KHOJ-2026
Hunt for Young Talents

# CLASS VI

## Physics

**Q.1** Bulbs 1 and 2 are connected in series, so the battery voltage is shared between them. Bulb 3 is connected in a separate parallel branch and receives the full battery voltage.

For identical bulbs, greater voltage across a bulb means greater current, power and hence greater brightness.

Therefore, bulb 3 will glow brightest.

**Correct Answer:** C

**Q.2** The Pole Star appears nearly stationary because it lies close to the direction of Earth's rotational axis. Stars appear to move across the sky from east to west because of Earth's rotation. The Sun is a star, while stars do not all have the same brightness.

**Correct Answer:** C

**Q.3** The pole of the magnet used for stroking produces the opposite pole at the end where the stroke finishes.

Therefore, if the South pole is used and the stroke is from one end to the other:

End where stroking ends $\rightarrow$ North pole

End where stroking begins $\rightarrow$ South pole

**Correct Answer:** B

**Q.4** Towards the left

S-pole is on the left end

N-pole is on the right end

Outside a bar magnet, magnetic field lines travel from N to S.

Therefore, at the position of the compass above the middle of the magnet, the magnetic field is directed generally from right to left.

The north-seeking end of the compass needle points along the magnetic field.

Therefore, the needle points towards the left, i.e. towards the S-pole of the magnet.

**Correct Answer:** D

**Q.5** One angstrom (Å) is defined as:

$1Å=10^{-10}m$

**Correct Answer:** A

**Q.6** In the diagram, the incident light rays are shown falling on Object X and the reflected rays are parallel/regularly reflected. This indicates regular reflection, which occurs from a smooth, polished surface.

**Correct Answer:** D

**Q.7** Temperature tells us how hot or cold an object is.
The cup of tea is at 80°C, while the bucket of water is at 35°C.
Therefore, the tea is hotter, even though the bucket may contain more thermal energy because it contains a much larger quantity of water.

**Correct Answer:** B

**Q.8** The runner completes one complete lap.

Distance = actual path travelled = 400 m

After one complete lap, the runner returns to the starting point.

Therefore, the change in position is zero.

**Correct Answer:** C

**Q.9** If the zero mark is damaged, we should not guess the measurement.

For example, suppose an object starts at the 2 cm mark and ends at the 8 cm mark.

Then:

Length 8-2 = 6cm

Thus, we start from a clear mark and subtract the initial reading from the final reading.

**Correct Answer:** B

**Q.10** An object possesses kinetic energy when it is in motion. Since the car is moving, it has kinetic energy. It is on the ground so the potential energy possessed by the car is zero.

**Correct Answer:** C

## Chemistry

**Q.11** Fog is formed when water vapor in the air condenses into tiny liquid droplets near the ground. This is a natural process. It is reversible because as the temperature rises later in the morning, the water droplets evaporate back into water vapor, making the fog disappear. Ripening, smoke, and sprouts are natural but generally irreversible changes.

**Correct Answer:** B

**Q.12** Acetone is a liquid, and helium is a gas. Both fluids do not have a definite shape of their own; they take the shape of the container they are placed in. However, only gases (helium) fill the entire container, and only liquids (acetone) have a definite volume. Neither has a rigid structure.

**Correct Answer:** C

**Q.13** Raw, untreated paper is highly absorbent and would quickly disintegrate or become soggy when filled with water. Therefore, it is not suitable for making water bottles. Stainless steel, glass, and food-grade plastic are all commonly used for this purpose.

**Correct Answer:** B

**Q.14** Lustrous means having a shiny surface, and hard means resistant to scratching or bending. Diamond is the hardest known natural material and can be cut to be shiny. Copper is a metal that is hard and naturally lustrous. Silk is soft, rust is not lustrous, and rubber and cotton are not hard or lustrous.

