लिए सर्जरी (सीजेरियन सेक्शन) कराना
- B. प्रसव में सहायता हेतु प्रशिक्षित नर्स की मदद लेना
- C. बच्चे के जन्म से एक सप्ताह पहले पर्याप्त आराम और पोषण प्राप्त करना
- D. एक सुविधा-संपन्न अस्पताल में जन्म देना ✓

Q218 Reproductive health / contraception basics

What is covered under 'Maternal Health'?

- A. Care of pregnant woman
- B. Care of all new mothers (after childbirth)
- C. Care during pregnancy and childbirth
- D. Care during prenatal, natal and post-natal period ✓

Q219 Reproductive health / contraception basics

How does a loop act as a contraceptive?

- A. It blocks access to the fallopian tubes. ✓
- B. It blocks the release of sperm.
- C. It inhibits implantation of the embryo.
- D. It inhibits release of ovum.

Q220 Reproductive health / contraception basics

Which method of contraception can prevent the transmission of HIV?

- A. Oral contraceptives
- B. Copper T
- C. Copper T and condoms
- D. Barrier methods only ✓



Q221 Reproductive health / contraception basics

Which of the following is a disadvantage of using contraceptive pills?

- A. Both partners in a couple must take pills.
- B. The effect of the pills is irreversible.
- C. They may produce hormonal imbalance. ✓
- D. They can cause menopause.

Q222 Reproductive health / contraception basics

Which method of contraception changes the hormonal balance of the body?

- A. Use of condoms
- B. Intake of pills ✓
- C. Insertion of Copper-T
- D. Surgical blockage of the fallopian tubes

Q223 Respiratory organs and pathway

What part of the respiratory system prevents the air-passage from collapsing?

- A. Trachea
- B. Ribs
- C. Spine
- D. Rings of cartilage ✓

Q224 Respiratory organs and pathway

Voice change during puberty occurs due to _____.

- A. the development of larynx ✓
- B. the development of lungs
- C. cigarette smoking
- D. muscular development



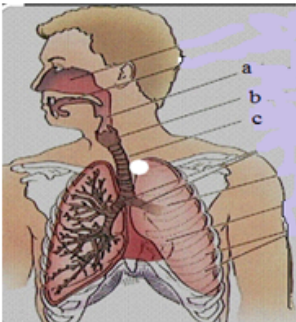
Q225 Respiratory organs and pathway

Some features of a respiratory surface in animals are mentioned below. Select the INCORRECT option.

- A. Has a large surface area
- B. Is very thick ✓
- C. Usually placed inside the body
- D. presence of a mechanism for moving air in and out of this area

Q226 Respiratory organs and pathway

The labelling for the parts a, b and c of the human respiratory system shown below are given as options. Identify the correct option.



- A. a - Larynx, b - Pharynx, c - Trachea
- B. a - Pharynx, b - Trachea, c - Larynx
- C. a - Pharynx, b - Larynx, c - Trachea ✓
- D. a - Trachea, b - Larynx, c - Pharynx

Q227 Respiratory organs and pathway

What is the role of cilia in the respiratory tract?

- A. They help to mix all the gases in the inhaled and exhaled air.
- B. Dust particles in the inhaled air stick to the cilia.
- C. Cilia sweep mucus from the lungs and airway towards the nose. ✓
- D. Ciliated cells produce secretions to trap bacteria and viruses.



Q228 Respiratory organs and pathway

Which of the following ensures that the air passage does NOT collapse during respiration?

- A. Diaphragm
- B. Rings of cartilage
- C. Mucus
- D. Cilia



Q229 Respiratory organs and pathway

Frogs have a pair of lungs like human beings but they can also breathe through their:

- A. spiracles
- B. tracheae
- C. slippery and moist skin
- D. gills



Q230 Respiratory organs and pathway

Some fishes breathe by gulping water. These fish gulp water _____.

- A. more times per minute than an animal breathing air
- B. less times per minute than an animal breathing air
- C. more rapidly when they are near the surface of the water
- D. less rapidly when they live in a turbulent river



Q231 Sense organs (eye/ear/skin/tongue/nose)

Olfactory receptors aid in _____ perception.

- A. taste
- B. smell
- C. touch
- D. sound



Q232 Skeletal & Muscular System

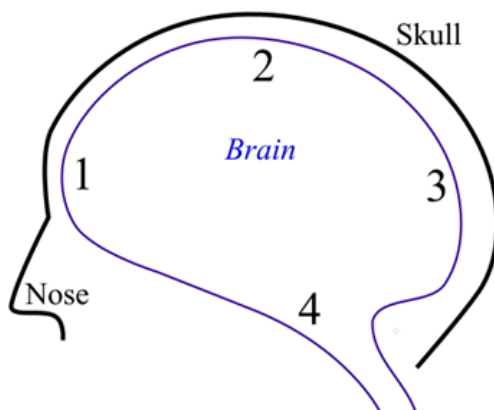
What is good way to get relief from leg muscle cramps after intense activity?

- A. Rubbing legs with an ice-pack
- B. Applying a pain reliever ointment
- C. Gentle massage with warm pads
- D. Drinking warm sweet milk or tea



Q233 Spinal cord and reflex action

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



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



Q1 Balanced Diet & Nutrients

What is the best diet for a pregnant woman?

- A. A special diet prescribed by a dietician ✓
- B. A diet rich in proteins and vitamins
- C. Adding iron supplements to a high calorie diet
- D. Diet rich in Ghee

Q2 Balanced Diet & Nutrients

Which of the following is considering as balanced food in itself and good for adolescents?

- A. Roti/Rice
- B. Pulses
- C. Milk ✓
- D. Vegetables

Q3 Balanced Diet & Nutrients

Which of the following is a balanced food in itself?

- A. Milk ✓
- B. Honey
- C. Meat
- D. Pulses

Q4 Balanced diet and malnutrition

Which of the following statements is NOT a myth?

- A. If a girl looks at boys while menstruating, she becomes pregnant.
- B. The mother is ultimately accountable for her child's sexual orientation.
- C. During menstruation, a girl should not be permitted to work in the kitchen.
- D. Foods like chips and canned snacks are low in nutrition and should be avoided during adolescence/reproductive phase ✓



Q5 Balanced diet and malnutrition

Which of the following combinations is an example of balanced meal?

- A. Roti, pulses, vegetables ✓
- B. Roti, vegetables, cold drink
- C. Rice, chips, cold drink
- D. Burger, chips, cold drink

Q6 Balanced diet and malnutrition

What kind of diet does an adolescent require to develop a healthy reproductive system?

- A. Rich in proteins
- B. Fortified with iron
- C. Low in saturated fats
- D. Nutritionally well-balanced ✓

Q7 Minerals and deficiency (Fe/Ca/I)

Which of the following foods is high in iron?

- A. Jaggery ✓
- B. Milk
- C. Butter
- D. Rice

Q8 Minerals and deficiency (Fe/Ca/I)

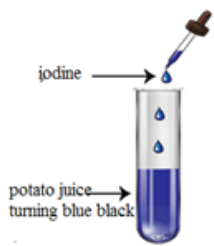
Which mineral is required for the formation of the hormone thyroxin?

- A. Iron
- B. Iodine ✓
- C. Calcium
- D. Potassium



Q9 Nutrients (carbs/proteins/fats/minerals)

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



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

Q10 Nutrients (carbs/proteins/fats/minerals)

Which of the following is the storage carbohydrate in plants?

- A. Glucose
- B. Starch ✓
- C. Sucrose
- D. Glycogen

Q11 Nutrients (carbs/proteins/fats/minerals)

Which of the following foods is called a 'body-building' food?

- A. Food rich in proteins, like peas ✓
- B. Food rich in vitamins, like apples
- C. Food rich in fats, like butter
- D. Food rich in carbohydrates, like wheat



Q12 Nutrients (carbs/proteins/fats/minerals)

Which of the following is used to detect the presence of starch in food?

- A. Litmus solution
- B. Phenolphthalein
- C. Benedict's solution
- D. Iodine solution



Q13 Nutrients (carbs/proteins/fats/minerals)

Which of the following provides proteins for growth?

- A. Apple
- B. Leafy vegetables
- C. Cereals
- D. Pulses



Q14 Nutrients (carbs/proteins/fats/minerals)

Sunil made a paste of rice flour and added a drop of iodine solution to the paste. What will he see?

- A. Formation of small bubbles (effervescence)
- B. The paste turns sky blue
- C. The rice flour emits brown fumes
- D. The paste turns blue-black



Q15 Vitamin deficiency diseases (match)

Which of the following is a symptom of Beriberi?

- A. Poor vision or partial blindness
- B. Weak teeth and bleeding gums
- C. Poor skin health and swollen belly
- D. Weak muscles and low energy



Carrots have a high content of vitamin A. How does eating carrots help a child?

- A. It will strengthen the child's vision. ☒
- B. It will make the child's bones strong.
- C. It will give the child a good amount of energy.
- D. It will help the child resist many diseases.



Q1 Animal tissues (epithelial/connective/muscular/nervous) HINDI - no English version saved

एक विशेष जंतु ऊतक द्वारा किए जाने वाले कुछ कार्यों का उल्लेख नीचे किया गया है:

- a. यह अंगों के अंदर के अवकाश को भर देता है
- b. यह आंतरिक अंगों का सहारा देता है
- c. यह ऊतकों की मरम्मत में सहायक होता है

नीचे दिए गए विकल्पों में से इस ऊतक की पहचान कीजिए।

- A. वसा ऊतक (Adipose tissue)
- B. अवकाशी ऊतक (Areolar tissue) ✓
- C. उपकला ऊतक (Epithelial Tissue)
- D. पेशी ऊतक (Muscular tissue)

Q2 Animal tissues (epithelial/connective/muscular/nervous)

Which of the following parts of the human body is/are NOT lined with squamous epithelium?

- A. Mouth
- B. Oesophagus
- C. Kidney tubules ✓
- D. Skin

Q3 Animal tissues (epithelial/connective/muscular/nervous)

Cartilage tissue is absent in which of the following organs of the body?

- A. Nose
- B. Ear
- C. Larynx
- D. Kidney ✓



Q4 Animal tissues (epithelial/connective/muscular/nervous)

Which of the following tissues is found below the skin and between the internal organs?

- A. Muscular tissue
- B. Adipose tissue
- C. Nervous tissue
- D. Epithelial tissue



Q5 Animal tissues (epithelial/connective/muscular/nervous)

In which of the following is cartilage NOT present?

- A. Larynx
- B. Kidney
- C. Nose
- D. Ear



Q6 Animal tissues (epithelial/connective/muscular/nervous)

Which of the following tissues helps in tissue repair?

- A. Areolar
- B. Cartilage
- C. Ligament
- D. Tendon



Q7 Animal tissues (epithelial/connective/muscular/nervous)

The tissue that stores fat is called:

- A. areolar tissue
- B. connective tissue
- C. adipose tissue
- D. epithelial tissue



Q8 Animal tissues (epithelial/connective/muscular/nervous)

Which of the following forms the lining of kidney tubules and ducts of salivary glands?

A. Cuboidal epithelium



B. Squamous epithelium

C. Columnar epithelium

D. Glandular epithelium

Q9 Animal tissues (epithelial/connective/muscular/nervous)

Which of the following is primarily responsible for the movement of the human body?

A. Combination of nervous and epithelial tissues

B. Combination of muscular and connective tissues

C. Combination of nervous and muscular tissues



D. Combination of nervous and connective tissues

Q10 Animal tissues (epithelial/connective/muscular/nervous)

Which of the following animal tissues contain(s) flattened cells?

A. Cuboidal epithelium

B. Squamous epithelium



C. Plasma cells

D. Mast cells

Q11 Blood and bone as connective tissue

Bone is an example of which of the following types of tissues?

A. Muscular tissue

B. Connective tissue



C. Epithelial tissue

D. Nervous tissue



Q12 Blood and bone as connective tissue

Bone cells are embedded in a hard matrix that is composed of:

- A. phosphorus and potassium
- B. potassium and calcium
- C. fluoride and calcium
- D. calcium and phosphorus



Q13 Chlorophyll and pigments

Chlorophyll pigment is present in which of the following components of a cell?

- A. Chloroplasts
- B. Ribosomes
- C. Mitochondria
- D. Lysosomes



Q14 Movements in plants (tropisms)

Identify the FALSE statement.

- A. The sunflower is a phototropic plant.
- B. Hydrotropism is the tendency to grow in moist areas, i.e., the movement of roots towards high humidity.
- C. Geotropism is demonstrated by the downward migration of roots.
- D. The growth of pollen tubes towards ovules is an example of geotropism



Q15 Movements in plants (tropisms)

The amount of _____ in a plant cell alters its structure in order to facilitate movement.

- A. electro-chemical impulses
- B. protein
- C. water
- D. hormones



Q16 Photosynthesis (process, site, equation)

How and when is oxygen produced as a waste product in plants?

- A. By photosynthesis during the day
- B. By respiration during the day
- C. By photosynthesis during the night
- D. By respiration during the night



Q17 Photosynthesis (process, site, equation)

Why do plants have low energy needs?

- A. Because they only increase in height
- B. Because they produce oxygen
- C. Because they are self-sufficient in terms of food
- D. Because they have a lot of dead cells



Q18 Photosynthesis (process, site, equation)

Which of the following is NOT necessary for autotrophic nutrition?

- A. Light
- B. Chlorophyll
- C. Carbon dioxide
- D. Oxygen



Q19 Photosynthesis (process, site, equation)

What is the waste product in photosynthesis?

- A. Water
- B. Oxygen
- C. Carbon dioxide
- D. Glucose



Q20 Photosynthesis (process, site, equation)

The carbon and energy requirements of plants are fulfilled by which of the following processes?

A. Transpiration

B. Absorption

C. Photosynthesis



D. Translocation

Q21 Photosynthesis (process, site, equation)

Why do we measure the presence of starch in the experiments of photosynthesis?

A. Starch is formed as a result of photosynthesis

B. Glucose formed is converted into starch



C. Starch is soluble in water

D. Glucose is insoluble in water

Q22 Photosynthesis (process, site, equation)

Autotrophs store their food in the form of:

A. glycogen

B. starch



C. protein

D. fats

Q23 Photosynthesis (process, site, equation)

What type of carbohydrate is formed after photosynthesis?

A. Glycogen

B. Fructose

C. Glucose



D. Mannose



Q24 Photosynthesis (process, site, equation)

Which of the following components are necessary for photosynthesis?

- A. Carbon dioxide, water, sunlight and chlorophyll ☒
- B. Carbon dioxide, water, sunlight and oxygen
- C. Oxygen, water, sunlight and chlorophyll
- D. Carbon dioxide, water, oxygen and chlorophyll

Q25 Photosynthesis (process, site, equation)

For green plant tissues undergoing photosynthesis, _____ is a waste product.

- A. carbon dioxide
- B. oxygen ☒
- C. urea
- D. ammonia

Q26 Photosynthesis (process, site, equation)

Which of the following processes is NOT applicable to photosynthesis?

- A. Chlorophyll absorbs light
- B. Water molecule splits into hydrogen and oxygen
- C. Oxidation of carbon dioxide forms carbohydrates ☒
- D. Light energy is converted to chemical energy



Q27 Photosynthesis (process, site, equation)

The different steps in the process of photosynthesis in plants are given below. Which option shows the correct sequence of the different steps in the process?

- a) Splitting of water molecule into hydrogen and oxygen
- b) Light energy converted into chemical energy
- c) Absorption of light energy by chlorophyll
- d) Carbon dioxide reduced to carbohydrates

A. a—b—c—d

B. b—c—d—a

C. c—b—a—d



D. d—c—a—b

Q28 Photosynthesis (process, site, equation)

Name the physico-chemical process by which plants convert light energy into chemical energy.

- A. Physical synthesis
- B. Physico-chemical conversions
- C. Photosynthesis
- D. Starch synthesis



Q29 Photosynthesis (process, site, equation)

During photosynthesis six water molecules are produced from:

- A. $6\text{H}_2\text{O}$
- B. $12\text{H}_2\text{O}$
- C. $18\text{H}_2\text{O}$
- D. $24\text{H}_2\text{O}$



Q30 Photosynthesis (process, site, equation)

Which of the following is a major event in plants during day time?

- A. CO₂ release
- B. O₂ release
- C. CO release
- D. O₃ release



Q31 Photosynthesis (process, site, equation)

The gaseous waste product generated during photosynthesis is:

- A. carbon monoxide
- B. carbon dioxide
- C. nitrogen
- D. oxygen



Q32 Photosynthesis (process, site, equation)

Which of the following takes up carbon dioxide at night and prepares an intermediate which is acted upon by the energy absorbed by the chlorophyll during the day?

- A. Fungi
- B. Bacteria
- C. Blue-green algae
- D. Desert plants



Q33 Photosynthesis (process, site, equation)

During photosynthesis, the carbohydrates synthesised are stored in the form of:

- A. proteins
- B. starch
- C. fats
- D. vitamins



Q34 Photosynthesis (process, site, equation)

Which of the following processes does NOT occur during photosynthesis?

- A. Absorption of light energy
- B. Absorption of oxygen
- C. Reduction of carbon dioxide
- D. Splitting of water molecules



Q35 Photosynthesis (process, site, equation)

What happens when plants are kept in dark room for three days?

- A. Plants utilize protein reserves
- B. Plants starch resources get used up
- C. Plants oil reserves get used up
- D. Plants hibernate for those 3 days



Q36 Plant Biology

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

Which option shows the INCORRECT statement?

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

- A. a
- B. b
- C. c
- D. d



Q37 Plant Biology

In which different parts do the plants store their waste products?

- A. Leaves, lysosomes and leucoplast
- B. Vacuoles, bark and lysosomes
- C. Leaves, vacuoles and Old xylem
- D. Lysosomes, fruits and leucoplasts

Q38 Plant Biology HINDI - no English version saved

पौधों में उत्सर्जन के संबंध में निम्नलिखित कथनों में से एक के अलावा अन्य सभी सही हैं। उस गलत कथन की पहचान कीजिए।

- A. उत्सर्जन का तात्पर्य शरीर के अपशिष्ट उत्पादों को बाहर निकालना है।
- B. पौधे अपशिष्ट उत्पादों का उत्सर्जन करते हैं, किंतु बहुत धीमी गति से करते हैं।
- C. पौधे अपशिष्ट उत्पादों का उत्सर्जन बहुत कम मात्रा में करते हैं।
- D. पौधों में उनके अपशिष्ट उत्पादों के निष्कासन के लिए कई विशिष्ट अंग होते हैं।

Q39 Plant Biology

Identify the FALSE statement.

- A. Photosynthesis produces oxygen as a by-product.
- B. Transpiration is the mechanism by which a plant eliminates surplus water.
- C. Numerous waste products from plants are stored in centrioles.
- D. Gum is an excretory product of plants.

Q40 Plant Biology

Which of the following statements is INCORRECT regarding the process of excretion in plants?

- A. Waste products may be stored in leaves that fall off.
- B. Waste products are stored in cellular vacuoles.
- C. Waste product of photosynthesis is stored as starch.
- D. Waste products may be stored as resins and gums in old xylem.



Q41 Plant Biology

Plants use a completely different process for excretion as compared to animals. Which of the following processes is NOT followed by plants for excretion?

- A. Excess water thrown out by transpiration
- B. Store waste products in Vacuoles
- C. Excrete some waste into the soil
- D. Filter toxic substances through the leaves



Q42 Plant Biology

Which of the following statements is correct regarding the process of waste excretion in plants?

- A. Carbon dioxide is a waste product in photosynthesis.
- B. In plants, excess water is removed by translocation.
- C. Plants do not excrete waste substances into the soil.
- D. In some plants, waste products are stored as resins.



Q43 Plant Biology

Which of the following methods is NOT utilised by plants to eliminate waste?

- A. Storage of waste in cell vacuoles
- B. Excretion of waste in the soil
- C. Elimination of waste by sweating
- D. Elimination of waste by falling leaves



Q44 Plant Biology

Why do many types of trees shed old leaves?

