

Time allowed: **3 hours**; Maximum marks: **90**

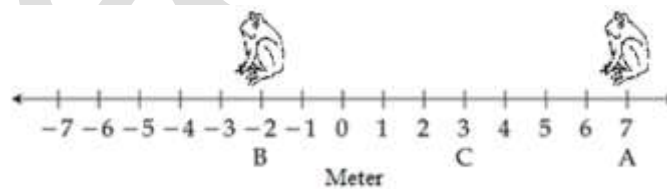
General Instructions:

- a) All Questions are compulsory
- b) The Question Paper consists of 42 Questions divided in to four sections A, B, C and D
- c) Section- A comprises –
 - 1 to 3 questions of one mark each
 - 4 to 6 questions of two marks each
 - 7 to 18 questions of three marks each
 - 19 to 24 questions of five marks each
- d) Section- B comprises
 - 25 to 33 questions of one mark each
 - 34 to 36 questions based on practical skills are two marks each

Section – A

1. The raisins added to porridge swell up after sometime. Name the process involved?
2. While getting down a moving bus, why should a person run in the same direction for some time as that of the motion of the bus?
3. Write the value of acceleration due to gravity of the earth on its surface.
4. Give an activity to explain that water vapors are present in air.
5. Write the location of the following tissues : -
 - (a) Tendon
 - (b) Cuboidal epithelium
 - (c) Areolar tissue
 - (d) stratified squamous epithelium
6. All the planets are moving in circular orbits around the sun. What provides the necessary force for this motion and what is the direction of this force? Write the name of this force. What will happen if this force disappears suddenly?
7. Under what conditions, centrifugation technique is used? Write down its two applications.
8. Explain by an activity that different states of matter have varied forces of attraction between the particles.

9. Sunil's mother was suffering from cold and cough. Sunil prepared tea for his mother. He boiled water in a pan and added tea leaves, sugar and milk to it. He filtered the tea in a cup and served to his mother.
- What impresses you in Sunil's behavior?
 - Identify solute, solvent, residue and filtrate in this activity.
10. Define osmosis. In what two ways is it different from diffusion?
11. Draw a labeled diagram of a neuron.
12. A ball thrown in the vertically upward direction rises up to a height 'h' and comes back to the position of its start. Calculate.
- The total distance travelled by the ball
 - The displacement of the ball and,
 - The velocity of the ball at maximum height .
13. What are the effects of the following on inertia of a body?
- If force applied on the body is doubled
 - If its mass is reduced to half
 - If its shape is changed.
- 14.
- Is the acceleration due to gravity of earth 'g' always a constant? Explain.
 - During a free fall will heavier objects accelerate more than lighter ones?
- 15.



A frog hops along a straight line path from point 'A' to point 'B' in 10 s and then turns and hops to point 'C' in another 5 s. Calculate the average speed and average velocity of the frog for the motion between.

- A to B
- A to C (via B)

16. An object weights 10 N on the surface of the earth what would be its weight on the surface of the moon?

17. Define 'Rain water harvesting' and 'Water shed management' and state one advantage of each.
18. Explain three aspects of maintaining livestock.
- 19.
- Differentiate between true solution, colloid and suspension on the basis of the following properties:
 - Size of particles
 - Stability
 - When a beam of light was passed through the solution of substance 'A' dissolved in water, the path of light could be seen. What is this phenomenon called? What is the nature of this solution?
- 20.
- List any two properties that liquids have in common with gases.
 - Give two reasons to justify why an iron almirah is a solid at room temperature.
 - What happens to the heat energy which is supplied to the solid once it starts melting?
21. Explain the significance of the following :
- Hair like structures on epidermal cells
 - Epidermis has a thick waxy coating of cutin in desert plants
 - Small pores in epidermis of leaf
 - Numerous layers of epidermis in cactus
 - Presence of a chemical suberin in cork cells.
- 22.
- Can a body exist in a state of absolute rest or of absolute motion? Explain.
 - Draw a velocity-time graph for an object in uniform motion. Show that the area under the velocity-time graph gives the displacement of the object in the given time interval.
- 23.
- Give reason for the following :
 - When a person jumps from a boat to the shore, the boat moves backwards.
 - When a person fires a gun, he experiences a jerk in backward direction.
 - State Newton's third law of motion
 - An object of mass 20 kg is accelerated uniformly from a velocity of 36 kmh^{-1} to 54 kmh^{-1} in 25s. Calculate the initial and final momentum of the object. Also find the magnitude of force exerted on the object.
24. Define the following:
- Milch Animals
 - Draught Animals
 - Sustainable agriculture
 - White Revolution
 - Fodder Crops