**Correct Answer:** C

**Q.15** Wells and springs are directly connected to the groundwater table (aquifers) beneath the Earth's surface. They are replenished (refilled) as rainwater seeps into the ground and joins this groundwater reserve.

**Correct Answer:** A

**Q.16** Evaporation is the process where liquid water turns into water vapor (gas) at the surface. Puddles disappear because the water evaporates into the air, especially under the sun or in dry conditions. While some water might seep into the ground (b), evaporation is the primary reason puddles disappear completely. Condensation (c) would form water, not remove it.

**Correct Answer:** A

**Q.17** Assertion (A) is true: Argon makes up about 0.93% of Earth's atmosphere.

Reason (R) is false: Carbon dioxide is not the second largest constituent of air. The second largest constituent is Oxygen (about 21%). Carbon dioxide is present in very small amounts (about 0.04%).

**Correct Answer:** C

**Q.18** While evaporation can separate sugar from water, it leaves behind a solid, crystalline mass that may contain impurities. Crystallization is a better method to obtain pure sugar. It involves slowly evaporating the water so that pure sugar crystals form, leaving impurities behind in the remaining liquid.

**Correct Answer:** A

**Q.19** Sulphur is insoluble in water. When mixed, it forms a suspension (sulphur particles floating/settling in water). Filtration is the standard method to separate an insoluble solid from a liquid. Winnowing is for separating solids of different weights, a separating funnel is for immiscible liquids, and sieving is for separating different sized solids.

**Correct Answer:** B

**Q.20** Heating provides thermal energy to the particles of matter. This energy increases their kinetic energy, causing them to vibrate or move faster. Cooling has the opposite effect, slowing the particles down.

**Correct Answer:** D

## Mathematics

**Q.21** Triangular numbers are formed by adding consecutive natural numbers: 1, 1+2=3, 3+3=6, 6+4=10, 10+5=15.

**Correct Answer:** A

**Q.22** Same straight line

**Correct Answer:** A

**Q.23** Place value of 8 in 6,58,742 = 8,000
Face value of 8 = 8
Difference between them = 8,000 - 8 = 7,992

**Correct Answer:** B

**Q.24** $1 \text{ billion} = 10^9$

$1 \text{ lakh} = 10^5$

$$\Rightarrow \frac{1 \text{ billion}}{1 \text{ lakh}} = \frac{10^9}{10^5} = 10^4 = 10{,}000$$

**Correct Answer:** D

**Q.25** A number is divisible by 45 if it divisible by 9 & 5.

**Correct Answer:** B

**Q.26** We know that the difference between 17 and 23 = 23 – 17 = 6
Therefore, 17 and 23 are not twin-primes.

**Correct Answer:** D

**Q.27** We know that the sum of the given digits = 1 + 5 + 4 + 8 = 18
Hence 18 is a divisible by 9. So at place of * we can take 0 or 9.

**Correct Answer:** A

**Q.28** Pictures or symbols

**Correct Answer:** B

**Q.29** Perimeter of square = 4 × side.

$32 = 4 \times \text{side} \Rightarrow \text{side} = \frac{32}{4} = 8 \text{ cm}.$

**Correct Answer:** C

**Q.30**
Area of a square using diagonal $d = \frac{d^2}{2}$

$\text{Area} = \frac{8^2}{2} = \frac{64}{2} = 32\text{cm}^2$

**Correct Answer:** C

**Q.31** Cross-multiply: $3 \times 3 = 9$ and $4 \times 2 = 8$.

Since $9 > 8, \frac{3}{4} > \frac{2}{3}$

**Correct Answer:** A

**Q.32** To compare them evenly, find a common denominator for 6, 8, 4, and 3, which is 24.

$\frac{2}{3} \times \frac{8}{8} = \frac{16}{24}$

$\frac{3}{4} \times \frac{6}{6} = \frac{18}{24}$

$\frac{5}{6} \times \frac{4}{4} = \frac{20}{24}$

$\frac{7}{8} \times \frac{3}{3} = \frac{21}{24}$ (Largest numerator)