- A. Because the cells die due to old age of the tree
- B. Because the cells become packed with waste materials
- C. Because a tree can support only a certain number of leaves
- D. Because old leaves are broken off due to strong winds



Q45 Plant Biology

The gum produced by various types of trees like Acacia trees is _____.

- A. a form of stored food
- B. a waste product of these plants ✓
- C. an insect-repellent substance
- D. an indication of poor health/infection

Q46 Plant Biology

Some plants produce a sticky substance in the stem which is used to prepare gum adhesives. What is the use of this gum to the plant?

- A. It attracts insect pollinators.
- B. It is a waste product of metabolism. ✓
- C. It has medicinal value.
- D. It helps in the transport of water.

Q47 Plant Biology

Why do plants lack a defined excretory system like kidneys in mammals?

- A. They excrete through their vegetative parts ✓
- B. Because plants do not produce waste materials
- C. Because plants produce only gaseous wastes which diffuse out
- D. Because plants lack a circulatory system

Q48 Plant Hormones

Which hormone is particularly high in fruits?

- A. Gibberellins
- B. Auxins
- C. Cytokinin ✓
- D. Absciscic acid



Q49 Plant Tissues & Transport

Why do the root's water-absorbing epidermal cells frequently have long hair-like parts?

- A. For locomotion
- B. To reduce the amount of surface area available for photosynthesis
- C. To enhance the amount of surface area available for absorption ☒
- D. To enhance the amount of surface area available for transpiration

Q50 Plant nutrition (macro/micronutrients)

Which option is correct regarding the movement of water and mineral ions in the root cells of a plant from the soil?

- A. Ions and water are absorbed together
- B. Water moves in first by diffusion, followed by active transport of ions
- C. Ions move in first by active transport, followed by water along the concentration gradient ☒
- D. Ions move in first by passive transport, followed by water by active transport

Q51 Plant nutrition (macro/micronutrients)

Which of the following organisms shows a parasitic nutritive strategy?

- A. Cuscuta ☒
- B. Mushroom
- C. Amoeba
- D. Yeast

Q52 Plant nutrition (macro/micronutrients)

Metabolic wastes are excreted by aquatic plants via _____.

- A. diffusion ☒
- B. osmosis
- C. active transport
- D. storing



Q53 Plant nutrition (macro/micronutrients)

Which of the following statements about plant nutrition is INCORRECT?

- A. Carbon is taken up by green plants from atmospheric carbon dioxide.
- B. Iron and manganese are both considered micronutrients.
- C. Minerals and nutrients are poorly absorbed by water. ✓
- D. Plants, in general, make use of the water in the soil at the root zone.

Q54 Plant nutrition (macro/micronutrients)

Which of the following is an essential element used by the plants to synthesise proteins?

- A. Nitrogen ✓
- B. Iron
- C. Magnesium
- D. Boron

Q55 Plant nutrition (macro/micronutrients)

Which of the following is an insectivorous plant?

- A. Cuscuta
- B. Mushroom
- C. Pitcher ✓
- D. Lichens

Q56 Plant nutrition (macro/micronutrients)

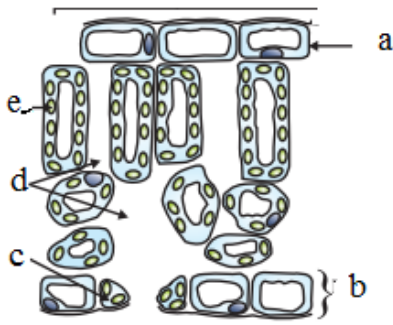
Which of the following minerals help crops withstand pests?

- A. Potassium, Calcium and Magnesium ✓
- B. Sodium, Calcium and Magnesium
- C. Calcium, Potassium and Sodium
- D. Magnesium, Iron and Boron



Q57 Plant tissues (meristematic/permanent)

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



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

Q58 Plant tissues (meristematic/permanent)

_____ is represented by the root apex's constantly dividing cells.

- A. Meristematic growth
- B. Germination
- C. Increase hormonal level
- D. Maturation

Q59 Plant tissues (meristematic/permanent)

Which tissue in the coconut husk makes it hard and stiff?

- A. Sclerenchyma
- B. Parenchyma
- C. Collenchyma
- D. Guard cells



Q60 Plant tissues (meristematic/permanent)

Aerenchyma cells are present in _____.

- A. pea
- B. neem
- C. cactus
- D. common water hyacinth



Q61 Plant tissues (meristematic/permanent)

Cork is impermeable to water and gases because of _____ found within its cells.

- A. suberin
- B. cellulose
- C. cutin
- D. lignin



Q62 Plant tissues (meristematic/permanent)

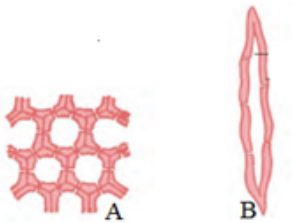
In plants, the cells of meristematic tissue undergo a process wherein they lose their ability to divide, take up a permanent shape and size and specialise to perform a specific function. What is this process known as?

- A. Differentiation
- B. Development
- C. Regeneration
- D. Proliferation



Q63 Plant tissues (meristematic/permanent)

Both the diagrams A and B given below are of Sclerenchyma tissue in plants, yet they look different. Why?



- A. A – Radial section; B – Transverse section
- B. A – Longitudinal section; B – Transverse section
- C. A – Transverse section; B – Longitudinal section
- D. A – Longitudinal section; B – Oblique section



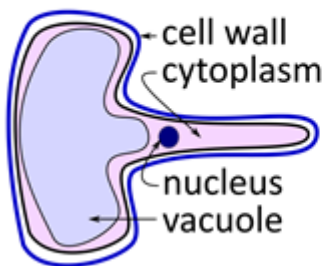
Q64 Plant tissues (meristematic/permanent)

Parenchyma tissue is the most common simple permanent tissue in plants. Why is it known as Chlorenchyma and Aerenchyma in some plants?

- A. Chlorenchyma — Has chlorophyll for photosynthesis (leaves)
Aerenchyma — Has air spaces (aquatic plants) and helps them to float
- B. Chlorenchyma — supports the plant
Aerenchyma — Has chlorophyll for photosynthesis (leaves)
- C. Chlorenchyma — Has air spaces (aquatic plants) and helps them to float
Aerenchyma — has chlorophyll for photosynthesis
- D. Chlorenchyma — Has air spaces (aquatic plants) and helps them to float
Aerenchyma — provides mechanical support

Q65 Plant tissues (meristematic/permanent)

Where in a plant can we find such a cell?

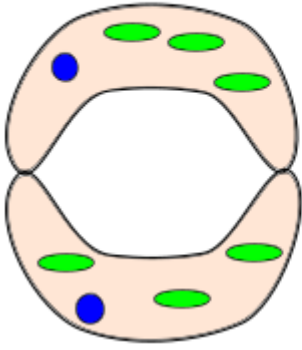


- A. Seed (germination)
- B. Root
- C. Xylem
- D. Shoot tip



Q66 Plant tissues (meristematic/permanent)

Where can you find the type of cells shown in the following figure?



A. Leaves and shoots



B. Stems and roots

C. Roots and flowers

D. Flowers and leaves

Q67 Plant tissues (meristematic/permanent)

Meristematic tissue cells lack _____.

A. cell wall

B. cytoplasm

C. nucleus

D. vacuoles



Q68 Reproduction in Plants

Which of the following is NOT TRUE about vegetative propagation in plants?

A. Plants are grown from root, stem and leaves.

B. Plants that have lost the capacity to produce seeds can be grown.

C. Plants produced are genetically different from the parent plant.



D. Plants bear flowers and fruits earlier than those produced from seeds.



Q69 Reproduction in Plants

Which of the following parts of a flower develops into a fruit after fertilisation?

- A. Ovule
- B. Ovary
- C. Pistil
- D. Petal



Q70 Reproduction in Plants

Where can we find a plumule in a plant?

- A. In a leaf
- B. In a flower
- C. In a seed
- D. In the root tips



Q71 Reproduction in Plants

Which of the following statements regarding reproduction in flowering plants is FALSE?

- A. Reproduction may occur through seeds.
- B. Reproduction may occur from fragments of stems.
- C. Reproduction may occur through spores.
- D. Reproduction may occur from tissues separated from the plant and grown on an artificial medium.



Q72 Reproduction in plants / pollination

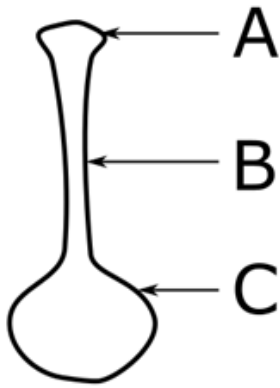
Which reproductive parts of the flower contain the germ cells?

- A. Sepals and stamen
- B. Anther and sepals
- C. Petals and style
- D. Stamens and pistils



Q73 Reproduction in plants / pollination

Identify the correct label for the following.



A. A – Anther; B – Filament; C – Ovary

B. A – Anther; B – Style; C – Ovary

C. A – Stigma; B – Style; C – Ovary



D. A – Stigma; B – Style; C – Sepal

Q74 Reproduction in plants / pollination

Which of the following is the female reproductive part of a flower?

A. Petal

B. Pistil



C. Stamen

D. Sepal

Q75 Reproduction in plants / pollination

Which of the following is NOT a component of the male reproductive part of flower?

A. Filament

B. Style



C. Anther

D. Pollen



Q76 Reproduction in plants / pollination

Which of the following plants produce unisexual flowers?

- A. Mustard and Hibiscus
- B. Watermelon and Papaya
- C. Hibiscus and Papaya
- D. Watermelon and Mustard



Q77 Reproduction in plants / pollination

After fertilisation in plants, the ovule gets converted into:

- A. fruit
- B. embryo
- C. seed
- D. zygote



Q78 Reproduction in plants / pollination

Which of the following are bisexual flowers?

- A. Watermelon and papaya
- B. Mustard and watermelon
- C. Hibiscus and mustard
- D. Papaya and hibiscus



Q79 Reproduction in plants / pollination

Which of the following develops into a seedling under appropriate conditions?

- A. Cotyledons
- B. Endosperm
- C. Seed coat
- D. Embryo



Q80 Reproduction in plants / pollination

The reproductive parts of a flower are:

- A. sepals and petals
- B. stamens and pistil
- C. stamens and petals
- D. pistil and sepals

Q81 Reproduction in plants / pollination

What happens to a pollen grain first after it is transferred on a stigma?

- A. It dissolves to release the nucleus into the ovule.
- B. It grows a tube to transfer the nucleus to the ovule.
- C. It undergoes meiosis to produce the male gamete.
- D. It travels through the style to reach the ovary.

Q82 Reproduction in plants / pollination

After fertilization, what will be the future of these parts of a flower- stamens, style, stigma, petal and sepal?

- A. They shed off except sepal which may be persistent in some plants
- B. Persistent except sepal shed off in mostly plants
- C. Stigma, style, stamen shed off except petal and sepal in some plants
- D. Stigma, style shed off except stamen, petal and sepal

Q83 Respiration in plants

How will the plant be affected if the rate of respiration becomes more than the rate of photosynthesis?

- A. Plant growth will increase due to more energy produced.
- B. Plant growth will slow down.
- C. More food will be oxidised than that produced, and plant will starve and die.
- D. Plants will store a lot amount of food



Q84 Respiration in plants

In which part of the leaves do massive amounts of gaseous exchange take place during respiration?

- A. Stomata
- B. Grana
- C. Thylakoid
- D. Chlorophyll

Q85 Respiration in plants

When is carbon dioxide produced as a waste product in plants?

- A. During respiration
- B. During photosynthesis
- C. During transpiration
- D. During both respiration and photosynthesis

Q86 Respiration in plants

How are the gaseous waste products produced in the hard stem of big plants and trees removed by the plant?

- A. Through stomata
- B. Through lenticels
- C. Through transpiration
- D. Through osmosis

Q87 Respiration in plants

Without photosynthesis, _____ removal is the main exchange activity at night.

- A. oxygen
- B. hydrogen
- C. carbon dioxide
- D. water



Q88 Respiration in plants

From where do the roots of the plants take in oxygen?

- A. From the water present in the soil
- B. From the air spaces in between the soil particles ✓
- C. The oxygen taken by stomata reaches the roots
- D. Roots do not need oxygen

Q89 Respiration in plants HINDI - no English version saved

पौधों में श्वसन के संबंध में गलत कथन का चयन कीजिए।

- A. विसरण द्वारा ऑक्सीजन और CO_2 का विनिमय होता है
- B. कार्बन डाइऑक्साइड दिन के समय के दौरान वायुमंडल में मिश्रित हो जाती है ✓
- C. बड़े अंतरकोशिकीय स्थानों के कारण कोशिकाएं वायु के संपर्क में होती हैं
- D. पौधे रंध्रों द्वारा गैसों का विनिमय करते हैं

Q90 Respiration in plants

Many of the excretory products produced by plants are useful to humans. Identify the product that is harmful for humans when inhaled.

- A. Carbon dioxide ✓
- B. Resins
- C. Gums
- D. Oxygen

Q91 Respiration in plants

Which of the following are the end products of respiration in plants?

- A. CO_2 , H_2O and Energy ✓
- B. O_2 and Energy
- C. CO_2 and O_2
- D. Glucose and O_2



Q92 Respiration in plants

In plants the exchange of carbon dioxide and oxygen takes place by:

- A. osmosis
- B. plasmolysis
- C. diffusion
- D. fermentation



Q93 Respiration in plants

Plant root cells also need oxygen to generate energy. So roots take up air from:

- A. cytoplasm
- B. water
- C. air spaces between soil particles
- D. stomata



Q94 Respiration in plants

Many unicellular algae like *Chlamydomonas* live in water. How do they take in oxygen for respiration?

- A. They absorb dissolved oxygen via diffusion like *Amoeba*.
- B. They have tiny openings (spiracles) to take in gases.
- C. They store oxygen evolved via photosynthesis in their vacuoles.
- D. They live via anaerobic respiration.



Q95 Respiration in plants

Which of the following options shows the main waste products produced by plants?

- A. Only CO_2 and O_2
- B. Only O_2 and water vapour
- C. Only CO_2 and water vapour
- D. CO_2 , O_2 and water vapour



Q96 Respiration in plants

Generally, plants have low energy needs when compared to animals. The main reason for this is the:

- (A) presence of large proportion of dead cells in the tissues
- (B) absence of mobility
- (C) plants synthesise their own food
- (D) plants release O_2 during respiration

A. A and B



B. A and C

C. A and D

D. B and C

Q97 Transpiration

Which of the following parts helps in exchange of gases in plants?

A. Cell membrane

B. Nucleus

C. Stomata



D. Guard cells

Q98 Transpiration

Guard cells are involved in the process of _____.

A. circulation

B. transpiration



C. tropic movements

D. transport of food



Q99 Transpiration

Which of the following options states the different ways of excretion in plants?

- A. Only transpiration and diffusion
- B. Only transpiration and storage
- C. Only diffusion and storage
- D. Transpiration, diffusion and storage



Q100 Transpiration

What changes take place in the guard cells that cause the opening of stomata?

- A. Water enters the guard cells and they shrink
- B. Water comes out of the guard cells and they shrink
- C. Water enters the guard cells and they swell
- D. Water comes out of the guard cells and they swell



Q101 Transpiration

Which of the following is NOT a main site of transpiration?

- A. Cuticle
- B. Lenticels
- C. Stomata
- D. Intracellular spaces



Q102 Transpiration

Some of the advantages of transpiration to plants are mentioned below. Select the option that is a disadvantage.

- A. Provides water to leaf for photosynthesis
- B. Helps in transporting mineral ions
- C. causes cooling of plants by evaporation
- D. can cause wilting of plants



Q103 Transpiration

Which of the following statements correctly describes water transport in plants?

- A. The process in which loss of water takes place in the form of water vapour through stomata is called transpiration. ✓
- B. The process of water loss from stomata requires energy in the form of ATP.
- C. The process by which water is pulled from the xylem cells of the roots into leaves is called translocation.
- D. The process which is the main driving force of water into the xylem during the day is root pressure.

Q104 Transpiration

The loss of water in the form of vapour from the aerial parts of the plant is known as:

- A. evaporation
- B. transpiration ✓
- C. translocation
- D. transportation

Q105 Transpiration

What role does transpiration play in the transport of water in plants?

- A. It exerts a suction force.
- B. It exerts a pumping force.
- C. It promotes diffusion of water. ✓
- D. It promotes growth of roots.

Q106 Transpiration

By which process do plants excrete excess water?

- A. Transportation
- B. Translocation
- C. Transpiration ✓
- D. Photosynthesis



Q107 Transpiration

Name the tiny pores present on leaves of plants.

- A. Guard cells
- B. Stomata
- C. Chloroplasts
- D. Lenticels



Q108 Transpiration

Plants release excess water through a process called:

- A. evaporation
- B. transportation
- C. translocation
- D. transpiration



Q109 Transpiration

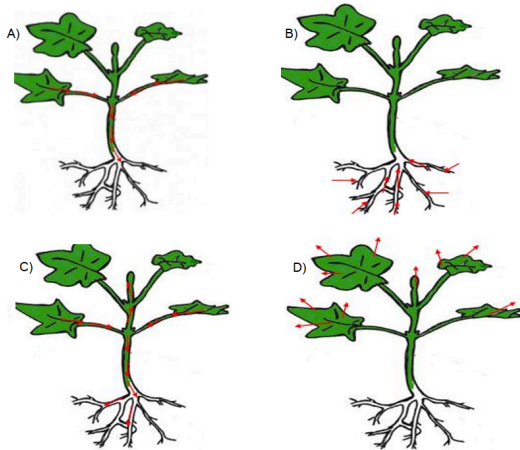
Which of the following helps in temperature regulation in plants?

- A. Photosynthesis
- B. Absorption
- C. Transpiration
- D. Root pressure



Q110 Xylem and phloem functions

Which figure is the correct representation of the movement of food in phloem?



A. A

B. B

C. C



D. D

Q111 Xylem and phloem functions

The phloem is the plant's vascular tissue that transports _____.

A. water

B. nutrients



C. Gases

D. oxygen

Q112 Xylem and phloem functions

Some features of transportation in plants are mentioned below. Which option shows the INCORRECT feature?

A. Xylem transports water and Phloem transports food

B. Movement of both water and food is bidirectional



C. Vessels and Tracheids are dead cells and Sieve tubes are living

D. Water movement is by simple physical forces; food movement requires energy



Q113 Xylem and phloem functions

Which of the following excretory products is stored in the old xylem of the plants?

A. Resin



B. Morphin

C. Carbon dioxide

D. Citric acid

Q114 Xylem and phloem functions

What is the process of transport of soluble products of photosynthesis and other materials from the leaves to other tissues of the plant called?

A. Tropic movement

B. Translocation



C. Guttation

D. Transpiration

Q115 Xylem and phloem functions

The food prepared by the leaves of the plants is transported by phloem to which parts of the plant?

A. Only to roots and fruits

B. Only to seeds and growing regions

C. Only to roots and seeds

D. To storage organs of roots, seeds, fruits and growing regions



Q116 Xylem and phloem functions HINDI - no English version saved

जाइलम के कौन से तत्व मृत कोशिकाओं से बने होते हैं, और फिर भी पौधों में जल और खनिजों के परिवहन के लिए उत्तरदायी होते हैं?

A. वाहिनिका (Tracheids) और जाइलम मृदूतक (Xylem parenchyma)

B. वाहिनिका (Tracheids) और वाहिका (Vessels)



C. वाहिनिका (Tracheids) और जाइलम तंतु (Xylem Fibre)

D. वाहिका (Vessels) और जाइलम मृदूतक (Xylem parenchyma)



Q117 Xylem and phloem functions

Name the process by which soluble products of photosynthesis are transported to other parts of the plant.

- A. Transpiration
- B. Diffusion
- C. Translocation
- D. Osmosis



Q118 Xylem and phloem functions

Which cells in the xylem are responsible for storing food?

- A. Tracheids
- B. Parenchyma
- C. Vessels
- D. Xylem fibres



Q119 Xylem and phloem functions

How are the products of photosynthesis transported from leaves to other parts of the plant?