Section – B

25. When iodine solution is added to a food extract its color changes to blue black. This experiment indicates the presence of : _____

- | | |
|--------------------|---------------------|
| (a) Starch in food | (b) glucose in food |
| (c) Fat in food | (d) protein in food |

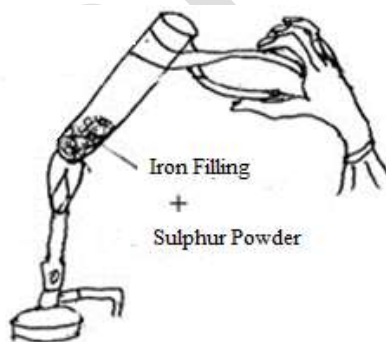
26. Sample of Arhar Dal were taken in four test tubes A, B, C and D. A few drops of water in test tube A, conc. Hydrochloric acid in B, sodium hydroxide solution in C and alcohol in D were added. You would be able to confirm adulteration of dal with metanil yellow in test tube:

- | | | | |
|------|------|------|------|
| a) A | b) B | c) C | d) D |
|------|------|------|------|

27. Suggest a method to separate iron filings from sulphur powder :

- | | |
|---|-------------------------------|
| (a) Heating in a china dish | (b) Heating in a boiling tube |
| (c) Moving a magnet through the mixture | (d) Heating with water |

28.



On strongly heating a mixture of iron filings and sulphur powder a black mass is formed due to the formation of:

- | | |
|-------------------|---------------------|
| (a) Iron Sulphate | (b) Iron oxide |
| (c) Iron sulphide | (d) Sulphur dioxide |

29. The gas formed when Zinc react with Sulphuric acid is :

- | | |
|---------------------|--------------------------|
| (a) Hydrogen | (b) Carbon-di-oxide |
| (c) Sulphur dioxide | (d) Hydrogen as sulphide |

30. The thin peel of onion is placed in a watch glass containing water because it:

- | | |
|-------------------------------------|---|
| (i) Prevents the peel from folding | (ii) Prevents the entry of air bubbles |
| (iii) Prevents the peel from drying | (iv) Helps in better staining of the peel |

- (a) (i) and (ii) (b) (i) and (iii)
(c) (ii) and (iii) (d) (i) and (iv)

31. In transverse section parenchyma cells show:

- (a) Thickening of walls due to deposition of lignin
(b) Dead cells
(c) Living cells with thin walls and intercellular spaces
(d) Absence of intercellular spaces and vacuoles

32. A mixture can be characterized by :

- (a) No fixed composition of the components
(b) Homogeneity
(c) No occurrence of chemical reaction
(d) Heterogeneous

33. While performing an experiment to establish the relationship between weight of a rectangular wooden block lying on a horizontal table and the minimum force required to just move it using a spring balance, if the weight of block is 73gwt then the most suitable spring balance will be of :

- (a) Least count 1 gwt, range 100 gwt
(b) Least count 2.5 gwt, range 100 gwt
(c) Least count 2.5 gwt, range 500 gwt
(d) Least count 2 gwt, range 100 gwt

34. State the method by which we can prepare colloid of starch.

35. Mention the position of bulb of thermometer in the following experiments:

- (i) Experiment to determine the melting point of ice.
(ii) Experiment to determine the boiling point of water.

36. A student recorded the mass of dry raisins as 6.0g and mass of raisins after soaking them in water for about four hours as 10.5g. Calculate the percentage of water absorbed by raisins?