Final Order (Smallest to Largest): $\frac{2}{3} < \frac{3}{4} < \frac{5}{6} < \frac{7}{8}$

**Correct Answer:** B

**Q.33** Diameter = 2 × Radius = 2 × 7 = 14 cm.

**Correct Answer:** C

**Q.34** A triangle has 3 sides, so it is not a quadrilateral (which must have 4 sides).

**Correct Answer:** C

**Q.35** A rectangle has 2 lines of symmetry (vertical and horizontal).

**Correct Answer:** B

**Q.36** An equilateral triangle looks the same after a rotation of 120°. Order = 3.

**Correct Answer:** C

**Q.37** -5 + 7 - 13 - (-67) + 56

$\Rightarrow$ 2 - 13 + 67 + 56

$\Rightarrow$ -11 + 67 + 56

$\Rightarrow$ 56 + 56 = 112

**Correct Answer:** B

**Q.38** **23, 29, 31, 37**

**Correct Answer:** A

**Q.39** Range = Maximum - Minimum = 24 - 12 = 12.

**Correct Answer:** C

**Q.40** Area of square = side$^2$. 121 = side$^2$ $\Rightarrow$ side = 11 m (since 11 × 11 = 121).

**Correct Answer:** C

**Q.41** 3×2 = 6

6×2=12

12×2=24

The rule is to multiply the previous number by 2:

so the 8th term = 192 × 2 = 384

**Correct Answer:** C

**Q.42** Perpendicular

**Correct Answer:** B

**Q.43** Find the LCM: Calculate the Least Common Multiple (LCM) of 6, 8, and 9.

Prime factorization of 6 = 2 × 3

Prime factorization of 8 = $2^3$

Prime factorization of 9 = $3^2$

LCM(6, 8, 9) = $2^3 \times 3^2 = 8 \times 9 = 72$

So, 72 × 30 = 2160

**Correct Answer:** B

**Q.44** Multiply by 6: Find the product of the number and the required multiple.

13 × 6 = 78

**Correct Answer:** A

**Q.45** Perimeter of square = Perimeter of rectangle

Perimeter of rectangle = 2 × ($l$ + b)

= 2 × (10 + 6)

= 2 × 16

= 32 cm

Perimeter of square = 4 × side

32 = 4 × side

side of square = $\frac{32}{4}$ = 8 cm

Area of square = side × side

= 8 × 8

= 64 cm$^2$

**Correct Answer:** C

**Q.46** $2\frac{1}{2}+1\frac{1}{2}$

$\Rightarrow 2+1+\frac{1}{2}+\frac{1}{2}$

$\Rightarrow 3+1=4$

**Correct Answer:** B

**Q.47** 1/5

**Correct Answer:** B

**Q.48** n = sum of first 10 odd natural no.

Sum of first n odd numbers = $n^2 = 10^2 = 100$

**Correct Answer:** C

**Q.49** The sum of all angles of a triangle = 180°.

So, third angle is = 180° - (45° + 55°) = 80°

**Correct Answer:** C

**Q.50** We know that the smallest four digit number = 1,000

Largest four digit number = 9,999.

So the total number of four-digit numbers = [9,999 - 1,000] + 1 = 9,000

**Correct Answer:** B

## Biology

**Q.51** Adaptations define as the special features that enable plants and animals to survive in a particular region.

**Correct Answer:** B

**Q.52** Shrubs have woody stems branching close to the ground and herbs as small plants with soft, green stems.

**Correct Answer:** C

**Q.53** Terrestrial refers to land habitats, aquatic to water habitats, amphibians live in both, and sacred groves are community-protected forest patches.