- A. Through the xylem
- B. Through the phloem
- C. Through the tracheid
- D. Through the stomata



Q120 Xylem and phloem functions

In plants, diffusion is mainly responsible for the process of transportation. However for transport of some substances, energy is needed. Which option shows the substances transported using energy from ATP?

- A. Water and minerals
- B. Only amino acids
- C. Water, minerals and food
- D. Food, amino acids and hormones



Q121 Xylem and phloem functions

What product(s) is/are transported by the plant transport system from the leaves and roots?

- A. Water only
- B. Carbohydrates and minerals
- C. Energy stores and raw materials
- D. Carbohydrates only



Q122 Xylem and phloem functions

The transport of food and other substances takes place in the sieve tubes with the help of adjacent companion cells both in upward and downward directions. Name the process.

- A. Osmosis
- B. Diffusion
- C. Translocation
- D. Transpiration



Q123 Xylem and phloem functions

Which of the following sites are used for storage of waste products in plants?

- A. Phloem fibres
- B. Old xylem
- C. Guard cells
- D. Root hairs



Q124 Xylem and phloem functions

Which of the following statements is correct with respect to phloem?

- A. Sieve tubes in phloem are made up of dead cells.
- B. Phloem carries photosynthetic products from leaves to other plant parts.
- C. Phloem transport is uni-directional.
- D. Companion cells of phloem have perforated walls.



Q125 Xylem and phloem functions

Which of the following types of cells are NOT a part of vascular tissue in plants?

- A. Tracheids
- B. Vessels
- C. Collenchyma
- D. Parenchyma



Q126 Xylem and phloem functions

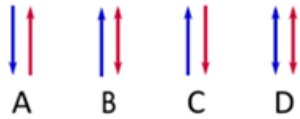
Which of the following components of xylem do NOT function in the transport of water?

- A. Xylem tracheids
- B. Xylem vessels
- C. Xylem fibres
- D. Xylem parenchyma



Q127 Xylem and phloem functions

In the following diagrams, the blue arrows represent transport through the xylem vessels and the red arrows represent transport through the phloem vessels. Which diagram shows the correct direction of transport in the plant stem?



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



Q128 Xylem and phloem functions

In plants during the spring season, food material stored in the roots usually moves into the _____.

- A. leaves
- B. fruits
- C. flowers
- D. buds



Q129 Xylem and phloem functions

Sieve plates are found in the _____.

- A. phloem parenchyma cells
- B. phloem fiber cells
- C. phloem tube cells
- D. phloem companion cells



Q130 Xylem and phloem functions

Which of the following transports products of photosynthesis from the leaves to the other parts of the plant?

- A. Xylem
- B. Phloem
- C. Sclerenchyma
- D. Collenchyma



Q131 Xylem and phloem functions

Where can we find such cells with thickened cell walls in a plant?



- A. In xylem
- B. In phloem
- C. In epidermis
- D. In meristem



Q132 Xylem and phloem functions

Which among the following statement is FALSE about transportation through phloem?

- A. Transportation in phloem is by Utilization of energy (ATP)
- B. Sucrose is transported initially by using energy into phloem
- C. Transportation in phloem uses GTP & CTP
- D. Increase in osmotic pressure due to sucrose causes water to move into phloem.



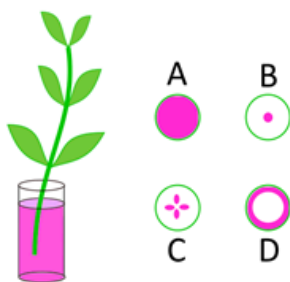
Q133 Xylem and phloem functions

Which of the following pathways correctly shows the transportation of water from soil to leaves?

- A. Soil → root hairs → root cortex → xylem of roots → xylem of stem → xylem of leaf ✓
- B. Soil → root cortex → root hairs → xylem of roots → phloem of roots → phloem of stem → phloem of leaf
- C. Soil → root hairs → xylem of roots → phloem of roots → xylem of leaf
- D. Soil → root hairs → root cortex → xylem of roots → phloem of leaf

Q134 Xylem and phloem functions

A cut twig is placed in coloured water as shown in the diagram below. After a few hours, when the twig is cut, how will it look (where will we find the coloured tissue)?



- A. Like figure A
- B. Like figure B ✓
- C. Like figure C
- D. Like figure D

Q135 Xylem and phloem functions

What types of waste products are stored in Old Xylem?

- A. Growth promoting substances
- B. Ammonia, urea and amino acids
- C. Resins and gums ✓
- D. Uric acid



Q136 Xylem and phloem functions

What makes the xylem vessels waterproof?

A. Lignin



B. Cutin

C. Cellulose

D. Suberin

Q137 Xylem and phloem functions

In plants, resins and gums are stored especially in _____.

A. old phloem

B. old xylem



C. old pith

D. old cortex



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Q1 Rajasthan/Gujarat/Himalayan tribe grouping (Bhil, Meena, Gujjar, Bhotia, Gaddi)

The Bishnoi community contributes to forest and animal conservation in _____.

A. Rajasthan



B. Gujarat

C. Madhya Pradesh

D. Haryana

Q2 Rajasthan/Gujarat/Himalayan tribe grouping (Bhil, Meena, Gujjar, Bhotia, Gaddi)

In Rajasthan, _____ is a nature loving community that conserves forest and wildlife.

A. Bishnoi



B. Banjara

C. Bhil

D. Chhipa



Q1 Architectural Styles

What is a 'bawri'?

- A. A narrow bore tube-well
- B. A traditional way of collecting water ☒
- C. An underground tank to store water
- D. A canal providing water to agricultural land



Q1 Conventional Energy - Thermal, Hydro, Nuclear

Out of the following choose the conventional source of energy:

- A. Tidal energy
- B. Bio Mass energy
- C. Nuclear energy
- D. Hydroelectric energy

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q2 Forest Types & Distribution

Some consequences of creating monocultures are mentioned below. Which of these are the advantages?

- a. Huge areas are cleared of vegetation
- b. They destroy large amount of biodiversity
- c. Industries can access specific products
- d. They generate revenue for the forest department
- e. Varied needs of local people are not met

- A. a and e
- B. c and d
- C. a, b and e
- D. b and e

**Q3** Ganga System - source (Gangotri), tributaries, mouth

Which Indian River that starts from Gangotri is polluted largely by human activities and industries?

- A. Brahmaputra
- B. Krishna
- C. Cauvery
- D. Ganga



Q4 Important Trees/Species (Sal, Teak, Sandalwood)

_____ are used to make bidis.

- A. Tamarind leaves
- B. Tendu leaves
- C. Coconut leaves
- D. Oak leaves

Q5 Important Trees/Species (Sal, Teak, Sandalwood)

What type of forest underwent a remarkable recovery with the active and willing participation of the local community in the Arabari forest range of Midnapore district?

- A. Teak forests
- B. Neem forests
- C. Sal forests
- D. Sandalwood forests

Q6 Irrigation Projects & Canals

_____ is a type of water collection system found in Madhya Pradesh.

- A. Bundhis
- B. Surangams
- C. Kattas
- D. Kulhs

Q7 Irrigation Projects & Canals HINDI - no English version saved

भारत के किस राज्य में पेयजल के भंडारण के लिए 'खड़ीन (Khadins)' बनाए जाते हैं?

- A. पश्चिम बंगाल
- B. गुजरात
- C. राजस्थान
- D. कर्नाटक



Q8 Irrigation Projects & Canals

In which Indian state do 'Ahars', a type of water harvesting system, exist?

- A. Bihar
- B. Madhya Pradesh
- C. Rajasthan
- D. Kerala

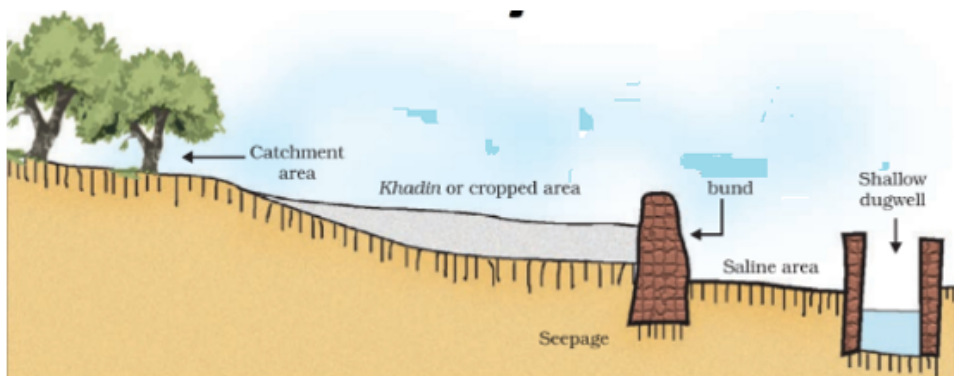
Q9 Irrigation Projects & Canals

In which state/UT of India can we find the Indira Gandhi Canal?

- A. West Bengal
- B. New Delhi
- C. Rajasthan
- D. Kerala

Q10 Irrigation Projects & Canals

Identify the water harvesting structure shown below.



- A. Kattas
- B. Bandharas
- C. Khadin System
- D. Tank



Q11 Irrigation Projects & Canals

Humans has been practicing water harvesting since ancient times. Some different forms of water harvesting structures are given in Column I and the place they are practiced in Column II. Select the option that shows the correct matching.

Column I (Water harvesting structures)	Column II (Places where they are practiced)
A. Surangams	i) Bihar
B. Pynes	ii) Rajasthan
C. Kulhs	iii) Kerala
D. Khadins	iv) Himachal Pradesh

- A. A-i, B-ii, C-iii, D-iv
- B. A-ii, B-iii, C-i, D-iv
- C. A-iii, B-ii, C-iv, D-i
- D. A-iii, B-i, C-iv, D-ii

**Q12** Irrigation Projects & Canals

The state of Rajasthan regained its lost greenery due to which canal?

- A. Agra Canal
- B. Indira Gandhi Canal
- C. Munak Canal
- D. Sirhind Canal

**Q13** Irrigation Projects & Canals

Which canal brought considerable greenery to Rajasthan?

- A. Agra canal
- B. Buckingham canal
- C. Indira Gandhi canal
- D. Handri-Neeva canal

**Q14** Irrigation Projects & Canals

Parts of which present state had evolved a local system of canal irrigation called 'kulhs' over 400 years ago?

- A. Himachal Pradesh
- B. Jammu and Kashmir
- C. Madhya Pradesh
- D. Uttar Pradesh



Q15 Major Dams & River Projects

Regulating the natural flow of a river by building large dams affects agriculture in downstream regions by _____.

- A. lowering the water table due to reduced water flow
- B. blocking annual deposits of mineral rich sediment from floods
- C. making the water salty due to reduced water supply
- D. preventing the recharging of ground water during monsoons

Q16 Multipurpose River Valley Projects (Bhakra, DVC, Nagarjuna Sagar)

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

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

Q17 Multipurpose River Valley Projects (Bhakra, DVC, Nagarjuna Sagar)

Which aspect of large dams has NOT been criticised?

- A. Social
- B. Economic
- C. Environmental
- D. Psychological



Q18 Multipurpose River Valley Projects (Bhakra, DVC, Nagarjuna Sagar)

Which of the following is/are advantage(s) of building dams?

- i) Stores water for irrigation
- ii) No equitable distribution of water
- iii) Stores water for generating electricity
- iv) Canals from dams help in transferring water to great distances
- v) Benefits only to a few people

A. Only ii

B. i, iii and iv



C. Only v

D. ii and v

Q19 Multipurpose River Valley Projects (Bhakra, DVC, Nagarjuna Sagar)

Which of the following issues is NOT a problem concerning large dams?

- A. Deforestation and the loss of biological diversity
- B. Displacement of people
- C. Storage of water for irrigation
- D. Low benefits compared to costs involved



Q20 Multipurpose River Valley Projects (Bhakra, DVC, Nagarjuna Sagar)

Which of the following is the least important reason for building a large dam?

- A. Guaranteed supply of water for households
- B. Renewable source of electricity for a region
- C. Control of flooding in downstream areas
- D. Site for boating, fishing and picnics for families



Q21 Multipurpose River Valley Projects (Bhakra, DVC, Nagarjuna Sagar)

Many groups like the 'Narmada Bachao Andolan' oppose building of big dams. What is the negative social impact of a big dam that such groups oppose?

- A. People have to wait for many years (decades) to get benefits.
- B. It causes flash floods in the downstream area.
- C. It displaces people in the upstream reservoir area. ✓
- D. It leads to conflicts between people of different States.

Q22 Multipurpose River Valley Projects (Bhakra, DVC, Nagarjuna Sagar)

Tawa dam was built in:

- A. 1960s
- B. 1970s ✓
- C. 1980s
- D. 1990s

Q23 Sex Ratio 2011 (national 943, Kerala highest / Haryana lowest)

For a healthy society, what should be the distribution of males and females in a given population?

- A. Equal number of males and females ✓
- B. More females than males
- C. More males than females
- D. More aged than young

Q24 Soil Erosion & Conservation HINDI - no English version saved

मृदा अपरदन पर्यावरण के लिए मुख्य खतरों में से एक है। निम्नलिखित में से कौन सा मृदा अपरदन को रोकने में सहायक हो सकता है?

- A. समोच्चरेखीय जुताई ✓
- B. मवेशी चारण
- C. अधिक खेती
- D. सिंचाई के घटिया तरीके



Q25 Soil Erosion & Conservation

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

A. Crop rotation

B. Overgrazing



C. Planting trees

D. Terrace farming

Q26 Soil Erosion & Conservation

Watershed management emphasizes on:

- a. Conservation of water and soil
- b. Improve primary sources of land and soil
- c. Increase production and income of the watershed community
- d. Increasing income only by increasing agriculture and crop yield

Which among the above statements are correct with respect to Watershed management?

A. a and b

B. b and c

C. a, c and d

D. a, b and c



Q27 Soil Erosion & Conservation

What is the environmental loss if many trees are cut in a forest to get wood?

A. It will provide open space for other trees to grow.

B. It will give livelihood to many poor people.

C. It will lead to soil erosion and degradation.



D. It will let in more sunlight to let smaller plants to grow.



Q28 Soil Erosion & Conservation

Why was the use of 'kulhads' discontinued?

- A. Use of clay resulted in the loss of the fertile top-soil ☒
- B. They were very expensive
- C. They posed a health risk
- D. They hurt the animals

Q29 Soil Erosion & Conservation

Which of the following methods prevents or reduces wind erosion of soil in open areas?

- A. Using trees or large shrubs as fences for a garden ☒
- B. Using pots to grow vegetables at home
- C. Following crop rotation in agriculture
- D. Covering up open areas with tiles or cement



Q1 Inner (Terrestrial) Planets - Mercury/Venus/Earth/Mars

The thick white and yellowish clouds of the planet Venus are made up of which of the following acids?

A. Acetic acid

B. Hydrochloric acid

C. Nitric acid

D. Sulphuric acid



Q1 Macroeconomics - Definition & Scope

Respiration reaction in humans is an example of _____.

- A. endothermic reaction
- B. redox reaction
- C. displacement reaction
- D. exothermic reaction



Q1 Endemic, endangered, extinct species

What are the reasons for decline in the number and species of wildlife?

- a. Demand for hides and meat
- b. Deforestation resulting in lack of food and space
- c. Keeping the animals in protected areas
- d. Making and supporting laws for conserving the habitats
- e. Natural calamities like floods and earthquakes

A. Only c

B. Only d

C. a, b and e



D. Only c and d



Q1 Global warming causes and effects

Which of the following leads to global warming?

- A. Afforestation
- B. Increase in CO₂ percentage in the air
- C. Increase in the levels of atmospheric ozone
- D. Accumulation of plastic waste

Q2 Global warming causes and effects

Which continent will suffer the most from global warming in terms of the number of people affected?

- A. Asia; oceans will rise
- B. North America; Arctic ice melt
- C. Europe; urban flooding
- D. Antarctica; ocean warming

Q3 Global warming causes and effects

Which of the following changes in our eating habits will have the biggest impact on our environment?

- A. Growing our own food
- B. Giving up meat and animal products
- C. Stopping wastage of food
- D. Avoiding processed food

Q4 Global warming causes and effects

Which of the following natural resources do we need to use judiciously to prevent intense global warming?

- A. Coal and petroleum
- B. Petroleum and water
- C. Coal and water
- D. Metals and coal



Q5 Greenhouse effect and greenhouse gases

Which of the following is an example of greenhouse gas?

- A. Carbon dioxide
- B. Carbon monoxide
- C. Sulphur dioxide
- D. Phosphorus pentoxide

Q6 Ozone depletion and ODS (CFCs)

The manufacturing of refrigerators that do not release chlorofluorocarbons has been made mandatory throughout the world. How will this help to prevent ozone depletion?

- A. It will help convert oxygen molecules into ozone.
- B. CFCs will change into ozone molecules.
- C. It will reduce the production of CFCs from oxygen molecules.
- D. It will reduce the release of CFCs that react with ozone molecules.

Q7 Ozone depletion and ODS (CFCs)

A chemical that contributes to the depletion of the ozone layer is:

- A. chlorofluorocarbon
- B. carbon tetrachloride
- C. methane
- D. phosphorus pentoxide

Q8 Ozone depletion and ODS (CFCs)

When did the ozone levels in the atmosphere start to reduce?

- A. 1980
- B. 1965
- C. 1990
- D. 1995



Q9 Ozone depletion and ODS (CFCs)

Which of the following is the best action to increase the thickness of the ozone layer?

- A. Reduce emission of carbon dioxide
- B. Reduce use of fluorine-based refrigerants ✓
- C. Increase the percentage of oxygen in our atmosphere
- D. Release ozone-filled balloons that will burst at high altitude

Q10 Ozone depletion and ODS (CFCs)

Which of the following chemicals are known to deplete the ozone layer in the atmosphere?

- A. SO₂
- B. NO₂
- C. CFCs ✓
- D. CO

Q11 Ozone hole and effects

Ozone depletion in the stratosphere layer of the atmosphere is responsible for which of the following

- A. Increase of UV radiations reaching Earth's surface ✓
- B. Increase in greenhouse effect
- C. Cooling of Earth's atmosphere
- D. Increase in infrared radiations in the troposphere

Q12 Ozone hole and effects

Which of the following is NOT a result of the ozone layer depletion?

- A. Tsunami ✓
- B. The Earth getting more UV rays from the Sun
- C. Skin cancer
- D. Immune deficiency disorders



Q13 Ozone hole and effects

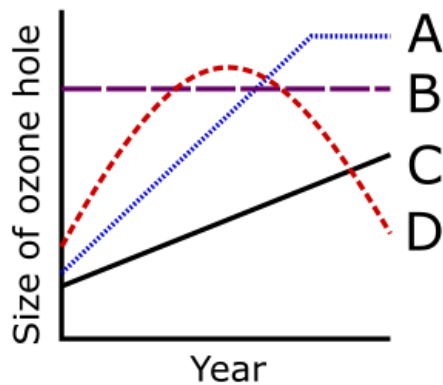
Where is the ozone hole located?

- A. Over the Equator
- B. Over the North and South Poles
- c. Over industrialised Europe
- D. Over Antarctica



Q14 Ozone hole and effects

Which line best explains changes in the size of the ozone hole over the years?



- A. Line A – it was growing but now it is not growing
- B. Line B – the size has not changed
- c. Line C – it is growing steadily
- D. Line D – it was growing but now it is shrinking



Q15 Ozone hole and effects

During which period did the amount of ozone in the atmosphere begin to drop sharply?

- A. In the 1980s
- B. In the 1970s
- c. In the 1960s
- D. In the 1990s



Q16 Ozone layer and its function

What is the product of UV radiations acting on oxygen molecules at higher levels of the atmosphere?

- A. Carbon dioxide
- B. Chlorofluorocarbons
- C. Ozone
- D. Water



Q17 Ozone layer and its function

What will happen if the ozone layer becomes thinner?

