SECTION : PHYSICS

This section contains **9 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

1. student measures the length of a pencil using a ruler whose zero mark is damaged. The pencil starts at the 2.3 cm mark and ends at the 15.8 cm mark. What is the actual length of the pencil?
(1) 18.1 cm
(2) 13.5 cm
(3) 15.8 cm
(4) 13.1 cm

2. A freely suspended bar magnet comes to rest approximately along the north–south direction. This happens mainly because of the influence of:
(1) The Moon's gravitational force
(2) Earth's magnetic field
(3) The rotation of the Sun
(4) Air pressure

3. A steel needle is stroked repeatedly in the same direction with one pole of a bar magnet. What is the most likely result?
(1) The needle may become magnetised.
(2) The needle becomes a non-magnetic substance.
(3) The needle develops only a north pole.
(4) The needle loses its iron content.

4. Which sequence correctly arranges the following planets from nearest to farthest from the Sun?
(1) Venus, Mercury, Earth, Mars
(2) Mercury, Venus, Earth, Mars
(3) Mercury, Earth, Venus, Mars
(4) Earth, Venus, Mercury, Mars

5. Which statement correctly distinguishes rotation from revolution?
(1) Rotation is movement around the Sun; revolution is spinning on an axis.
(2) Rotation is spinning on an axis; revolution is movement around another body.
(3) Both terms describe only the Moon's motion.
(4) Rotation and revolution always take the same amount of time.

6. Which combination is most likely to allow electric current to flow through a complete circuit?
(1) A plastic strip connecting the two terminals of a cell
(2) A copper wire connecting a cell to a working bulb in a closed circuit
(3) An open switch and a metal wire
(4) A wooden stick connecting a cell to a bulb

7. Which material is the best electrical insulator among the following?
(1) Copper
(2) Aluminium
(3) Iron
(4) Dry rubber

8. A car travels at a constant speed of 15 m/s for 2 minutes. What distance does it cover?
(1) 30 m
(2) 180 m
(3) 1,800 m
(4) 3,000 m

9. A bus travels 30 km at 30 km/h and another 30 km at 60 km/h. What is its

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average speed for the complete journey?
(1) 30 km/h
(2) 40 km/h
(3) 45 km/h
(4) 50 km/h

SECTION : CHEMISTRY

This section contains **9 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

10. Which of the following statements about a saturated solution are correct?
(i) It cannot dissolve more solute at that temperature. (ii) Heating it usually lets it dissolve more solid. (iii) It is always a concentrated solution. (iv) Cooling it can make crystals separate out.

(1) (i) and (ii)
(2) (i), (ii) and (iv)
(3) (ii) and (iii)
(4) (i), (iii) and (iv)

11. Identify X, Y and Z from the clues.
X: I separate husk from grains using wind. Y: I let a heavier insoluble solid settle, and then the liquid is poured out gently. Z: I separate cream from milk by rapid spinning.

(1) X = Winnowing, Y = Decantation, Z = Centrifugation
(2) X = Decantation, Y = Winnowing, Z = Centrifugation
(3) X = Winnowing, Y = Filtration, Z = Evaporation
(4) X = Sieving, Y = Decantation, Z = Sedimentation

12. In the municipal supply of drinking water, the correct order of steps is:

(1) Filtration, sedimentation, chlorination
(2) Sedimentation, filtration, chlorination
(3) Chlorination, sedimentation, filtration
(4) Sedimentation, chlorination, filtration

13. A block of ice at 0°C is heated steadily. Its temperature stays at 0°C until all the ice has melted. The reason is that:

(1) Ice cannot absorb heat at 0°C
(2) The heat absorbed is used to change the state and not to raise the temperature
(3) The thermometer fails to read the temperature of ice
(4) Heat is lost completely to the surroundings

14. Ice floats on water. Which statement correctly explains why this is important for aquatic life in cold regions?

(1) Ice is denser than water, so it sinks and keeps the lake warm
(2) Ice is less dense than water, so it forms a layer on top and water below stays liquid
(3) Ice has the same density as water, so the whole lake freezes slowly
(4) Ice dissolves oxygen and releases it for fish

15. A wet cloth will dry fastest when it is:
(1) Folded and kept in a shaded, humid room
(2) Spread out in the sun on a windy, dry day
(3) Spread out in a shaded, humid room
(4) Folded and kept in the sun on a calm day

16. Which of the following correctly shows the sequence of processes in the formation of rain?

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(1) Condensation, evaporation, precipitation
(2) Evaporation, condensation, precipitation
(3) Precipitation, evaporation, condensation
(4) Evaporation, precipitation, condensation