**Correct Answer:** A

**Q.54** Camel, lion, and tiger are terrestrial animals, while the whale is an aquatic animal living in the ocean.

**Correct Answer:** C

**Q.55** Mosquito life cycle sequence is egg (Stage I) developing into a larva (Stage II).

**Correct Answer:** C

**Q.56** Plants can't move, they do show movements like flowers opening and insectivorous plants trapping prey.

**Correct Answer:** B

**Q.57** Jagadish Chandra Bose used the crescograph, Janaki Ammal worked on plant biodiversity, and Salim Ali is the Birdman of India.

**Correct Answer:** A

**Q.58** Dogs have a very strong sense of smell. They use it to identify other dogs and mark their own territory.

**Correct Answer:** C

**Q.59** Thinking about tasty foods like tamarind can make the mouth produce saliva. This helps in tasting and digesting food.

**Correct Answer:** B

**Q.60** Seeds need water to germinate and grow. Without enough water, the seed may not sprout or the plant may dry up.

**Correct Answer:** A

## Mental Ability

**Q.61** $3 + 5 = 8$

$\Rightarrow 8 + 7 = 15$

$\Rightarrow 15 + 9 = 24$

$\Rightarrow 24 + 11 = 35$ (The series incorrectly has 34)

$\Rightarrow 35 + 13 = 48$

$\Rightarrow 48 + 15 = 63$

**Correct Answer:** B

**Q.62** $C + 3 \rightarrow F$

$F + 3 \rightarrow I$

$I + 3 \rightarrow L$

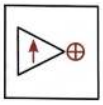
$L + 3 \rightarrow O$ (The series incorrectly has letter N)

$O + 3 \rightarrow R$

$R + 3 \rightarrow U$

**Correct Answer:** B

**Q.63**



**Correct Answer:** B

**Q.64** Pattern :-

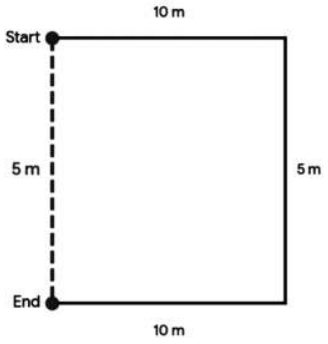
$\Rightarrow 12 + 34 + 20 + 15 = 81 = 9^2$

$\Rightarrow 16 + 15 + 6 + 12 = 49 = 7^2$

$\Rightarrow 15 + 21 + 8 + 20 = 64 = 8^2$

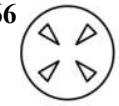
**Correct Answer:** A

**Q.65**




After East and West movements cancel out, the bird is 5 meters South from the start.

**Correct Answer:** B

**Q.66** 

**Correct Answer:** D

**Q.67** Pattern! -

$4^3 + 1 = 64 + 1 = 65$

$6^3 + 1 = 216 + 1 = 217$

**Correct Answer:** B

**Q.68** $11^3 - 1 = 1331 - 1 = 1330$

$9^3 - 1 = 729 - 1 = 728$

**Correct Answer:** B

**Q.69** Z - 5 = U

U - 4 = Q

Q - 3 = N

N - 2 = L

**Correct Answer:** C

**Q.70** $1 \times 1 = 1$

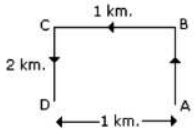
$1 \times 2 = 2$

$2 \times 3 = 6$

$6 \times 4 = 24$

$24 \times 5 = 120$

**Correct Answer:** A

**Q.71** 


Start from point A

The boys rode 2 km. Northward.

**Correct Answer:** B

**Q.72** 

**Correct Answer:** A

**Q.73** Each letter is shifted forward by one in the alphabet.

**Correct Answer:** B

**Q.74** STAR = 19 + 20 + 1 + 18 = 58

MOON = 13 + 15 + 15 + 14 = 57

**Correct Answer:** A

**Q.75** $2^3 = 8$

$3^2 = 9$

$4^3 = 64$

$5^2 = 25$

$6^3 = 216$

$7^2 = 49$

**Correct Answer:** B