- A. Cases of skin cancer will increase
- B. Temperature of Earth will increase
- C. Amount of surface ozone will increase
- D. The ozone hole will close by redistribution



Q18 Ozone layer and its function

Ozone at the higher levels of the atmosphere is a product of UV radiation acting on _____ molecule.

- A. oxygen (O_2)
- B. carbon dioxide (CO_2)
- C. carbon monoxide (CO)
- D. sulphur dioxide (SO_2)



Q1 Biosphere reserves of India HINDI - no English version saved

निम्नलिखित में से कौन सा जीव पचमढ़ी बायोस्फीयर रिज़र्व में पाए जाने वाले जीवों में शामिल है?

- A. सांभर
- B. चिंकारा
- C. कस्तूरी मृग
- D. बारासिंघा

Q2 Conservation Protected Areas

Which of the following practices is least harmful in the conservation of forests and wildlife?

- A. Collecting non-timber forest produce
- B. Converting forests to plantations
- C. Building roads and dams in forested areas
- D. Using forests as a source of raw material for industries

Q3 Conservation Protected Areas

What was the effect of controlled seasonal grazing by sheep in the alpine meadows of the Himalayan National Park?

- A. It destroyed the ground cover and led to soil erosion.
- B. It removed older grass and allowed new grass to grow.
- C. The National Park provided income and livelihood to the local shepherds.
- D. It had no effect because sheep were few and the Park is vast.

Q4 National park vs sanctuary vs reserve

An area designated for wildlife in which they have unrestricted access to ecosystems and natural resources is called a _____.

- A. wildlife sanctuary
- B. national park
- C. biosphere reserve
- D. protected area



Q5 National park vs sanctuary vs reserve

What is the purpose of establishing 'protected areas'?

- A. To protect endangered animals
- B. To prevent human settlements
- C. To preserve natural ecosystems
- D. To develop tourism spots

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q6 Project Tiger and tiger reserves

Which of the following is a famous Tiger Reserve in Assam?

- A. Kaziranga Tiger Reserve
- B. Sonitpur Tiger Reserve
- C. Dibrugarh Tiger reserve
- D. Tinsukia Tiger reserve

Q7 Wildlife sanctuaries (key ones + states)

Which of the following is a wildlife sanctuary?

- A. Manas
- B. Nilgiri
- C. Sundarban
- D. Pachmarhi



Q1 Biomagnification / bioaccumulation

What is the process of accumulation of chemicals in higher trophic levels called?

- A. Biological magnification
- B. Biological remediation
- C. Biological oxidation
- D. Biological reduction



Q2 Biomagnification / bioaccumulation

Which of the following substances show biological magnification?

- A. Greenhouse gases
- B. Carbon soot deposits
- C. Acidic fumes
- D. Chemical pesticides



Q3 Biomagnification / bioaccumulation

Which of the following statements is correct about non-biodegradable substances?

- A. Non-biodegradable substances take lesser time for degradation.
- B. Non-biodegradable substances can easily be degraded by enzymes.
- C. Non-biodegradable substances persist in the environment.
- D. Non-biodegradable substances don't harm the members of the ecosystem.



Q4 Biotic and abiotic factors

Which of the following is NOT a biotic component of the ecosystem?

- A. Soil
- B. Flower
- C. Insect
- D. Frog



Q5 Biotic and abiotic factors

Which of the following is/are an abiotic component of an ecosystem?

- A. Fungi
- B. Insects
- C. Microorganisms
- D. Soil



Q6 Biotic and abiotic factors

Which statement shows interaction of an abiotic component with a biotic component in an ecosystem?

- A. A frog feeding on a grasshopper
- B. Tap water running into a stream
- C. An earthworm making a burrow in the soil
- D. Two birds fighting with each other for food



Q7 Ecosystem definition and components

Which of the following statements is INCORRECT with regard to forests?

- A. They provide variety of products
- B. They do not conserve soil
- C. They conserve water
- D. They sustain huge diversity of flora and fauna



Q8 Ecosystem definition and components

The _____ is the area of the earth where living organisms can be found or where life can be sustained.

- A. biosphere
- B. stratosphere
- C. troposphere
- D. atmosphere



Q9 Ecosystem definition and components

What does a self-sustaining ecosystem mean?

- A. It is not dependent on radiant energy for its maintenance.
- B. No organisms are added or removed from the biotic component.
- C. The organisms are well adapted to the local biotic components.
- D. The organic matter remains almost constant generation over generation. ✓

Q10 Energy flow and 10 percent law HINDI - no English version saved

निम्न में से कौन सा विकल्प पारितंत्र में ऊर्जा प्रवाह के सही क्रम को निरूपित करता है?

- A. मांसाहारी ← शाकाहारी ← उत्पादक ← सूर्य का प्रकाश ✓
- B. मांसाहारी → शाकाहारी → उत्पादक → सूर्य का प्रकाश
- C. शीर्ष मांसाहारी → उत्पादक → शाकाहारी → सूर्य का प्रकाश
- D. शीर्ष मांसाहारी ← उत्पादक ← शाकाहारी ← सूर्य का प्रकाश

Q11 Energy flow and 10 percent law

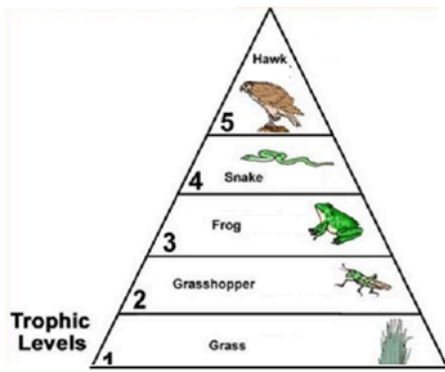
Some statements about food chain and energy flow through an ecosystem are given below. Select the INCORRECT statement.

- A. All organisms that are not producers are consumers.
- B. Food webs include two or more food chains.
- C. A single organism can feed at several trophic levels.
- D. The lower the trophic level at which an organism feeds, the less energy it has. ✓



Q12 Energy flow and 10 percent law

A simple food chain of 5 trophic levels is shown below. If the snake which is present in the fourth trophic level gets 10 kJ of energy, then what amount of energy is available at the producers?



- A. 100 kJ
- B. 10,000 kJ
- C. 1,000 kJ
- D. 1,00,00,000 kJ

Q13 Energy flow and 10 percent law

Which of the following is INCORRECT regarding the flow of energy between various components of the environment?

- A. Green plants capture about 10% of the solar energy that falls on leaves.
- B. The amount of organic matter present at each trophic level is 10%.
- C. Energy flow is unidirectional.
- D. Every trophic level loses some energy as heat to the environment.

Q14 Energy flow and 10 percent law

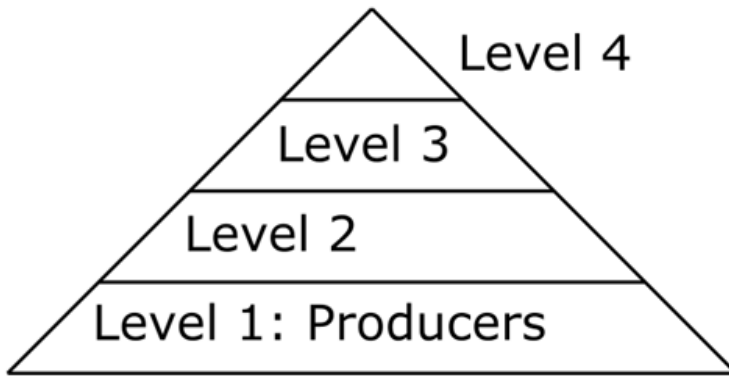
Energy flow through the various trophic levels in the ecosystem is _____.

- A. random
- B. bidirectional
- C. reduced with each higher trophic level
- D. increased with each higher trophic level



Q15 Food chain and trophic levels

In the following figure, deer occupies _____.



A. Level 1

B. Level 2



C. Level 3

D. Level 4

Q16 Food chain and trophic levels

From the organisms given below, select the top predator.

A. Mouse

B. Grasshopper

C. Python

D. Eagle



Q17 Food chain and trophic levels

Arrange the following in a food chain.

A. Frog; B. Eagle; C. Rice Plant; D. Snake; E. Locust

A. C – A – E – D – B

B. C – A – E – B – D

C. C – E – D – B – A

D. C – E – A – D – B



Q18 Food chain and trophic levels

Small carnivores or the secondary consumers come at _____ level.

- A. first trophic
- B. second trophic
- C. third trophic
- D. fourth trophic



Q19 Food chain and trophic levels

Which of the following are at the first trophic level?

- A. Secondary consumers
- B. Producers
- C. Primary consumers
- D. Tertiary consumers



Q20 Producers, consumers, decomposers

Some characteristic features of autotrophs are listed below. Which of the given statements is INCORRECT with respect to autotrophs?

- A. Carbon and energy requirements of autotrophs are fulfilled by photosynthesis.
- B. All green plants and some bacteria are autotrophs.
- C. The carbohydrates not used immediately are stored in the form of glycogen.
- D. They are also called primary producers.



Q21 Types of ecosystems (terrestrial/aquatic)

Which of the following is an artificial ecosystem that is manmade?

- A. Crop field
- B. Forest
- C. Pond
- D. Lake



Q22 Water (hydrological) cycle

What is the process by which water seeps into the ground?

- A. Osmosis
- B. Transpiration
- C. Infiltration ☒
- D. Incineration

Q23 Water (hydrological) cycle

What is an aquifer?

- A. Water stored underground between layers of hard rock ☒
- B. Water that flows through natural channels in an estuary
- C. Pockets of freshwater trapped in sandy beds in a desert
- D. Sheets of frozen water found in rocky caves at high altitudes



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Q1 Montreal Protocol (ozone)

What was the main aim of the agreement made by UNEP in 1987?

- A. To stop emission of greenhouse gases
- B. To freeze the production of CFCs at 1986 level ☒
- C. To use more CFCs in fire extinguishers
- D. To stop water pollution

Q2 Montreal Protocol (ozone)

In 1987, the United Nations Environment Programme (UNEP) succeeded in forging an agreement to freeze CFC production at _____ levels.

- A. 1986 ☒
- B. 1967
- C. 1985
- D. 1988

Q3 UNEP and global environment bodies

What is the full form of UNEP?

- A. United Nations Educational Programme
- B. United Nations Environment Programme ☒
- C. United Nations Environment Planning
- D. United Nations Educational Planning



Q1 Air pollutants (primary/secondary)

When coal and petroleum are burnt in insufficient air (oxygen), which harmful gas is produced, causing pollution?

- A. Oxides of nitrogen
- B. Carbon dioxide
- C. Carbon monoxide
- D. Sulphur dioxide



Q2 Air pollutants (primary/secondary)

Acid rain has pH value less than:

- A. 7.6
- B. 6.6
- C. 8.6
- D. 5.6



Q3 E-waste and hazardous waste

Which of the following waste items should NOT be thrown into general trash?

- A. Old furniture
- B. Old vessels
- C. Old batteries
- D. Old shoes



Q4 E-waste and hazardous waste

Which of the following are NOT considered as biomedical wastes?

- A. Food wastes
- B. Industrial wastes
- C. Medical wastes
- D. Animal wastes



Q5 E-waste and hazardous waste HINDI - no English version saved

खतरनाक अपशिष्ट के निपटान की सर्वोत्तम विधि क्या है?

- A. महासागरों सन्निकषेण (Ocean dumping)
- B. कंपोस्ट बनाना (Composting)
- C. भराव क्षेत्र (Landfills)
- D. भस्मीकरण/जलाना (Incineration)

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q6 E-waste and hazardous waste

What is the best method to dispose of hospital waste?

- A. Sterilise and separate metals from cotton
- B. Bury it in deep trenches
- C. Segregate and recycle
- D. Wash before burning

Q7 Soil pollution and causes

Mining causes pollution because of the large amount of:

- A. slurry
- B. slag
- C. sludge
- D. ore

Q8 Solid waste management / plastic pollution

Which of the following is NOT a part of the 5 R's needed to be followed for sustainable development?

- A. Refuse
- B. Regeneration
- C. Repurpose
- D. Recycle



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Q9 Solid waste management / plastic pollution

Three of the following statements pertaining to non-biodegradable plastics indicate their implications on animals, plants and our surrounding. Choose the odd one out.

- A. Reduce the fertility of the soil
- B. Plastic bags are durable carry bags
- C. Can prove fatal when eaten by animals
- D. Choke the drains

Q10 Solid waste management / plastic pollution

Some effects of large production of biodegradable waste are mentioned below. Choose the INCORRECT statement.

- A. Amount of waste sent to landfills increases
- B. Gives out foul smell
- C. Replenishment of soil nutrients
- D. Act as breeding ground for mosquitoes and spread diseases

Q11 Solid waste management / plastic pollution

In today's scenario, which change seen in human attitude has helped in decreasing the production of non-biodegradable waste to some extent?

- A. Improvement in lifestyle
- B. Use of Plastic in Packaging
- C. Use and throw attitude
- D. Use of jute bags

Q12 Solid waste management / plastic pollution

We can prepare eco-friendly carry bags with _____.

- A. paper
- B. plastic
- C. rubber
- D. glass



Q13 Solid waste management / plastic pollution

We should refrain from using plastics because _____.

- A. plastics are easily degraded by insects
- B. enzymes are unable to break down plastics ✓
- C. plastics are not long-lasting
- D. plastics are water soluble

Q14 Solid waste management / plastic pollution

Recycling is one of the best methods to decrease the amount of waste generated. Some of its benefits are given below. Which of the following is NOT an advantage of recycling?

- A. It reduces waste sent to landfills.
- B. It prevents pollution.
- C. It is of economic benefit, as it creates jobs.
- D. It is expensive and uses energy. ✓

Q15 Solid waste management / plastic pollution

The first step to practice waste management is segregation. Select the INCORRECT option with regard to segregation of waste into different categories.

- A. Segregation helps to reduce the money spent on disposal of waste
- B. It increases the amount of waste going into landfills ✓
- C. It prevents items suitable for recycling from being thrown away
- D. It helps to identify materials that can be sold to earn revenue

Q16 Solid waste management / plastic pollution

_____ can be used for composting.

- A. E-waste
- B. Kitchen waste ✓
- C. Industrial waste
- D. Medical waste

Q17 Solid waste management / plastic pollution

We, on an individual basis, can help to reduce the production of waste by following certain practices. Which of the following will however cause increase in waste?

- A. Using cloth or jute bags for shopping
- B. Donating used goods
- C. Using tin foil, plastic wraps, paper towels and plastic zip bags
- D. Reusing empty containers and bottles

Q18 Solid waste management / plastic pollution

A particular locality is focusing on three R's — Recycle, Reuse and Reduce — to decrease the production of non-biodegradable waste. What will be the correct sequence to follow them?

- A. Reuse, Recycle, Reduce
- B. Reduce, Reuse, Recycle
- C. Recycle, Reduce, Reuse
- D. Recycle, Reuse, Reduce

Q19 Solid waste management / plastic pollution HINDI - no English version saved

इनमें से किस समूह में सभी जैव निम्नीकरणीय (biodegradable) पदार्थ शामिल हैं?

- A. घास, लकड़ी, संतरे के छिलके
- B. घास, प्लास्टिक, फूल
- C. फूल, लकड़ी, बैटरी
- D. सब्जियों के छिलके, लकड़ी, रबड़

Q20 Solid waste management / plastic pollution

Which of the following statements is TRUE?

- A. Plastic bags should be used to keep food.
- B. Shopkeepers are required to use plastic bags by law.
- C. After use, we should dispose of plastic bags by burning them.
- D. We should not place waste in plastic bags and discard them.



Q21 Solid waste management / plastic pollution

Which of the following statements is correct?

- A. Enzymes, bacteria or other saprophytes act on biodegradable substances and decompose them. ✓
- B. Non-biodegradable substances cannot be decomposed by physical processes like heat and pressure.
- C. Biodegradable substances persist for a long time in the environment.
- D. Non-biodegradable substances help the various members of the ecosystem.

Q22 Solid waste management / plastic pollution

Which of the following wastes CANNOT be degraded by bacteria or other saprophytes?

- A. Excreta
- B. Paper
- C. Plastic ✓
- D. Leather

Q23 Solid waste management / plastic pollution

Which of the following are biodegradable substances?

- A. Paper and cotton ✓
- B. Plastic goods
- C. Industrial wastes
- D. Chemicals

Q24 Solid waste management / plastic pollution

How can we reduce the use of non-biodegradable products?

- A. By packing milk and water in polybags
- B. Fruits and vegetables can be bought packed in beautiful polystyrene and plastic packaging
- C. By using eco-friendly packaging ✓
- D. Eatables like biscuits etc., can be bought packed in plastic tins and wrappers



Q25 Solid waste management / plastic pollution

Which of the following is an agricultural waste?

- A. Husk ✓
- B. Plastic
- C. Glass
- D. Vegetable peel

Q26 Solid waste management / plastic pollution

Which of the following is the best definition of 'biodegradable'?

- A. Capable of depolymerization into carbon dioxide and water by the action of enzymes
- B. Capable of being broken down into harmless products by the action of microbes ✓
- C. A suitable and sufficient nutrient source for growth to saprophytic organisms
- D. Easily digested into smaller molecules by action of bacteria or bacterial enzymes

Q27 Solid waste management / plastic pollution

Which of the following is the most environment-friendly method of disposing of organic wastes?

- A. Landfills
- B. Incineration
- C. Composting ✓
- D. Development of value-added products

Q28 Solid waste management / plastic pollution

What is meant by non-biodegradable?

- A. Substances that are broken down by biological processes
- B. Substances that are not broken down by chemical processes
- C. Substances that are not broken down by biological processes ✓
- D. Substances that are broken down by biochemical reactions.



Q29 Solid waste management / plastic pollution

Different-coloured dustbins are provided by some municipalities in some cities and towns. The blue one is used for collecting _____.

- A. kitchen wastes
- B. medical wastes
- C. reusable wastes ✓
- D. agricultural wastes

Q30 Solid waste management / plastic pollution

Biodegradable plastics are the new industry for export as well as marketing. Some advantages of these plastics are mentioned below. Which option is NOT an advantage?

- A. Easy to recycle
- B. Consume less energy for manufacture
- C. Cannot be composted ✓
- D. Less greenhouse emissions

Q31 Solid waste management / plastic pollution

Which of the following wastes cause least damage to the environment?

- A. Paper cups ✓
- B. Polythene bags
- C. Plastic bottles
- D. Chemical pesticides

Q32 Solid waste management / plastic pollution

In which cell should iron be placed in the following table?

	Biodegradable	Non-biodegradable
Recyclable	A	B
Non-recyclable	C	D

- A. Cell A
- B. Cell B ✓
- C. Cell C
- D. Cell D



Q33 Solid waste management / plastic pollution

Why should plastic cups be replaced by paper cups for selling tea in public places?

- A. Plastic cups are cheaper
- B. Paper cups are biodegradable ✓
- C. Paper cups are stronger
- D. Paper cups keep things safe

Q34 Solid waste management / plastic pollution

Which of the following statements is correct?

- A. Plastics and paper are biodegradable.
- B. Plastic cannot be recycled.
- C. Paper is biodegradable. ✓
- D. Paper cannot be recycled.

Q35 Solid waste management / plastic pollution

What does 'segregation at source' mean in terms of non-biodegradable wastes?

- A. Factories producing non-biodegradable consumer items should not mix them with biodegradable material.
- B. People using non-biodegradable items should not add biodegradable items to these items.
- C. Households should separate non-biodegradable items from biodegradable items in the trash. ✓
- D. Municipalities should have separate disposal sites for non-biodegradable and biodegradable waste.

Q36 Solid waste management / plastic pollution

Which of the following materials are NOT biodegradable?

- A. A cardboard box and a paper bag
- B. A woollen blanket and a jute rope
- C. A leather belt and a canvas shoe
- D. Glass dish and plastic covers ✓



Q37 Solid waste management / plastic pollution

In the following table, where would a broken plastic bucket be placed?