17. Galvanisation of iron protects it from rusting because:

(1) Iron is covered with a layer of zinc
(2) Iron is covered with a layer of copper
(3) Iron is converted into stainless steel
(4) Iron is kept in a vacuum

18. Which of the following is NOT a method of conserving water at home?

(1) Fixing leaking taps
(2) Using a bucket instead of a running hose to wash a car
(3) Reusing water from washing vegetables to water plants
(4) Leaving the tap running while brushing teeth

SECTION : MATHEMATICS

This section contains **9 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

19. $(-3)^2 \text{ X } \left(\frac{-5}{12}\right)^2$

(a)20/16
(b)25/15
(c)20/12
(d)25/16

20. $(20^{20} \div 2^{15}) \text{ X } 2^3$

(a) 2^5
(b) 2^6
(c)2^8
(d) 2^9

21. If 7 is subtracted from five times a number , the result is 63. Find the number.

(a)13
(b)14
(c)16
(d)17

22. A student scored 3 marks more than what he did in the previous examination in which he had scored 12. Another student scored 12 marks more than he did in the previous examination in which he had scored 84. Who had shown more improvement?

(a) First student — since their percentage improvement is 25%, which is greater.
(b) Second student —their percentage improvement is only $14\frac{2}{7}\%$.
(c) Both showed equal improvement — their percentage improvements are different.
(d) Cannot be determined — the percentage increase can be clearly calculated from the given data.

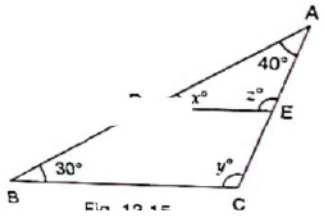
23. Two supplementary angles differ by 34°. Find the angles.

(a) 73° *and* 100°
(b) 73° *and*150°
(c) 73° *and* 107°
(d) 73° *and*120°

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24. In the figure D,E, are points on sides AB,AC of ABC such that DE||BC. If ∠B= 30° and ∠A = 40° , find x,y,z .



(a) x=30,y=110,z=110
(b) x=40,y=110,z=110
(c) x=30,y=110,z=115
(d) x=50,y=110,z=100

25. A verandah 1.25 m wide is constructed all along the outside of a room 5.5 m long and 4 m wide. Find:
(i) the area of the verandah
(ii) the cost of cementing the floor of the verandah at the rate of ₹ 200 per m^2.

(a) Area of verandah = 30 m^2
The cost of cementing the floor of the verandah = ₹6000
(b) Area of verandah = 30 m^2
The cost of cementing the floor of the verandah = ₹8000
(c) Area of verandah = 20 m^2
The cost of cementing the floor of the verandah = ₹6000
(d) Area of verandah = 40 m^2
The cost of cementing the floor of the verandah = ₹8000

26.
Mona's father is thrice as old as Mona . After 12 years he will be just twice his daughter . Find their present ages.

(a) Mona's present age = 12 years , Her father's present age = 30 years
(b) Mona's present age = 11 years , Her father's present age = 36 years
(c) Mona's present age = 12 years , Her father's present age = 40 years
(d) Mona's present age = 12 years , Her father's present age = 36 years

27. $\left(\frac{-36}{5}\right)$ by $\left(\frac{-28}{9}\right)$
(a) 16
(b) -16
(c) 17
(d) -17

SECTION : BIOLOGY

This section contains **9 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

19. While playing, a student bends the elbow and moves the arm freely at the shoulder. Which option correctly identifies the two joints?

(1) Elbow – ball-and-socket joint; Shoulder – hinge joint
(2) Elbow – fixed joint; Shoulder – gliding joint
(3) Elbow – hinge joint; Shoulder – ball-and-socket joint
(4) Elbow – pivot joint; Shoulder – fixed joint

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20. A person has been sweating heavily on a hot day and has not drunk enough water. Which response by the body helps reduce further water loss?

(1) The kidneys produce a larger volume of dilute urine.
(2) The kidneys produce a smaller volume of more concentrated urine.
(3) The lungs stop releasing carbon dioxide.
(4) The stomach absorbs all the water present in the food.

21. A farmer notices that plants growing in waterlogged soil begin to wilt even though plenty of water is available. What is the most likely reason?

(1) Roots cannot absorb any minerals in the presence of water.
(2) Excess water prevents sunlight from reaching the leaves.
(3) The roots begin performing photosynthesis instead of respiration.
(4) Waterlogged soil contains less air, restricting root respiration.