	Safely combustible	Not safely combustible
Recyclable	A	B
Non-recyclable	C	D

A. Cell A or C

B. Cell A or B

C. Cell B or D



D. Cell C or D

Q38 Solid waste management / plastic pollution

What is the most effective solution to reduce the production of waste?

A. Reuse

B. Composting

C. Refuse

D. Combustion

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q39 Solid waste management / plastic pollution

Which of the following is non-biodegradable?

A. Cotton

B. Coffee powder

C. Nylon



D. Wool

Q40 Solid waste management / plastic pollution

The ideal waste disposal method in case of metal is:

A. incineration

B. composting

C. recycling



D. reusing



Q41 Solid waste management / plastic pollution

What is the primary difference between domestic and industrial solid waste?

- A. The former is smaller in quantity.
- B. The former is heterogeneous in composition. ✓
- C. The latter is seasonal in nature.
- D. The latter is a source of pollutants.

Q42 Solid waste management / plastic pollution

Match the columns.

Group-I	Group-II
I. Solid waste	A. Composting
II. Organic waste	B. Open dumping
III. Hospital waste	C. Incineration

- A. I-C; II-A; III-B
- B. I-C; II-B; III-A
- C. I-B; II-C; III-A
- D. I-B; II-A; III-C ✓

Q43 Solid waste management / plastic pollution

Identify the non-biodegradable substance that is generated in a kitchen.

- A. Paper bag
- B. Milk bag ✓
- C. Vegetable peel
- D. Tea leaves



Q44 Solid waste management / plastic pollution

When we consider biodegradable substances, we see that the common property is that _____.

- A. they are all plant products
- B. they are not toxic
- C. they are all water-soluble
- D. they are all biological in origin



Q45 Solid waste management / plastic pollution

The best practice that is involved in biological waste disposal is:

- A. reusing
- B. recycling
- C. open dumping
- D. incineration



Q46 Sources and effects of air pollution

Which of the following is a naturally occurring source of air pollution?

- A. Power plants
- B. Volcanic eruptions
- C. Burning firewood
- D. Automobile exhausts



Q47 Sources and effects of air pollution

Which of the following outcomes is NOT caused due to the burning of fossil fuels?

- A. Formation of oxides of nitrogen and sulphur
- B. Acid rain
- C. Decrease in ozone levels in the upper layers of the atmosphere
- D. Smog formation



Q48 Sources and effects of air pollution

We know that if rain water has a pH value less than 5.6 it is called 'Acid Rain'. What happens when this acidic water flows into rivers?

- A. The river water becomes more healthy to drink.
- B. The water becomes slightly alkaline.
- C. The pH of the river water lowers. ✓
- D. The number of fishes in the river water increases.

Q49 Water pollutants and sources

The presence of which bacteria is an indicator of water pollution?

- A. E. coli Coliform ✓
- B. Mycobacterium tuberculosis
- C. Vibrio cholerae
- D. Salmonella typhi

Q50 Water pollutants and sources

What is the main reason for the pollution of River Ganga by coliform bacteria?

- A. Washing of clothes
- B. Chemical effluents from industries
- C. Immersion of unburnt corpses
- D. Untreated sewage dumped in it ✓

Q51 Water pollutants and sources

In which year, were the total faecal coliform levels from Gangotri to Diamond harbour, high?

- A. 2020
- B. 2014
- C. 2007
- D. 2011 ✓



What is the primary reason that river Ganga is called an endangered river?

- A. The river is drying up
- B. Aquatic life is diminishing
- C. The water is not potable
- D. There are too many dams on it



Q1 Renewable vs non-renewable energy

Which of the following should be done to conserve coal and petroleum?

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

Q2 Renewable vs non-renewable energy

Some reasons for conserving coal and petroleum are given below. Select the INCORRECT option.

- A. Decreases the effect of climate change
- B. Saves money of citizens
- C. No acidification of oceans causing death of aquatic animals
- D. Increases air pollution even upon judicious usage ✓

Q3 Renewable vs non-renewable energy

What kind of resources are the fossil fuels coal and petroleum?

- A. Exhaustible and renewable
- B. Exhaustible and non-renewable ✓
- C. Inexhaustible
- D. Renewable

Q4 Renewable vs non-renewable energy

Why should we human beings reduce our dependence on petroleum products?

- A. Petroleum is very expensive
- B. Amount of petroleum is finite ✓
- C. Petroleum needs to be imported
- D. Petroleum needs to be refined



Q5 Renewable vs non-renewable energy

Out of the following which is not a non conventional source of energy:

- A. Geothermal Energy
- B. Solar energy
- C. Nuclear energy
- D. Tidal energy



Q6 Renewable vs non-renewable energy

Which of the following is not a non-renewable source of energy:

- A. Petroleum
- B. Coal
- C. Natural gas
- D. Wind



Q7 Solar energy basics and uses

Which of the following activities is environmentally friendly?

- A. Using solar-power for generation of electricity
- B. Using ACs and coolers during the summer
- C. Using polythene bags for shopping
- D. Construction of skyscrapers



Q8 Solar energy basics and uses

The only thing that we do not get from natural resources but directly from outside the earth is _____.

- A. Coal
- B. Natural gases
- C. Minerals
- D. Energy



Q1 Afforestation programmes / green missions

Forests can be conserved by which of the following factors?

- a) Regulated and planned cutting of trees
- b) Control over forest fire
- c) Construction of roads in the forest
- d) Monoculture planting
- e) Promotion of afforestation and reforestation
- f) Proper utilisation of forest and forests products
- g) Clearing land for cattle grazing

A. a, c, d and e

B. b, c, e and g

C. d, e, f and g

D. a, b, e and f

**Q2** Afforestation programmes / green missions

Who was the mastermind behind the Arabari Project of West Bengal, which started in 1972?

A. Sunder lal Bahuguna

B. Dr. Rajendra Singh

C. Dr. AK Banerjee



D. Dr. Sunita Narain

Q3 Afforestation programmes / green missions

Arabari forest is located in _____.

A. Midnapore



B. Pachmarhi

C. Garhwal

D. Assam



Q4 Afforestation programmes / green missions

What model did the Forest Officer AK Banerjee use to rejuvenate a degraded forest in West Bengal?

- A. He stopped the felling of old trees.
- B. He involved local people in silviculture. ✓
- C. He made a canal waterway in the forest to help the plants to grow.
- D. He controlled termites and other wood-destroying insects.

Q5 Green initiatives / campaigns (India)

Select the INCORRECT option with reference to the Chipko Andolan.

- A. It forced the government to rethink their priorities in the use of forest produce
- B. People realised that forests are needed to maintain the quality of soil
- C. It involved the community in forest conservation efforts
- D. It was a violent movement to save the trees ✓

Q6 Green initiatives / campaigns (India)

One of the goals of the Namami Gange Programme is to:

- A. perform religious rituals with water from the Ganga River
- B. revitalise the Ganga River ✓
- C. start river cruises on the Ganga River to boost tourism
- D. increase the supply of the Ganga River water for drinking purposes

Q7 Green initiatives / campaigns (India)

How can the general public living near the Ganga River participate in the Namami Gange Programme?

- A. By boiling water to kill coliform bacteria before drinking it
- B. By not cutting trees growing on the river banks
- C. By stopping open defecation on river banks ✓
- D. By adding mosquito-larvae-eating fish in the river



Q8 Green initiatives / campaigns (India)

What is the primary purpose of rainwater harvesting?

- A. Help each raindrop to seep into the ground ✓
- B. Collect pure fresh drinking water
- C. Reduce dependence on municipality water
- D. Promote drip irrigation

Q9 Green initiatives / campaigns (India)

Garhwal was the birthplace of the _____.

- A. Bishnoi Movement
- B. Narmada Bachao Andolan
- C. Jungle Bachao Andolan
- D. Chipko Movement ✓

Q10 Green initiatives / campaigns (India)

Joint forest management is an example of which of the following?

- A. Economic equality
- B. Political equality
- C. Participatory approach ✓
- D. Single man dominance

Q11 Green initiatives / campaigns (India)

The women who started the Chipko Andolan in the 1970s wanted to save _____.

- A. an extremely rare resource
- B. a renewable resource ✓
- C. a non-biodegradable resource
- D. an endangered resource



Q12 Green initiatives / campaigns (India)

What was the historic contribution of the community of Amrita Devi Bishnoi in Rajasthan in the 1700s?

- A. They dug several ponds to capture rainwater and stopped desertification of the region.
- B. They planted thousands of Khejri trees and stopped desertification of the region.
- C. They laid down their lives to stop the cutting down of trees growing in their region. ✓
- D. They set up the first wildlife sanctuary to protect deer from hunters.

Q13 Green initiatives / campaigns (India)

In return for help in protection of 1,272 hectares of a badly degraded Sal forest, villagers were given employment in:

- A. poma culture
- B. silviculture ✓
- C. agriculture
- D. Sericulture

Q14 Green initiatives / campaigns (India)

In which of the following villages did the Chipko Andolan ('Hug the Trees Movement') originate?

- A. Reni in Garhwal ✓
- B. Malana in Kullu
- C. Andretta in Kangra
- D. Ziro in Lower Subansiri

Q15 Green initiatives / campaigns (India)

The Forest Department changed its strategy, making a beginning in the Arabari forest range of Midnapore district, at the insistence of a far-seeing forest officer named:

- A. KA Midhun
- B. AK Banerjee ✓
- C. ED Arun Ghosh
- D. TA Chatterjee



Q16 Green initiatives / campaigns (India)

Which state government's forest department recognised its failures in reviving the degraded Sal forests in the south-western districts of the state

A. West Bengal



B. Odisha

C. Madhya Pradesh

D. Rajasthan

Q17 Green initiatives / campaigns (India)

To which of the following communities living in western Rajasthan on the border of the Thar desert has conservation of forest and wildlife been a religious tenet?

A. Bishnoi community



B. Vaishya community

C. Bhil community

D. Chhipa community

Q18 Green initiatives / campaigns (India)

In which year Namami Gange Programme is an Integrated Conservation Mission approved as a Flagship Programme by the Union Government?

A. 2014



B. 2013

C. 2015

D. 2016

Q19 Green initiatives / campaigns (India)

Who among the following sacrificed her life along with 363 others for the protection of 'khejri' trees in Khejrali village near Jodhpur in Rajasthan?

A. Medha Patkar

B. Vandana Shiva

C. Soumya Swaminadhan

D. Amrita Devi Bishnoi



Q20 Sustainable Development

Which of the following methods can be used to conserve our natural resources?

- A. Using more water
- B. Walking to nearby places without using vehicles
- C. Not recycling goods
- D. Turning on lights even when not required

Q21 Sustainable development definition HINDI - no English version saved

संधारणीय विकास का मुख्य महत्व क्या है?

- A. भावी पीढ़ी की आवश्यकताओं के लिए प्राकृतिक संसाधनों का संरक्षण करना
- B. तीव्र विकास के लिए उपलब्ध संसाधनों का अंधाधुंध दोहन करना
- C. उपलब्ध प्राकृतिक संसाधनों की लागत को बढ़ाना
- D. संसाधन असीमित हैं, और हम अपनी आवश्यकताओं के लिए अतिलोभित तरीके से उनका उपयोग कर सकते हैं

Q22 Sustainable development definition

Which of the following should be managed to ensure sustainability?

- A. By products of Mining
- B. Crop varieties
- C. Natural resources
- D. Industries

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q23 Sustainable development definition

What does 'conservation' mean in terms of a natural resource like water?

- A. Stop its use
- B. Leave it in a natural condition
- C. Protect against pollution
- D. Manage it wisely



Q24 Sustainable development definition HINDI - no English version saved

प्राकृतिक संसाधनों के सतत उपयोग (sustainable use) की दिशा में बढ़ने के लिए सरकार निम्न में से कौन सा कदम उठा सकती है?

- A. हवाई जहाजों से यात्रा पर प्रतिबंध
- B. त्योहारों पर पटाखों पर प्रतिबंध
- C. मेट्रो और बस सेवाओं का निर्माण
- D. पर्यावरण विज्ञान के अध्ययन को अनिवार्य करना

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).

Q25 Sustainable development definition

Which of the following statements is INCORRECT?

- A. Sustainable management of natural resources is an easy task. ✓
- B. We need to accept that people will act with their own best interests as the priority.
- C. The fossil fuels, coal and petroleum will ultimately be exhausted.
- D. Combustion of fossil fuels pollute our environment; we need to use these resources judiciously.

Q26 Sustainable development definition

Which of the following is NOT a goal of sustainable agriculture?

- A. Maximising economic value
- B. Maximising environmental health
- C. Minimising input of chemicals
- D. Minimising labour and effort ✓

Q27 Sustainable development definition

Which of the following can lead to sustainable management of forest resources?

- A. Making forests off-limits to human beings and their livestock
- B. Using money from safari tourists to protect forests from logging
- C. Adjusting the harvest of wood depending on the rate of growth of forests ✓
- D. Applying fertilisers and growth promoters to enhance the growth of trees



Q1 Electricity/electronics inventions

Electromagnetic induction was discovered by:

- A. Michael Faraday
- B. Isaac Newton
- C. Albert Einstein
- D. Alessandro Volta



Q2 Element discoveries and discoverers

From total _____ elements, _____ elements were discovered through laboratory processes.

- A. 114, 22
- B. 118, 24
- C. 114, 20
- D. 118, 26



Q3 Element discoveries and discoverers

Consider the below statements and identify the correct answer.

Statement-I: Dobereiner made the first observations on platinum as a catalyst and discovered similar triads of elements which led to the development of the periodic table of elements.

Statement-II: JW Dobereiner was the professor of chemistry and pharmacy at the University of Jena.

- A. Both the statements are true.
- B. Both the statements are false.
- C. Only statement I is true.
- D. Only statement II is true.



Q1 Branches of science and their study

What branch of biology focuses on the study of inheritance patterns?

- A. Genetics ✓
- B. Biotechnology
- C. Anthropology
- D. Evolution biology

Q2 Foreign Scientists

Who disproved the statement, “organic compounds could only be formed within a living system”?

- A. Rutherford
- B. Charles
- C. Wohler ✓
- D. Dalton



Q1 International Awards

Stockholm water prize honours the persons who contributes to the:

- A. conservation and protection of soil
- B. conservation and protection of wild life
- C. conservation and protection of water resources ☒
- D. conservation and protection of forests

Q2 Other National Awards (Gandhi Peace Prize, distinguished service)

‘Amrita Devi Bishnoi National Award for Wildlife Conservation’ is given in the memory of Amrita Devi Bishnoi. She sacrificed her life to save which trees and where?

- A. Khejri trees, Rajasthan ☒
- B. Sal trees, West Bengal
- C. Sal trees, Rajasthan
- D. Khejri trees, West Bengal



Q1 First Institutions & Events

The first Indian Reserve Forest is _____.

- A. Pench National Park
- B. Kaziranga National Park
- C. Jim Corbett National Park
- D. Satpura National Park



Q1 Health & Environment Days

World Water Day is celebrated on _____.

- A. 8 March
- B. 22 March
- c. 15 August
- D. 26 August



Q1 Deshbandhu / Loknayak / Bapu / Rajaji honorific grouping

Who is known as India's 'Waterman', who won the prestigious Stockholm Water Prize in 2015?

- A. Dr. AK Banerjee
- B. Dr. Rajendra Singh
- C. Sunder Lal Bahuguna
- D. Chandi Prasad Bhatt



Q2 Deshbandhu / Loknayak / Bapu / Rajaji honorific grouping

Who among the following is popularly known as 'Waterman of India'?

- A. Dr. MS Swaminathan
- B. Dr. Hiralal Chaudhuri
- C. Dr. Rajendra Singh
- D. Dr. Arun Krishnsnan



Q1 Dams (grouped: Bhakra, Tehri, Hirakud, Sardar Sarovar, Indira Sagar, Nagarjuna Sagar)

Sardar Sarovar Dam was constructed in Gujarat over the _____.

- A. Ganga River
- B. Mahanadi River
- C. Narmada River
- D. Sutlej River



Q2 Dams (grouped: Bhakra, Tehri, Hirakud, Sardar Sarovar, Indira Sagar, Nagarjuna Sagar)

Sardar Sarovar Dam stands on which river?

- A. Narmada
- B. Godavari
- C. Krishna
- D. Brahmaputra



Q3 Dams (grouped: Bhakra, Tehri, Hirakud, Sardar Sarovar, Indira Sagar, Nagarjuna Sagar)

Which of the following dams was constructed on river Ganga?

- A. Tehri dam
- B. Rihand dam
- C. Koyna dam
- D. Chamera dam



Q4 Dams (grouped: Bhakra, Tehri, Hirakud, Sardar Sarovar, Indira Sagar, Nagarjuna Sagar)

Narmada Bachao Andolan is related to:

- A. Bhakra Nangal Dam
- B. Hirakud Dam
- C. Nagarjuna Sagar Dam
- D. Sardar Sarovar Dam



Q5 Dams (grouped: Bhakra, Tehri, Hirakud, Sardar Sarovar, Indira Sagar, Nagarjuna Sagar)

The oustees of which dam built in the 1970s are still fighting for the benefits they were promised?

- A. Tawa dam
- B. Sardar Sarovar dam
- c. Nagarjuna Sagar dam
- D. Hirakud dam



Q1 Scheme → Target Beneficiary / Objective

Which programme was launched by the Union Government as a flagship programme to fulfil the main objectives of effective abatement of pollution, conservation and rejuvenation of River Ganga?

- A. Ganga Action Plan
- B. Namami Gange Programme
- C. Clean the Ganga Programme
- D. Water for All



Q1 Indian Organisations & PSUs (formation, HQ, mandate)

Which of the following organisations in India advises people how to save petrol/diesel while driving?

A. PCRA



B. PRCA

C. ACRP

D. PARC



Q1 Policy Changes & Amendments

Recently the Government of India has raised the age of marriage for girls to 21. What is the benefit of following this law?

- A. It will slow down population growth.
- B. It will discourage teen pregnancies. ☒
- C. It will ensure girls have reached puberty.
- D. It will help couples to be financially independent.



Q1 New Apps & Portals

Which of the following statements is INCORRECT Mendel's pea plant experiments?

- A. Mendel used a number of contrasting visible characters of garden peas – round/wrinkled seeds, tall/short plants.
- B. He took a tall plant and a short plant, produced progeny by crossing them and in the resulting F1 progeny, all plants were tall.
- C. In the second-generation, or F2 generation which are the progeny of the F1 tall plants, all the plants are tall. ✓
- D. Appearance of both the tallness and shortness traits in F2 progeny indicated that both the traits were inherited in the F1 plants.



Q1 General Science

The difference in molecular mass between two consecutive homologous series members will be:

A. 08

B. 12

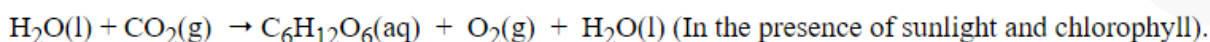
C. 14



D. 16

Q2 General Science

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



A. 3 and 6

B. 4 and 5

C. 6 and 6



D. 6 and 3

Q3 General Science

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

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

A. A-i, B-ii, C-iii, D-iv

B. A-ii, B-i, C-iv, D-iii

C. A-iv, B-iii, C-ii, D-i

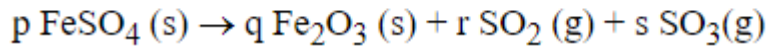


D. A-iii, B-ii, C-iv, D-i



Q4 General Science

In the following decomposition reaction, identify the p q r s:



A. 1,1,2,1

B. 1,1,1,1

C. 3,1,1,1

D. 2,1,1,1



Q5 General Science

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

A. 0°

B. 90°

C. 150°

D. 180°



Q6 General Science

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

A. 1 : 4

B. 4 : 1

C. 1 : 16

D. 16 : 1



Q7 General Science

Consider the below statements and identify the correct answer.

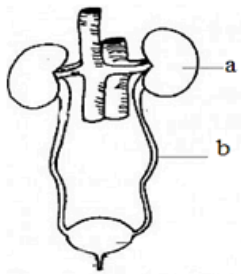
Statement I: Dobereiner gave the law of triads.

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

- A. Both statements are correct. Statement II is correct explanation of Statement I.
- B. Both Statements are correct. Statement I is correct explanation of Statement II.
- C. Only Statement I is Correct. ✓
- D. Only Statement II is correct.

Q8 General Science

The diagram of the human excretory system is given below. Select the option that correctly shows the functions of parts 'a' and 'b'.



- A. a - Formation of urine, b - Throwing urine outside the body
- B. a - Formation of urine, b - Carrying urine for storage ✓
- C. a - Collection of urine, b - Formation of urine
- D. a - Formation of urine, b - Collection of urine

Q9 General Science

Two wires A and B are made of same material and have the same length but different cross-sectional areas. If the resistance of wire A is 9 times the resistance of wire B, the ratio of the radius of wire A to that of wire B is:

- A. 1 : 9
- B. 9 : 1
- C. 1 : 3 ✓
- D. 3 : 1



Q10 General Science

The ratio of a field produced due to a current carrying circular coil of n turns, to that of a field produced due to a single circular loop of the same radius carrying the same current is:

A. $n : 1$



B. $1 : n$

C. $1 : n^2$

D. $1 : 1$

Q11 General Science

The speed of light in two transparent media A and B are 2×10^8 m/sec and 2.25×10^8 m/sec. The refractive index of medium A with respect to medium B is equal to:

A. 1.125



B. 0.89

C. 4.25

D. 4.50

Q12 General Science

Five solutions A, B, C, D and E, when tested with universal indicator, showed pH as 4, 1, 11, 7 and 9, respectively. The pH in increasing order of H^+ ion concentration for these solutions is:

A. $C < D < E < A < B$

B. $C < E < D < A < B$



C. $D < C < E < A < B$

D. $C < D < E < B < A$

Q13 General Science

The radius of curvature of a given spherical mirror is -20 cm. The focal length of the mirror is:

A. -10 cm



B. -40 cm

C. 10 cm

D. 40 cm



Q14 General Science

Which of the following is/are useful effort(s) for sustainability of resources?

- a. Switching off unnecessary lights and fans
- b. Using lift instead of stairs
- c. Repairing leaking taps for conserving water
- d. Using empty containers to store things
- e. Going to school by your own car instead of cycling

A. Only b

B. a, c and d



c. Only e

D. b and e

Q15 General Science

Consider the statements below and identify the correct answer.

Statement-I: Modern periodic table has 18 vertical columns known as groups.

Statement-II: Modern periodic table has 7 horizontal rows known as periods.

A. Statement I is correct, Statement II is incorrect.

B. Statement II is correct, Statement I is incorrect.

C. Both statements are correct.



D. Both statements are incorrect.

Q16 General Science

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

A. 9R



B. $1/9R$

c. 3R

D. $1/3R$



Q17 General Science

Which of the following statements is/are true for a number of resistors connected in parallel combination?

- (i) All the resistors are connected between two given points.
- (ii) The equivalent resistance of the circuit is more than the individual resistance.
- (iii) The potential difference across each resistor is same.

A. Only (i)

B. Only (iii)

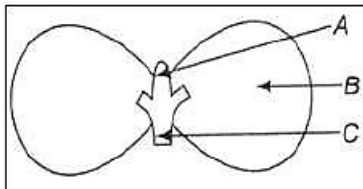
C. Both (i) and (iii)



D. Both (i) and (ii)

Q18 General Science

Study the diagram of a dicot seed given below. Select the correct option regarding the functions of the parts labelled A, B and C



A. A - Future root, B - Stores food, C - Future shoot

B. A - Future shoot, B - Future root, C - Stores food

C. A - Future shoot, B - Stores food, C - Future root



D. A - Stores food, B - Stores food, C - Future root



Q19 General Science

Which of the following statements is/are true for a current carrying straight conductor?

- (i) The magnetic field lines are concentric circles with conductor at the centre.
- (ii) The strength of the magnetic field increases as we move away from the conductor.
- (iii) The direction of magnetic field can be determined using right hand thumb rule.

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

Q20 General Science

Consider the below statements and identify the correct answer.

Statement I: Carbon has the unique ability to form bonds with other atoms of carbon, giving rise to large molecules.

Statement II: This property is called catenation.

- A. Statement I is correct, and Statement II is incorrect.
- B. Statement II is correct, and Statement I is incorrect.
- C. Both the statements are correct. ✓
- D. Both the statements are incorrect.

Q21 General Science

Consider the below statements and identify the correct answer.

Statement I: Law of Octaves was applicable only up to calcium.

Statement II: After calcium, every eighth element did not possess properties similar to that of the first.

- A. Both statements are correct. Statement II is correct explanation of Statement I. ✓
- B. Both Statements are correct. Statement I is correct explanation of Statement II.
- C. Only Statement I is correct.
- D. Only Statement II is correct.



Q22 General Science

An electric heater rated 1000 W is used for 5 hours daily. For cost per unit of ₹6.00, calculate the total cost for running the device for the month of September (in ₹).

A. 900



B. 500

C. 180

D. 150

Q23 General Science

Consider the below statements and identify the correct answer.

Statement-I: Sodium hydroxide is prepared by chlor-alkali process.

Statement-II: Sodium hydroxide is used for making artificial textile fibres (such as rayon).

A. Both the statements are true.



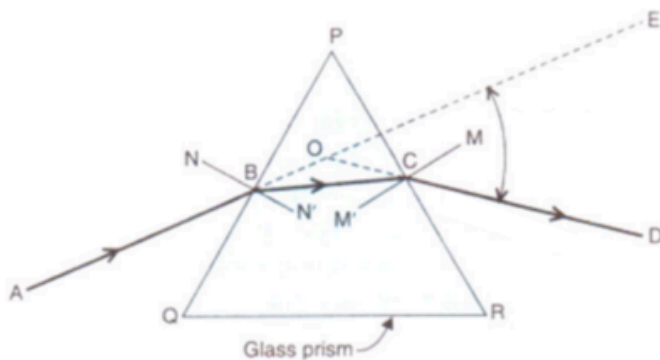
B. Both the statements are false.

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

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

Q24 General Science

The figure below shows refraction of a ray of light AB through a triangular glass prism. Here, $\angle EOD$ represents:



A. angle of incidence

B. angle of refraction

C. angle of emergence

D. angle of deviation



Q25 General Science

There are four different elements along with their atomic numbers: A (9), B (11), C (19) and D (37). Find the odd element from these with respect to their positions in the periodic table?

A. A



B. B

C. C

D. D

Q26 General Science

Consider the below statements and identify the correct answer.

Statement I: Series of compounds in which the same functional group substitutes for hydrogen in a carbon chain is called a homologous series

Statement II: As the molecular mass increases in any homologous series, a gradation in physical properties is seen.

A. Statement I is correct, and Statement II is incorrect.

B. Statement II is correct, and Statement I is incorrect.

C. Both the statements are correct.



D. Both the statements are incorrect.

Q27 General Science

Select the option that has only biodegradable substances.

A. Glass, Metals, Egg shells, Paper, Tetra packs

B. Batteries, Vegetable peelings, Stale bread, Glass, Metals

C. Eggshells, Paper, Stale biscuits, Fruits, Vegetable peels



D. Tetra packs, Metals, Leather, Stale biscuits, Fruits

Q28 General Science

Which of the following organisms have spiracles?

A. Earthworm

B. Human

C. Fish

D. Cockroach

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).



Q29 General Science

Two bulbs A and B are rated 100 W and 25 W, respectively, at a given voltage. The ratio of resistance of bulb A to that of bulb B is:

A. 1 : 4



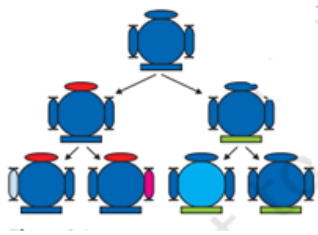
B. 4 : 1

C. 1 : 2

D. 2 : 1

Q30 General Science

The figure below shows a single organism undergoing reproduction and the progeny with minor differences. What could be the reason for the variation?



A. Errors in protein formation

B. Errors in DNA copying



C. Gene being non-functional

D. Errors in RNA formation

Q31 General Science

Two metallic wires A and B are made of the same material. Wire A has length l and radius r while wire B has length $2l$ and radius $2r$. The ratio of the resistance of wire A to that of wire B is:

A. 1 : 2

B. 2 : 1



C. 1 : 4

D. 4 : 1



Q32 General Science HINDI - no English version saved

निम्न में से कौन सा आमाशय में बनने वाला एक प्रोटीन पाचक एंजाइम है?

- A. माल्टेस (Maltase)
- B. पेप्सिन (Pepsin) ✓
- C. HCl
- D. एंटरोकाइनेज (Enterokinase)

Q33 General Science HINDI - no English version saved

यदि कोई पदार्थ अभिक्रिया के दौरान ऑक्सीजन ग्रहण करता है, तो उसे _____ कहा जाता है।

- A. अपचयित हुआ
- B. ऑक्सीकृत हुआ ✓
- C. विघटित हुआ
- D. उदासीनीकृत हुआ

Q34 General Science

In the conservation of forests, stakeholders play a very important role. Which of the following are NOT the stakeholders in the forest?

- A. Forest Department of the Government
- B. The people who live in and around the forest and depend on forest produce
- C. People living in urban areas ✓
- D. Wildlife and nature enthusiasts

Q35 General Science

What causes migrating birds to travel to far-off lands?

- A. They fly to change their habitat.
- B. They fly to see their family.
- C. They fly to get some exercise.
- D. They fly to lay eggs. ✓



Q36 General Science

What is the excretory product of aquatic animals?

- A. Urea
- B. Ammonia
- C. Uric acid
- D. Creatinine



Q37 General Science

The primary excretory product of _____ is uric acid.

- A. fish
- B. birds
- C. cows
- D. humans



Q38 General Science

There are four elements P, Q, R and S and their atomic numbers are 2, 6, 13 and 18, respectively. Which of the following pairs has elements having similar valency?

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



Q39 General Science

You have prepared a temporary slide of Rhoeo leaf in water. What change will you observe when you put a strong solution of sugar on the slide?

- A. No change will be seen
- B. Cells of the leaf will take in water and swell
- C. Cells will lose water and there will be shrinkage of contents of the cell away from the cell wall
- D. Some cells will take in water; others will lose water



Q40 General Science

Consider the V-I graphs for wires of material A and material B as described below:

Material A: It is a straight line passing through origin and is inclined at 20° to the current I axis.

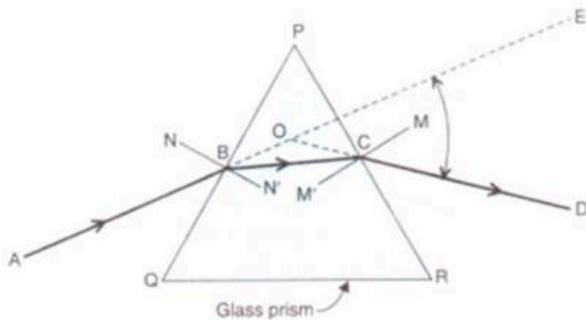
Material B: It is a straight line passing through origin and is inclined at 60° to the current I axis.

Which of the following options is correct?

- A. Both A and B follow Ohm's law. ✓
- B. Neither A nor B follow Ohm's law.
- C. A follows Ohm's law but B does not.
- D. B follows Ohm's law but A does not.

Q41 General Science

The figure below shows the path of a ray of light through a triangular glass prism. The angle of incidence and angle of deviation in the respective order are given by:



- A. $\angle ABN$ and $\angle EOD$ ✓
- B. $\angle ABN$ and $\angle OBC$
- C. $\angle ABC$ and $\angle EOD$
- D. $\angle NBC$ and $\angle MCD$



Q42 General Science

Two coils, A and B, such that A is connected to a battery through a key and B is connected to a galvanometer, are arranged parallel and close to each other. During which of the following duration will the phenomenon of electromagnetic induction be observed?

- (a) During the time the key is closed.
- (b) Two minutes after the key is closed.

A. Only (a)



B. Only (b)

C. Both (a) and (b)

D. Neither (a) nor (b)

Q43 General Science

Two resistors, A of $8\ \Omega$ and B of $12\ \Omega$, are connected in series with a battery of 6 V. If V_1 and V_2 are the potential drops across A and B and I_1 and I_2 are the currents through them, respectively, then (V_1/V_2) and (I_1/I_2) are respectively _____.

A. $(\frac{2}{3})$ and $(\frac{3}{2})$

B. $(\frac{2}{3})$ and 1



C. $(\frac{3}{2})$ and $(\frac{2}{3})$

D. $(\frac{3}{2})$ and 1

Q44 General Science

Which of the following devices is NOT based on the concept of force on a current-carrying conductor in a magnetic field?

Loudspeaker, Voltmeter, Ammeter, Electric fuse

A. Loudspeaker

B. Voltmeter

C. Ammeter

D. Electric fuse



Q45 General Science

The following table shows different epithelial tissues in animals and their location in different parts. Identify the correct option.

Epithelial Tissue	Location
A. 	i) Respiratory tract
B. 	ii) Skin
C. 	iii) Lining of blood vessels
D. 	iv) Ducts of salivary glands

A. A-i, B-ii, C-iii, D-iv

B. A-ii, B-iii, C-iv, D-i

C. A-iii, B-iv, C-i, D-ii



D. A-iii, B-iv, C-ii, D-i

Q46 General Science

Identify the correct order if A, B, C, D, E are the atomic numbers of the elements in positions of rows 1 to 4 of the periodic table of Groups 15, 16, 17 respectively, as specified in figure below

Group 15	Group 16	Group 17
A	C	-
-	-	-
-	-	E
B	D	-

A. $A > B > C > D > E$

B. $B > D > E > A > C$

C. $E > B > D > A > C$

D. $D > B > E > C > A$



Q47 General Science HINDI - no English version saved

नीचे दिए गए कथनों पर विचार कीजिए, और सही उत्तर का चयन कीजिए।

कथन-I: भोजन को वायुरोधी कंटेनरों में रखने से ऑक्सीकरण को धीमा करने में मदद मिलती है।

कथन-II: चिप्स विनिर्माता सामान्यतः चिप्स को ऑक्सीकृत होने से बचाने के लिए चिप्स के बैग को ऑक्सीजन जैसी गैस के साथ फ्लश करते हैं।

- A. दोनों कथन सत्य हैं।
- B. दोनों कथन असत्य हैं।
- C. कथन-I सत्य है, और कथन-II असत्य है।
- D. कथन-I असत्य है, और कथन-II सत्य है।

Q48 General Science HINDI - no English version saved

निम्न कथनों पर विचार कीजिए:

(a) लाल प्रकाश की तरंग दैर्घ्य, नीले प्रकाश की तरंग दैर्घ्य से लगभग 1.8 गुना अधिक होती है।

(b) जब सूर्य का प्रकाश वायुमंडल से गुजरता है, तो सूक्ष्म कण, लाल प्रकाश की तुलना में नीले प्रकाश को अधिक तीव्रता से प्रकीर्णित करते हैं।

उपरोक्त में से कौन से कथन हमें स्वच्छ आकाश के नीले रंग को समझने में मदद करते हैं?

- A. (a) और (b) दोनों
- B. न तो (a) न ही (b)
- C. केवल (a)
- D. केवल (b)

Q49 General Science

When Mendel studied the inheritance of two traits in the pea plant, in what phenotypic ratio did he get for the plants in F₂ generation?

- A. 9 : 7
- B. 9 : 4 : 2 : 1
- C. 9 : 3 : 2 : 2
- D. 9 : 3 : 3 : 1



Q50 General Science

An object is placed in front of a convex mirror of focal length 9 cm, at a distance of 18 cm. Its image is formed at a distance of:

A. 6 cm



B. 12 cm

C. 18 cm

D. 24 cm

Q51 General Science

Two coils, A and B, such that A is connected to a battery through a key and a rheostat, and B is connected to a galvanometer, are arranged parallel and close to each other. In which of the following durations, as described, is/are current(s) induced in B?

(a) 0 to 50 s : the current in A is steady

(b) 50 to 60 s : the current in A is decreased at a constant rate

A. Only (a)

B. Only (b)



C. Neither (a) nor (b)

D. Both (a) and (b)

Q52 General Science

Which of the following metals is obtained by electrolysis?

Na, Zn, Au, Ag, Mg, Al, Cu

A. Au, Ag, Mg

B. Na, Zn, Au

C. Mg, Al, Cu

D. Na, Mg, Al



Q53 General Science

The values of potential drops across, and corresponding currents in, a resistor are given in the following table. If the resistor obeys Ohm's law, then the values of X and Y are respectively:

V (in volts)	0.8	1.6	X	3.2	4.0	4.8	5.6	6.4	7.2	8.0
I (in amperes)	0.2	0.4	0.6	0.8	1.0	Y	1.4	1.6	1.8	2.0

A. 1.2 and 0.3



B. 0.3 and 1.2

C. 1.1 and 0.3

D. 0.3 and 1.1

Q54 General Science

The earth crust has only ____ carbon in the form of minerals.

A. 0.3%

B. 21%

C. 0.02%



D. 7.8%

Q55 General Science

Complete the given reaction.



A. Cl_2 (g)

B. H_2 (g)

C. Br_2 (g)



D. CO_2 (g)

Q56 General Science

Which of the following is the correct statement for the parallel combination of 3 Ω , 2 Ω and 6 Ω resistors?

A. Current passing through each resistor is equal.

B. Value of resistance increases.

C. Potential difference across each resistor is equal.



D. Current passing through 6 Ω resistor is maximum



Q57 General Science

Match the following:

Functional Group	Name of group
i. COOH	a. ester
ii. R-CO-R	b. ketone
iii. COOR	c. carboxylic acid

A. i-a, ii-b, iii-c

B. i-c, ii-b, iii-a



C. i-c, ii-a, iii-b

D. i-a, ii-c, iii-b

Q58 General Science

The refractive indices of mediums 1, 2 and 3 are 1.31, 1.36 and 1.44, respectively. If the speed of light in the mediums are v_1 , v_2 and v_3 , respectively, which of the following relations between them is correct?

A. $v_1 > v_2 > v_3$



B. $v_2 > v_3 > v_1$

C. $v_3 > v_1 > v_2$

D. $v_1 = v_2 = v_3$

Q59 General Science

Which of the following group of organisms are involved in the breakdown of dead and decaying organisms?

A. Consumers

B. Producers

C. Decomposers



D. Scavengers



Q60 General Science

Magnetic field inside a solenoid is:

- A. stronger at the middle
- B. uniform
- C. weaker at the middle
- D. zero

Q61 General Science

A ray of white light is incident on a refracting surface AB of a glass prism and emerges out of the other refracting surface AC. Consider the following statements:

- (a) The angle of refraction at surface AB is the same for different colours of white light.
- (b) The angle of refraction at the surface AC is different for different colours.

Which of the above statements is/are correct?

- A. Only (a)
- B. Only (b)
- C. Both (a) and (b)
- D. Neither (a) nor (b)

Q62 General Science

The presence of which of the following does NOT let the air passage in the respiratory system of humans collapse when there is less air in it?

- A. Ligaments
- B. Rings of cartilage
- C. Tendons
- D. Muscles

Q63 General Science

Cigarette smoking is harmful to our health because _____.

- A. it weakens the chest muscles
- B. it damages the cilia in the upper respiratory tract
- C. it reduces the oxygen-carrying capacity of RBCs
- D. causes oedema in lungs



Q64 General Science

A wire of length L and resistance R is reformed so that its length increases by 50% with no change in its volume. The resistance of the new wire is:

A. $\left(\frac{4}{9}\right) R$

B. $\left(\frac{9}{4}\right) R$ ✓

C. $\left(\frac{3}{2}\right) R$

D. $\left(\frac{2}{3}\right) R$

Q65 General Science

What is the chemical name of Plaster of Paris?

A. Calcium acetate

B. Calcium carbonate

C. Calcium sulphate dihydrate

D. Calcium sulphate hemihydrate ✓

Q66 General Science

A ray of light is incident on a concave mirror of radius of curvature 10 cm, parallel to its principal axis. After reflection, it passes through a point on the axis at a distance of _____ from the mirror.