22. Which adaptation of the small intestine makes it especially effective at absorbing digested nutrients?

(1) It has a thick, waterproof outer layer.
(2) It has numerous tiny finger-like projections called villi.
(3) It stores undigested food until it leaves the body.
(4) It contains rings of cartilage to prevent collapse during breathing.

23. A student places two groups of healthy seeds on moist cotton. One group is kept in a warm place(A), while the other is kept in a very cold place(B). After a few days, which seeds will germinate earlier and why?

(1) B because seeds do not require sunlight directly to begin germination.
(2) A because Cold conditions always destroy the seed coat.
(3) B because Seeds germinate only when they receive nutrients from soil.
(4) A because Suitable warmth supports the metabolic activities needed for germination.

24. A mature plant cell contains a large central vacuole. Which function is most closely associated with this structure?

(1) Controlling all the activities of the cell
(2) Producing chlorophyll for photosynthesis
(3) Building the cell wall from digested food
(4) Storing cell sap , keeping the cell firm

25. A student observes an unstained onion-peel preparation under a microscope but finds the cell structures difficult to distinguish. Why a suitable stain needs to be added?

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(1) To make the cells divide more rapidly
(2) To convert plant cells into animal cells
(3) To increase contrast so that certain cell structures are clearly visible
(4) To make the cell wall disappear completely

26. At lunch, a student often takes more food than can be eaten and throws away the leftovers. Which practice would best combine mindful eating with reducing food waste?

(1) Always take the largest serving available.
(2) Take a reasonable serving and take more if still hungry.
(3) Avoid eating lunch to ensure that no food is wasted.
(4) Take only one type of food, regardless of hunger or need.

27. A child feels tired frequently and has a diet that contains mainly rice but very few vegetables. Which dietary change would be most appropriate?

(1) Eat more rice and avoid all other food groups.
(2) Drink water instead of eating meals.
(3) Include pulses, milk along with fruits and vegetables.
(4) Remove carbohydrates completely from the diet.

SECTION : IQ

This section contains **9 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

28. If A means +, B means −, C means × and D means ÷, find the value of:
24 D 6 C 3 A 8 B 4
(1) 12
(2) 16
(3) 20
(4) 24

29. Which letter is fifth to the right of the letter that is twelfth from the left in the English alphabet?
(1) P
(2) Q
(3) R
(4) S

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30. If TABLE is coded as GZYOV using the reverse-alphabet rule (A ↔ Z, B ↔ Y, C ↔ X, and so on), how will CHAIR be coded?
(1) XSZRI
(2) XSAIR
(3) XSZIR
(4) XH ZRI

31. In a code language, SCHOOL is written as LOOHCS and MARKET is written as TEKRAM. How will TEACHER be written?
(1) REHCAET
(2) REHCEAT
(3) RAEH CET
(4) REHCAETT

32. Find the missing letter:
B, E, J, Q, ?
(1) X
(2) Y
(3) Z
(4) A

33. Book is related to Author in the same way as Painting is related to:
(1) Sculptor
(2) Artist
(3) Gallery
(4) Colour

34. Six people A, B, C, D, E and F sit in a circle facing the centre. A sits opposite D. B sits immediately clockwise from A. C sits immediately clockwise from B. Who sits opposite B?
(1) C
(2) D
(3) E
(4) F

35. Seven students are standing in a row facing north. M is fourth from the left. N is second to the right of M, while P is third to the left of N. What is P's position from the right?
(1) Third
(2) Fourth
(3) Fifth
(4) Sixth

36. Which relationship best represents Squares, Rectangles and Polygons?
(1) All squares are rectangles, all rectangles are polygons, and some polygons are not rectangles.
(2) All polygons are squares.
(3) All rectangles are squares.
(4) Squares and rectangles have no relationship.

37. In a class, 40 students play Cricket, 28 play Football, and 12 play both. How many students play at least one of the two games?
(1) 56
(2) 60
(3) 68
(4) 80

38. In a class of 45 students, Riya ranks 12th from the top. What is her rank from the bottom?
(1) 32nd
(2) 33rd
(3) 34th
(4) 35th

39. A woman says about a boy, "His mother is the only daughter of my mother." How is the woman related to the boy?
(1) Sister
(2) Mother
(3) Maternal grandmother
(4) Aunt

40. Introducing a man, Priya says, "His wife is the only daughter of my father." How is the man related to Priya?
(1) Brother
(2) Husband

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(3) Father
(4) Uncle

41. Study the sequence:
2 A 5 C 8 E 11 G 14 I 17 K
If all the numbers are removed, which letter will be fourth from the right?
(1) E
(2) G
(3) I
(4) K

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