A. 5 cm ✓

B. 7.5 cm

C. 10 cm

D. 12.5 cm

Q67 General Science

Dobereiner arranged the three elements in a triad in order of:

A. increase in their atomic masses ✓

B. decrease in their atomic masses

C. increase in their atomic numbers

D. decrease in their atomic numbers



Q68 General Science

When magnesium is burnt in the presence of air, the product formed is:

- A. magnesium sulphate
- B. magnesium chloride
- C. magnesium carbonate
- D. magnesium oxide



Q69 General Science

An object of size 4.0 cm is placed in front of a convex mirror of focal length 8 cm, at a distance of 24 cm. The image formed is _____ and its height is _____.

- A. inverted, 1.0 cm
- B. erect, 1.0 cm
- C. inverted, 2.0 cm
- D. erect, 2.0 cm



Q70 General Science

Which of the following is NOT a component of xylem?

- A. Tracheid
- B. Vessel
- C. Companion cell
- D. Parenchyma



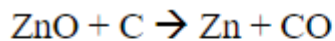
Q71 General Science

Which of the following plants DOES NOT reproduce by vegetative propagation?

- A. Grape
- B. Rose
- C. Mango
- D. Sugarcane



Q72 General Science



In the given reaction, which statement is INCORRECT?

A. ZnO acts as an oxidising agent

B. ZnO is oxidised to Zn



C. C acts as a reducing agent

D. C is oxidised to CO

Q73 General Science

Three resistors of $10\ \Omega$, $15\ \Omega$ and $30\ \Omega$ are connected in series. The resistance of the combination is:

A. $5\ \Omega$

B. $25\ \Omega$

C. $45\ \Omega$

D. $55\ \Omega$



Q74 General Science

In a science book, two solenoids, P and Q, of the same average radius and the same length are shown. The number of field lines drawn inside P is thrice of that drawn inside Q. If the current in the two solenoids is the same, the number of turns in solenoid P is _____ times the number of turns in solenoid Q.

A. $\frac{1}{9}$

B. $\frac{1}{3}$

C. 3

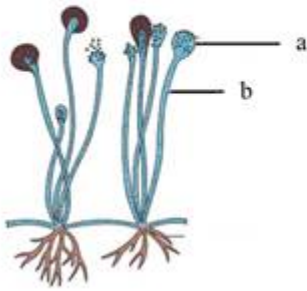


D. 9



Q75 General Science

Identify the vegetative part and the reproductive part in the following diagram of Rhizopus.



- A. Both a and b are vegetative parts
- B. a is the vegetative part, whereas b is the reproductive part
- C. Both a and b are reproductive parts
- D. a is the reproductive part, whereas b is the vegetative part**

Q76 General Science

Match the following:

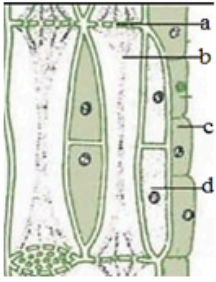
1. Total number of elements found	a. 94
2. Naturally available elements	b. 24
3. Elements found through laboratory processes	c. 118

- A. 1-a, 2-b, 3-c
- B. 1-c, 2-a, 3-b**
- C. 1-c, 2-b, 3-a
- D. 1-a, 2-c, 3-b



Q77 General Science

The diagram below shows a section of phloem tissue in plants. Which labelling shows the part with perforated walls that helps in transportation?



A. a

B. b



C. c

D. d

Q78 General Science HINDI - no English version saved

निम्नलिखित में से कौन सी जल संभर प्रबंधन (water shed management) की एक हानि है?

A. जल संभर समुदाय की आय में वृद्धि होती है

B. सूखे और बाढ़ का खतरा कम होता है

C. अनुप्रवाही बांधों और जलाशयों के जीवनकाल को बढ़ाता है

D. इसके अनुरक्षण की लागत बहुत अधिक होती है



Q79 General Science

Match the following:

Natural source	Acid
i. Lemon	a. Methanoic acid
ii. Nettle sting	b. Citric acid
iii. Tomato	c. Oxalic acid

A. i-a, ii-b, iii-c

B. i-c, ii-b, iii-a

C. i-c, ii-a, iii-b

D. i-b, ii-a, iii-c



Q80 General Science

Out of 118 elements in the Modern Periodic Table, there are _____ naturally occurring elements.

A. 89

B. 91

C. 94



D. 108

Q81 General Science

How can paper waste be minimised?

I. By discarding

II. By recycling

III. By reusing

IV. By burning

A. Only I and II

B. Only II and III



C. Only III and IV

D. Only I and IV

Q82 General Science

SI unit of resistivity is

A. Ohm

B. Ohm/metre

C. Ohm-metre



D. Metre



Q83 General Science

A science book depicts magnetic field lines around two bar magnets marked A and B. From A, five lines emerge from its north pole, and in B, ten lines enter into its south pole. The strength of A is _____ that of B.

- A. twice
- B. half
- C. four times
- D. equal to

Q84 General Science

An object is placed at a distance of 26 cm in front of a concave mirror of focal length 12 cm, on its principal axis. Its image is formed at:

- A. 24 cm
- B. a point beyond 26 cm
- C. a point between 12 cm and 24 cm
- D. a point behind the mirror

Q85 General Science

Two identical resistors are connected in parallel to a 12 V battery. The total power dissipated in the circuit is 6 W. The current in each resistor is:

- A. 0.25 A
- B. 0.5 A
- C. 1.0 A
- D. 2.0 A

Q86 General Science

The values of potential drops across, and corresponding currents in, a resistor are given in the following table. If the resistor obeys Ohm's law, then the values of X and Y are respectively:

V (in volts)	0.8	1.6	X	3.2	4.0	4.8	5.6	6.4	7.2	8.0
I (in amperes)	0.2	0.4	0.6	0.8	1.0	Y	1.4	1.6	1.8	2.0

- A. 1.2 and 2.4
- B. 2.4 and 1.2
- C. 2.2 and 1.1
- D. 1.1 and 2.2



Q87 General Science

The modern periodic classification was given by:

- A. J W Dobereiner
- B. John Newlands
- C. D I Mendeleev
- D. Henry Moseley



Q88 General Science

Which of the following is produced as a waste product during photosynthesis?

- A. Carbon dioxide
- B. Urea
- C. Oxygen
- D. Nitrogen



Q89 General Science

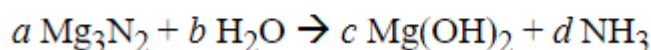
In human beings, which of the following parts of the alimentary canal excretes waste material?

- A. Large intestine
- B. Appendix
- C. Anus
- D. Small intestine



Q90 General Science

What will be the value of a , b , c , and d , respectively?



- A. 1, 3, 2 and 6
- B. 2, 3, 1 and 6
- C. 1, 6, 3 and 2
- D. 1, 4, 3 and 2



Q91 General Science

An object is placed in front of a concave mirror at a point between its focus F and centre of curvature C. The image is formed at a point _____ and is _____.

- A. between F and C, diminished
- B. between F and C, enlarged
- C. beyond C, diminished
- D. beyond C, enlarged



Q92 General Science

A precipitation reaction is one in which:

- A. water soluble salt is formed
- B. a precipitate is formed
- C. a homogeneous mixture of all the products in aqueous solution is formed
- D. a homogeneous mixture of all the reactants in aqueous solution is formed



Q93 General Science

When silver nitrate solution is added to sodium chloride solution:

- A. silver will deposit on the surface of the reaction vessel
- B. a white precipitate of sodium nitrate is obtained
- C. no reaction occurs
- D. a white precipitate of silver chloride is formed



Q94 General Science

What is the information source for making proteins in organisms?

- A. DNA
- B. Chromosomes
- C. Ribosomes
- D. Nucleus



Q95 General Science

Consider the following statements:

- (a) Light from the sun near the horizon passes thicker layers of air and larger distance in the earth's atmosphere before reaching our eyes.
- (b) Near the horizon, most of the blue light and light of shorter wavelengths are scattered away by the particles, and the light that reaches our eyes is of longer wavelengths.

Which of the above statements help(s) us to understand the red colour of the sun at sunrise and sunset?

A. Neither (a) nor (b)

B. Both (a) and (b)



C. Only (a)

D. Only (b)

Q96 General Science

Consider the below statements and identify the correct answer.

Statement-I: During indigestion the stomach produces too much acid, and this causes pain and irritation.

Statement-II: To get rid of this pain, people use bases called antacids like magnesium hydroxide

A. Both the statements are true.



B. Both the statements are false.

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

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

Q97 General Science

The waste products gums and resins are stored in which part of the plant?

A. Leaves

B. Fruits

C. Old Xylem



D. Cellular Vacuole



Q98 General Science

Who is referred to as the 'Father of Genetics'?

- A. Charles Robert Darwin
- B. James Watson
- C. Robert Hooke
- D. Gregor Johann Mendel



Q99 General Science

Which part of the nephron collects the initial filtrate from blood?

- A. Collection duct
- B. Glomerulus
- C. Renal vein
- D. Bowman's capsule



Q100 General Science

Which of the following statements is correct?

- A. Methane has four carbon atoms.
- B. Ethanol has three carbon atoms.
- C. Acetic acid has two carbon atoms.
- D. Chloroform has three carbon atoms.



Q101 General Science

Which of the following statements is NOT true?

- A. Sodium carbonate is used in making cake.
- B. Sodium hydrogencarbonate is an ingredient in antacids
- C. Sodium carbonate can be used as a cleaning agent for domestic purposes
- D. sodium hydrogencarbonate is used for making baking powder



Q102 General Science

Today, we need to use our resources judiciously and work towards sustainability of these resources. Select the option that is NOT a reason for this.

- A. Resources are unlimited ☒
- B. There is great demand due to increase in population
- C. It takes millions of years to replenish them
- D. We have to preserve them for our future generations

Q103 General Science

Consider three points P, Q and S at distances r , $2r$ and $3r$ from a straight conductor carrying current I .

Which of the following relations is true about the magnitude of the magnetic fields B_P , B_Q and B_S at points P, Q and S, respectively?

- A. $B_P = B_Q = B_S$
- B. $B_P > B_Q > B_S$ ☒
- C. $B_Q > B_S > B_P$
- D. $B_S > B_P > B_Q$

Q104 General Science

A beam of white light passes through a glass prism and a spectrum is obtained. Which of the following colour components bends the most?

Green, Red, Indigo, Blue

- A. Green
- B. Red
- C. Indigo
- D. Blue

Dropped by RRB: discrepancy found in question/answer, ignored for all candidates (no answer key).



Q105 General Science

Substances that can be broken down by biological process are called:

- A. non-biodegradable substances
- B. biodegradable substances
- C. chemical substances
- D. toxic substances



Q106 General Science

A fuse works on the principle of:

- A. Light produced electric current
- B. Heat produced by electric current
- C. Magnetic effect produced current
- D. Heat absorbed by electric current



Q107 General Science

Which of the following enzymes breaks down starch into simple sugar?

- A. Amylase
- B. Trypsin
- C. Pepsin
- D. Lipase



Q108 General Science

In solar panel, energy conversion is from _____ to _____.

- A. Heat, light
- B. Electrical, light
- C. Electrical, magnetic
- D. Solar, electrical



Q109 General Science

Which of the following is a combination reaction?

- (i) $\text{ZnCO}_3 (\text{s}) \rightarrow \text{ZnO} (\text{s}) + \text{CO}_2 (\text{g})$
- (ii) $\text{Mg} (\text{s}) + 2\text{HCl} (\text{aq}) \rightarrow \text{MgCl}_2 (\text{aq}) + \text{H}_2 (\text{g})$
- (iii) $2\text{KBr} (\text{aq}) + \text{BaI}_2 (\text{aq}) \rightarrow 2\text{KI} (\text{aq}) + \text{BaBr}_2 (\text{s})$
- (iv) $\text{H}_2 (\text{g}) + \text{Cl}_2 (\text{g}) \rightarrow 2 \text{HCl} (\text{g})$

A. (i)

B. (ii)

C. (iii)

D. (iv)



Q110 General Science

According to Ohm's law:

- A. $V \propto \frac{1}{I}$ at constant pressure
- B. $V \propto I$ at constant position
- C. $V \propto \frac{1}{I}$ at constant temperature
- D. $V \propto I$ at constant temperature



Q111 General Science

HIV is transmitted through _____.

- A. transfusion of contaminated blood
- B. consumption of food kept in open
- C. drinking polluted water
- D. working in soil without gloves on



Q112 General Science

Which of the following is considered a medicinal plant?

A. Neem



B. Teak Plant

C. Sal

D. Deodar

Q113 General Science

Which gas is evolved during the burning of natural gas (CH_4)?

A. N_2

B. CO_2



C. H_2

D. NH_3

Q114 General Science

An object is placed at a distance of 30 cm in front of a concave mirror of focal length 15 cm, on its principal axis. Its image is formed at:

A. 15 cm

B. a point between 15 cm and 30 cm

C. 30 cm



D. a point beyond 30 cm

Q115 General Science

The total number of electrons present in a valence shell of carbon atoms is:

A. 2

B. 3

C. 4



D. 5



Q116 General Science

Which of the following is NOT a metalloid?

- A. Silicon
- B. Arsenic
- C. Antimony
- D. Selenium



Q117 General Science

Milk appears white in the surrounding of white light because the particles in milk are _____ than the wavelength of different colours in white light that falls on it, and all colours of white light are scattered by _____ amount(s).

- A. smaller, different
- B. larger, different
- C. smaller, about the same
- D. larger, about the same



Q118 General Science

An element X has total of 16 proton and 16 neutrons. It belongs to _____.

- A. 2nd Period and 3rd Group
- B. 4th Period and 13th Group
- C. 3rd Period and 16th Group
- D. 3rd Period and 2nd Group



Q119 General Science

Magnetic fields produced by a current carrying conductor are:

- A. semi-circular in shape
- B. parallel to each other
- C. intersecting lines
- D. concentric circles



Q120 General Science

Neha is suffering from hyper acidity. Which of the following compounds can be given for relief from it?

A. NaCl

B. $\text{Mg}(\text{OH})_2$



C. NaOH

D. $\text{C}_6\text{H}_{12}\text{O}_6$

Q121 General Science

An object is placed at a distance of 12 cm in front of a concave mirror. Its image is formed at a distance at 18 cm on the same side. The focal length of the mirror is:

A. 7.2 cm

B. -7.2 cm



C. 36 cm

D. -36 cm

Q122 General Science

Consider the following statements about magnetic fields:

(a) The relative strength of a magnetic field is shown by the degree of closeness of lines.

(b) Magnetic field lines have magnitudes only and no directions.

Which of the above statements is/are correct?

A. Only (a)



B. Only (b)

C. Both (a) and (b)

D. Neither (a) nor (b)

Q123 General Science

Atmospheric pressure and the rate of transpiration are _____.

A. inversely proportional



B. directly proportional

C. equal

D. They are not related



Q124 General Science

Match the following:

Soda	Chemical formula
i. caustic soda	a. NaHCO_3
ii. baking soda	b. Na_2CO_3
iii. washing soda	c. NaOH

A. i-a, ii-b, iii-c

B. i-c, ii-b, iii-a

C. i-c, ii-a, iii-b



D. i-a, ii-c, iii-b

Q125 General Science

An object is placed on the principal axis of a convex lens of focal length 15 cm, at a distance of 40 cm. The magnification produced by the lens is _____ and the image is _____.

A. less than 1, inverted



B. less than 1, erect

C. more than 1, inverted

D. more than 1, erect

Q126 General Science

Buccal cavity is a part of the human _____ system.

A. excretory

B. respiratory

C. circulatory

D. digestive



Q127 General Science

Which of the following DOES NOT make an individual susceptible to HIV infection?

- A. Sharing syringes while taking intravenous injection of drugs
- B. Repeated blood transfusions
- C. Being born to an HIV-positive mother
- D. Sharing toilet with an HIV patient



Q128 General Science

$3Fe + 4H_2O \rightarrow Fe_3O_4 + 4H_2$ find the total number of atoms in products.

- A. 08
- B. 15
- C. 10
- D. 04



Q129 General Science

The presence of which of the following is a distinctive feature of complex plants that has made their survival in terrestrial environment possible?

- A. Meristematic tissue
- B. Vascular tissue
- C. Parenchyma tissue
- D. Sclerenchyma tissue



Q130 General Science

The amount of carbon dioxide in the atmosphere is:

- A. 21%
- B. 0.03 %
- C. 71%
- D. 0.3%



Q131 General Science

The focus of a convex mirror is at a distance of 30 cm from its pole. Its centre of curvature will be at a distance of _____ from the focus.

A. 15 cm

B. 30 cm



C. 45 cm

D. 60 cm

Q132 General Science

Which of the following objectives is NOT a part of watershed management?

A. Recharging of groundwater

B. Mitigating droughts and floods

C. Restoring water levels in downstream rivers

D. Generating electricity



Q133 General Science

Which of the following is a china dish?



Q134 General Science

A copper wire AB is made of three parts, AC, CD and DB of resistances in the ratio of 2 : 3 : 4. The wire is connected to a battery. If V_1 , V_2 and V_3 are the potential drops across AC, CD and DB, respectively, then which of the following is correct?

A. $V_1 : V_2 : V_3 = 1 : 1 : 1$

B. $V_1 : V_2 : V_3 = 1 : 2 : 3$

C. $V_1 : V_2 : V_3 = 2 : 3 : 4$ ✓

D. $V_1 : V_2 : V_3 = 3 : 4 : 2$

Q135 General Science

If the speed of light in water and glass are $2.25 \times 10^8 \text{ m/s}$ and $1.86 \times 10^8 \text{ m/s}$ respectively then the refractive index of glass with respect to water is:

A. 1.21 ✓

B. 0.83

C. 1.31

D. 0.52

Q136 General Science

You are shocked to see how waste is littered in your society and no one is bothered. As a result, kids of the society fall sick very often. As a science student, how would you react to the situation?

A. Explain the importance of waste management to all residents, start segregation of waste and start composting ✓

B. Shout at the staff for not taking care

C. Turn a blind eye to the situation

D. Follow their footsteps



Q137 General Science

The refractive indices of two transparent media A and B are $\frac{3}{2}$ and $\frac{4}{3}$, respectively. The refractive index of medium A with respect to medium B is equal to:

A. $\frac{9}{8}$

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

C. $\frac{8}{9}$ ✓

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

Q138 General Science

Magnetic lines move from west to east direction and the conductor placed horizontally moves towards the upward direction. In such a case, the direction of induced current is towards:

A. east

B. west

C. north ✓

D. south

Q139 General Science

The correct relation between P, V, R and I amongst the following is:

A. $P = V^2 IR$

B. $P = I^2 R$ ✓

C. $P_2 = VI R^2$

D. $P = \frac{V^2}{IR}$

Q140 General Science

Where are waste products stored within a plant cell?

A. Vacuoles ✓

B. Mitochondria

C. Lysosomes

D. Golgi bodies



Q141 General Science

Which of the following reactions releases heat along with the formation of products?

- A. Exothermic reaction
- B. Endothermic reaction
- C. Rearrangement reactions
- D. Sigma tropic reactions

Q142 General Science

What is the suffix in the name Propanoic Acid?

- A. Prop
- B. Propane
- C. oic acid
- D. ane

Q143 General Science

In which year was Mendeleev's Periodic Table published in a German journal?

- A. 1872
- B. 1852
- C. 1892
- D. 1862

Q144 General Science

In an electric circuit, if power, voltage and resistance are represented by P, V and R, respectively, then the correct relation between them is:

- A. $P = V^2 R$
- B. $P = VR^2$
- C. $P = \frac{V^2}{R}$
- D. $P = \frac{V^2}{R^2}$



Q145 General Science

Why is carbon monoxide an air pollutant?

- A. Because it can kills RBCs
- B. Because it is reduces oxygen carrying capacity of blood
- C. Because it is present in vehicle exhaust
- D. Because it is converted into carbon dioxide

Q146 General Science

Which of the following compounds is formed when lead nitrate is mixed with potassium iodide?

- A. Lead oxide
- B. Lead iodide
- C. Lead nitride
- D. Lead carbide

Q147 General Science

When a beam of light of wave lengths $4500 \text{ \AA}$, $5400 \text{ \AA}$, and $6000 \text{ \AA}$ respectively are passed through a prism then the angle of deviation is:

- A. more in light of $4500 \text{ \AA}$
- B. equal in all
- C. more in light of $6000 \text{ \AA}$
- D. more in light of $5400 \text{ \AA}$

Q148 General Science

When magnetic lines of forces are more crowded in the region of magnetic field, this indicates the presence of:

- A. strong magnetic field
- B. weak magnetic field
- C. magnetic north pole alone
- D. magnetic south pole alone

Q149 General Science

When an object is kept at the centre of curvature of a concave mirror, the image will be formed at:

- A. infinity
- B. the principal focus
- C. the centre of curvature
- D. the position behind the mirror

Q150 General Science

Which of the following types of epithelial tissues form a lining of lung alveoli?

- A. Squamous
- B. Cuboidal
- C. Columnar
- D. Ciliated columnar

Q151 General Science

In a house, a refrigerator set rated as 350 W is operated for 8 hours/day, a TV set rated as 150 W is operated for 5 hours/day, and an electric heater rated as 1500 W is operated for 30 minutes/day. If the energy cost per unit is ₹5.00, then the total expenditure of that house for 10 days for the TV set, refrigerator and electric heater will be:

- A. ₹215 /-
- B. ₹220/-
- C. ₹225/-
- D. ₹230/-

Q152 General Science

How many elements are present in the 7th period of the Modern Periodic table?

- A. 2
- B. 8
- C. 32
- D. 18



Q153 General Science

What is the full form of UNEP

- A. United Nations Empowerment Programme
- B. United Nations Educational Programme
- C. United Nations Environment Programme ✓
- D. United Nations Environmental Protection

Q154 General Science

Complete the given homologous series of alcohols by choosing the correct option.

CH_3OH , $\text{C}_2\text{H}_5\text{OH}$, _____, $\text{C}_4\text{H}_9\text{OH}$

- A. $\text{C}_3\text{H}_6\text{OH}$
- B. $\text{C}_3\text{H}_7\text{OH}$ ✓
- C. $\text{C}_5\text{H}_{10}\text{OH}$
- D. $\text{C}_5\text{H}_{12}\text{OH}$

Q155 General Science

The rules of inheritance of traits in human beings are related to certain facts mentioned below. All of them are correct except one. Select the INCORRECT option.

- A. Both mother and father contribute equal amount of genetic material to the child
- B. Each trait can be influenced by paternal and maternal DNA
- C. For each trait, there would be two versions in each child
- D. For each trait, there would be a single version in each child ✓

Q156 General Science

What happens when quick lime reacts vigorously with water?

- A. Displacement reaction
- B. Dissociation reaction
- C. Double displacement reaction
- D. Exothermic reaction ✓



Q157 General Science

reflected ray passes through principal focus when incident ray:

- A. is passing through C of convex mirror
- B. is parallel to principal axis of concave mirror ✓
- C. is parallel to principal axis of convex mirror
- D. is incident at the pole of plane mirror

Q158 General Science

In which season would sugar stored in root or stem tissue be transported to the buds which need energy to grow in plants?

- A. Winter
- B. Spring ✓
- C. Summer
- D. Monsoon

Q159 General Science

Which of the following is similar to the plasma of blood but is colourless and contains less protein?

- A. RBC
- B. WBC
- C. Lymph ✓
- D. Platelets

Q160 General Science

The refractive index of fluid A is 1.47. This means:

- A. the speed of light in fluid A is increased 1.47 times than the speed of light in water
- B. the speed of light in fluid A is reduced by 1.47 times than the speed of light in vacuum ✓
- C. the speed of light in fluid A is 1.47 times greater than the speed of light in water
- D. the speed of light in fluid A is 1.47 times greater than the speed of light in air



Q161 General Science

Which of the following is related to the Chipko Andolan Movement?

- A. Water
- B. Forest
- C. Pollution
- D. Coal



Q162 General Science

Consider the below statements and identify the correct answer.

Statement-I: The metals high up in the reactivity series are not reactive.

Statement-II: The metals high up in the reactivity series can be obtained from their compounds by heating with carbon.

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



Q163 General Science

When zinc granules react with dilute sulphuric acid, a colourless gas is produced which burns with a:

- A. yellow flame
- B. green flame
- C. pop sound
- D. reddish flame



Q164 General Science

Consider two wires of the same material, but the ratio of their cross-sectional areas is 1 : 10 and the ratio of their lengths is 2 : 5. If the same 10 V battery is connected across these two wires separately, what will be the ratio of the current flow in these two wires?

- A. 1 : 4
- B. 4 : 1
- C. 1 : 25
- D. 25 : 1



Q165 General Science

Where can a tall tree store its waste products?

- A. In the bark tissue
- B. In old xylem (heartwood) ✓
- C. In old roots
- D. In intercellular spaces

Q166 General Science

A bulb draws 36 W when connected to a 12- V supply. If it is connected to a 6V supply then power consumed will be:

- A. 12W
- B. 24 W
- C. 9W ✓
- D. 6W

Q167 General Science

Which of the following materials CANNOT be used to make a spherical lens?

- A. Clear glass
- B. Cellophane
- C. Wood ✓
- D. Water

Q168 General Science

Which of the following options DO NOT fit in the 3 R's of waste management?

- A. Reduce
- B. Refuse ✓
- C. Reuse
- D. Recycle



Q169 General Science

Which of the following gases is evolved when zinc granules are added to hydrochloric acid?

- A. Cl_2
- B. O_2
- C. OCl_2
- D. H_2



Q170 General Science

Which of the following statements is INCORRECT about photosynthesis?

- A. Photosynthesis is about Absorption of light energy by chlorophyll.
- B. Photosynthesis is about conversion of light energy to chemical energy
- C. Photosynthesis includes splitting of water molecules into hydrogen and oxygen
- D. Photosynthesis involves oxidation of carbon dioxide to carbohydrates



Q171 General Science

Which of the following belongs to the homologous series of alkenes?

- A. C_6H_{14}
- B. $\text{C}_{10}\text{H}_{18}$
- C. $\text{C}_{10}\text{H}_{22}$
- D. $\text{C}_{10}\text{H}_{20}$



Q172 General Science

Which of the following statements is INCORRECT with respect to coal and petroleum?

- A. These are unlimited resources on Earth.
- B. They have been formed by degradation of living organisms over millions of years.
- C. They cause environmental pollution.
- D. Their use leads to global warming.



Q173 General Science

An object is placed in front of a concave lens at a distance d . An erect image of the object is formed at $d/3$. If the focal length of the lens is 15 cm, then d is equal to:

A. 15 cm

B. 20 cm

C. 25 cm

D. 30 cm



Q174 General Science

If the resistivity of nichrome wire is $110 \times 10^{-8} \Omega \text{ m}$, its length is 5.5 m and its resistance is 22Ω , then the area of cross section is:

A. $275 \times 10^{-7} \text{ m}^2$

B. $2.75 \times 10^{-7} \text{ m}^2$



C. $3.4 \times 10^{-8} \text{ m}^2$

D. $34 \times 10^{-4} \text{ m}^2$

Q175 General Science

Through which organ is air taken into the body of human beings?

A. Nostrils



B. Wind pipe

C. Alveoli

D. Bronchi

Q176 General Science

Which tissue forms the walls of the renal tubules?

A. Nervous tissue

B. Muscular tissue

C. Connective tissue

D. Epithelial tissue



Q177 General Science

Which of the following is required for the breakdown of glucose in human cells to provide energy?

- A. Carbon dioxide
- B. Oxygen
- C. Nitrogen
- D. Hydrogen



Q178 General Science

The distance between the pole and the centre of curvature of a given concave mirror of focal length 0.5 m is:

- A. 0.5 m
- B. 0.25 m
- C. 1.0 m
- D. 0.75 m



Q179 General Science

Electrovalent compounds show conduction of electricity in:

- A. solid state
- B. molten state
- C. kerosene
- D. petrol



Q180 General Science

Calculate the current in a wire if 1200 C of charge passes through it in 10 minutes.

- A. 4 A
- B. 2 A
- C. 1.5 A
- D. 3 A



Q181 General Science

Which element does NOT belong to group number 11 in the Modern Periodic Table?

- A. Cu
- B. Ag
- C. Au
- D. Hg



Q182 General Science

Which of the following decreasing orders is correct for reactivity of metals?

- A. $\text{Ca} > \text{Al} > \text{Cu} > \text{Hg}$
- B. $\text{Al} > \text{Cu} > \text{Hg} > \text{Ca}$
- C. $\text{Al} > \text{Ca} > \text{Cu} > \text{Hg}$
- D. $\text{Al} > \text{Cu} > \text{Ca} > \text{Hg}$



Q183 General Science

In the early days, classification of elements was attempted according to their:

- A. natural occurrence
- B. synthesis in a laboratory
- C. abundance
- D. properties



Q184 General Science

In an electric circuit, where 5 lamps are connected in series, if the power, voltage, current and resistance are represented by P, V, I and R, respectively, then which of the following relations holds true?

- A. $P = I^2 R$
- B. $P = V^2 \times R$
- C. $P = \frac{V}{R^2}$
- D. $P = IR^2$



Q185 General Science

Two wires are of the same length and the same resistance, but the ratio of their cross-sectional areas is 1 : 8. The ratio of their resistivities will be:

A. 8 : 1

B. 8 : 3

C. 1 : 8



D. 3 : 8

Q186 General Science

Dialysis is the procedure done to remove the waste products from the blood when the normal functioning of kidneys is affected. The steps of dialysis are given below but not in the proper order. Which option shows the correct sequence of these steps?

a) Line to vein

b) Patient's blood passed through a tank with dialysing fluid

c) Line from artery

d) Waste products from the blood pass into dialysing fluid

e) Dialysing fluid has same osmotic pressure as blood except the wastes

A. a—b—c—d—e

B. a—c—d—b—e

C. c—b—e—d—a



D. c—b—d—a—e

Q187 General Science

Consider two wires of the same material, but the ratio of their cross-sectional areas is 2 : 5 and the ratio of their lengths is 7 : 5. If the same amount of current is flowing through them when they are connected to two batteries with voltages V_1 and V_2 , respectively, then $V_1 : V_2$ is:

A. 2 : 7

B. 2 : 5

C. 7 : 2



D. 7 : 5



Q188 General Science

Group 2nd elements in the modern periodic table are also known as:

- A. inert gases
- B. alkali metals
- C. alkaline earth metals
- D. transition metals

Q189 General Science

Suppose a wire of aluminum is 1 m long, its cross-sectional area is 10^{-2} mm^2 , and its resistance is 2.8Ω . If it is stretched to 8 times its original length, then its resistivity will be:

- A. $2.8 \times 10^{-8} \Omega \text{ m}$
- B. $8.8 \times 10^{-8} \Omega \text{ m}$
- C. $1.8 \times 10^{-7} \Omega \text{ m}$
- D. $2.8 \times 10^{-7} \Omega \text{ m}$

Q190 General Science

In which of the following animals is sex NOT genetically determined?

- A. Snails
- B. Snakes
- C. Shark
- D. Salmon

Q191 General Science

Two wires, A and B, are made of the same material, but the length of A is 3 times that of B, and the cross-section of A is $\frac{1}{4}$ th of that of B. The resistance of A is:

- A. 3 times that of B
- B. 6 times that of B
- C. 9 times that of B
- D. 12 times that of B



Q192 General Science

The correct relation between ρ , R , l and A is:

A. $R = \rho l A$

B. $\rho = \frac{Rl}{A}$

C. $\rho = \frac{RA}{l}$ ✓

D. $R = \frac{\rho A}{l}$

Q193 General Science HINDI - no English version saved

किसी परिनालिका में उत्पन्न चुंबकीय क्षेत्र की प्रबलता, निम्नलिखित में से किस कारक पर निर्भर नहीं करती है?

A. परिनालिका में फेरों की संख्या

B. परिनालिका में धारा की प्रबलता

C. क्रोड सामग्री के रूप में लकड़ी की छड़ का उपयोग किए जाने पर ✓

D. क्रोड सामग्री के रूप में नर्म लोहे का उपयोग किए जाने पर

Q194 General Science

$6\text{CO}_2(\text{aq}) + 12\text{H}_2\text{O}(\text{l}) \xrightarrow{\quad ? \quad} \text{C}_6\text{H}_{12}\text{O}_6(\text{aq}) + 6\text{O}_2(\text{aq}) + 6\text{H}_2\text{O}(\text{l})$ Select correct reaction conditions for given reaction.

A. Sunlight and chlorophyll ✓

B. High pressure

C. High temperature

D. Inert atmosphere



Q195 General Science

Suppose in a circuit, a silver wire of length L and cross-sectional area A is replaced by an aluminium wire of length $5L$ and cross-sectional area $9A$. The resistance of the circuit will _____.

(Given that $\rho_{\text{silver}} = 1.6 \times 10^{-8} \Omega \text{ m}$ and $\rho_{\text{Aluminium}} = 2.6 \times 10^{-8} \Omega \text{ m}$)

- A. increase to 1.1 times of itself
- B. increase to 1.2 times of itself
- C. decrease to 0.9 times of itself
- D. decrease to 0.8 times of itself



Q196 General Science

A shaving mirror is constructed in such way that a man at a distance of 30 cm from the mirror sees his image magnified 1.33 times. Then the radius of curvature of the mirror is:

- A. 34.25 cm
- B. 30.4 cm
- C. 28.6 cm
- D. 27.5 cm



Q197 General Science

A triangular glass prism has:

- A. 3 faces and 4 edges
- B. 5 faces and 8 edges
- C. 5 faces and 9 edges
- D. 9 faces and 5 edges



Q198 General Science

A student plots three graphs for I against V for three Ohmic conductors A, B and C. He found that the slope of these three graphs are 0.5, 0.1 and 0.2, respectively. If the conductors have the same length and their cross-section areas are in the ratio $1 : 2 : 3$, then their resistivity ratios i.e. $\rho_A : \rho_B : \rho_C$ will be:

- A. $1 : 20 : 15$
- B. $2 : 20 : 15$
- C. $3 : 20 : 15$
- D. $4 : 20 : 15$



Q199 General Science

Suppose in a circuit, a silver wire of length L and cross-sectional area A is replaced by a chromium wire of length $L/3$ and cross-sectional area $3A$. The resistance of the circuit will _____.

(Given that $\rho_{\text{silver}} = 1.6 \times 10^{-8} \Omega \text{ m}$ and $\rho_{\text{chromium}} = 12.9 \times 10^{-8} \Omega \text{ m}$)

- A. increase to 1.3 times of itself
- B. increase to 1.05 times of itself
- C. decrease to 0.78 times of itself
- D. decrease to 0.89 times of itself

**Q200** General Science

Consider two wires of the same resistance, but the ratio of their cross-sectional areas is $1 : 9$. Furthermore, the ratio of their lengths is $3 : 2$. The ratio of their resistivities will be:

- A. $2 : 9$
- B. $2 : 13$
- C. $2 : 27$
- D. $2 : 33$

**Q201** General Science HINDI - no English version saved

कार्बन के इनमें से किस यौगिक की पिंजरे-जैसी संलयित-वलय संरचना होती है, जो सॉकर बॉल के सदृश होती है?

- A. हीरा
- B. ग्रेफाइट
- C. C-60 फुलरीन
- D. ग्रेफीन



Q202 General Science HINDI - no English version saved

किसी प्रिज्म पर श्वेत प्रकाश आपतित होने पर इसका वर्ण-विक्षेपण (dispersion) होता है। इस संदर्भ में, सही विकल्प का चयन कीजिए।

- (a) प्रिज्म में लाल रंग का प्रकाश सर्वाधिक मुड़ता है।
- (b) प्रिज्म में बैंगनी रंग के प्रकाश की चाल सबसे कम होती है।
- (c) बैंगनी रंग के प्रकाश का अपवर्तनांक सर्वाधिक होता है।
- (d) प्रिज्म को सीधा रखे जाने पर, बैंगनी रंग सबसे ऊपर होता है, और लाल रंग सबसे नीचे होता है।
- (e) इंद्रधनुष का बनना भी वर्ण-विक्षेपण (Dispersion) के कारण ही होता है।

A. (a), (c) और (d)

B. (b), (c) और (e)



C. (b), (c) और (d)

D. (b), (d) और (e)

Q203 General Science

If a coin is placed at the bottom of a tumbler of height 30 cm filled with water of refractive index 1.33, then the apparent depth of the coin appears to be:

A. 39.9 cm

B. 22.6 cm



C. 25.7 cm

D. 36.7 cm

Q204 General Science

In an electric circuit, four equal resistors were in series, connected to a cell. These are now disconnected and connected back in parallel across the same cell. The ratio of current in the series circuit to the current in each resistor in the parallel circuit will be _____.

A. 1 : 16

B. 1 : 4



C. 4 : 1

D. 16 : 1



Q205 General Science

A doublet is a combination of two lenses. One such doublet is made with a convex lens of focal length of 20 cm and a concave lens of focal length of 50 cm. The effective focal length and power of this doublet is _____ and _____, respectively.

A. 33.3 cm, 3D



B. 20 cm, 5D

C. 50 cm, 2D

D. 14.28 cm, 7D

Q206 General Science

Which of the following sites is NOT suitable for building a water-harvesting pit?

A. In the yard of a large housing complex

B. In the corner of a small one-storey house

C. Near a large open landfill site



D. Near a large and busy international airport

Q207 General Science

A ray of light in air is incident at an angle of 60° on the surface separating air from a medium of refractive index $\sqrt{3/2}$. The ray is refracted in the medium at an angle of _____.

A. 15°

B. 30°

C. 45°



D. 60°

Q208 General Science

A coin of diameter 4 cm is placed at a distance of 45 cm in front of a convex lens of focal length 30 cm. Then the diameter of the image of the coin will be:

A. 6 cm

B. 8 cm



C. 10 cm

D. 12 cm



Q209 General Science

What is a good strategy of serving food, if you have to serve buffet food to around 150 guests in a family function? Note that this means the person has to hold the plate while standing and eating.

- A. Metal plates
- B. Banana leaves
- C. Plastic plates
- D. Banana leaves on washable and reusable plastic plates



Q210 General Science

The process of obtaining images of different body parts by using a weak magnetic field produced inside the body is called _____.

- A. CT scan
- B. MRI scan
- C. PET scan
- D. Ultrasound scan



Q211 General Science

Which of the following statements with respect to position of elements having atomic number 11, 12, 13, 14, 15, 16, 17 and 18, respectively, in the modern periodic table is INCORRECT?

- A. These elements are placed in the same period in the modern periodic table.
- B. These elements belong to the second period of the modern periodic table.
- C. Electrons in the atoms of these elements are filled in K, L and M shells.
- D. These elements belong to the third period of the modern periodic table.



Q212 General Science

Which of the following statements is/are correct with regard to the principal axis of a spherical mirror?

- (a) A principal axis is an imaginary line extended on both sides of the mirror.
- (b) A principal axis passes through the center of curvature, principal focus and pole.
- (c) The principal axis for a curved mirror is curved.

- A. Only (a) is correct
- B. Only (b) is correct
- C. Only (a) and (b) are correct
- D. (a), (b) and (c) are correct

Q213 General Science

Suppose a satellite is 10^2 km above the ground and it is used to take high resolution images of objects. If a concave mirror is used to form a primary image of an object of size 1.0 m and if the image size is $5\ \mu\text{m}$ and it is inverted, then the principal focus of the concave mirror should be:

- A. +1.0 m
- B. -0.5 m
- C. +0.50 m
- D. -1.0 m

Q214 General Science

The resistivity of a material of length 5 m is 1.6×10^{-8} ohm-m. If the length of the material is increased by 10 m, then the value of resistivity is _____.

- A. 3.2×10^{-8}
- B. 1.6×10^{-8}
- C. 0.8×10^{-8}
- D. 12.4×10^{-8}

