

## MODEL QUESTION

Time: 3 hours

Maximum Marks: 80

## SECTION-A

1. 'Evaporation causes cooling'. Comment on this statement.
2. Name the shell fish which is cultured to obtain pearl.
3. Calculate the average atomic mass of chlorine if it exists commonly in two isotopes,  $^{35}_{17}\text{Cl}$  (75%) and  $^{37}_{17}\text{Cl}$  (25%).
4. (a) Explain why a ship made of steel floats on water but a steel needle sinks.  
(b) Pins and nails are made to have pointed ends. Why?
5. A pair of bullocks exert a force of 140 N on a plough. The field being ploughed is 15 m long. How much work is done in ploughing the length of the field?
6. Explain how water kept in an earthen pot, becomes cool during summer.

OR

Differentiate between evaporation and boiling. (*Any three*)

7. (a) Define an element.  
(b) What is meant by malleability? Name any two substances that are malleable.
8. (a) Describe the process of shrinking of a cell on being put in a strong salt solution.  
(b) State the role of lysosomes in keeping the cell clean.

OR

State reasons for the following:

- (a) Mitochondria are known as powerhouse of cell.
  - (b) Plastids are able to make their own protein.
  - (c) Plant cells shrink when kept in hypertonic solution.
9. State three limitations faced in dealing with infectious diseases.
  10. Define the term uniform acceleration. Give one example of uniformly accelerated motion. A bus decreases its speed from  $72 \text{ km h}^{-1}$  to  $54 \text{ km h}^{-1}$  in 5 s. Find the acceleration of the bus.
  11. Write three points of difference between mass and weight.
  12. (a) Distinguish between loudness and intensity of sound. Write any two points of difference.  
(b) A person is listening to a sound of 400 Hz sitting at a distance of 450 m from the source of the sound. What is the time interval between two successive compressions from the source?
  13. How does the atmosphere act as a blanket? The moon which is about the same distance from the sun that the earth is, but still there is no atmosphere on moon. Give reason.

14. Anurag's friend visits his house for the weekend. He observes the following undesired practices without much care for water:

- (a) Plants are excessively watered 2-3 times a day.
- (b) Taps are often running even when not required.
- (c) Cars are being washed by wrong methods leading to lot of wastage of water.

He talks to Anurag about the wrong practices resulting in wastage of water and tells him that water should be used judiciously.

Answer the following questions based on the above information:

- (a) Which values are being neglected in the activities in the above situation?
  - (b) What are the adverse effects of the activities observed at Anurag's house?
  - (c) How can the values related to minimisation of wastage of water in everyday life be promoted?
15. State the desirable characteristics of bee varieties suitable for honey production. Name one Indian and one exotic variety of bee used for honey production.

16. (a) Write the names of the elements present in the given compounds and calculate their molar masses.

(i) Quick Lime

(ii) Baking Powder.

(Atomic masses : Na=23.0u, H=1.0u, C=12.0u, Ca = 40.0u, O=16.0u)

- (b) If one mole of carbon atom weighs 12grams, what is the mass (in grams) of one atom of carbon?  
( $N_0 = 6.022 \times 10^{23}$  per mole)

17. (a) Write the two postulates of Thomson's model of an atom. What were the drawbacks in this model?

- (b) An atom of an element has 8 protons and 8 neutrons. State its valency.

18. (a) Differentiate between epidermal and cork cells.

- (b) Why are they called protective tissues?
- (c) Draw a diagram of cardiac muscle and label any two parts.

19. (a) (i) Write the meaning of the terms—gymno, angio and sperma.

(ii) State the main features of gymnosperms and angiosperms.

(iii) Name the two subgroups of angiosperms which are divided on the basis of the number of cotyledons.

- (b) Mention the criterion for classification of organisms as belonging to Monera or Protista.

20. (a) When a man jumps out from a boat to the bank of the river the boat moves backwards. Identify the action and reaction in this situation.

- (b) Two objects, A and B are of mass  $M$  and  $2M$  with velocity  $V$ ,  $V/2$  respectively. Which one will have greater inertia and greater momentum? Give reason for your answer.

OR

(a) Define momentum. Write its SI unit. State the law of conservation of momentum.

- (b) Two objects each of mass 1.5 kg are moving in the same straight line but in opposite direction. The velocity of each object is  $2.5 \text{ ms}^{-1}$  before collision during which they stuck together. Find the velocity of combination after collision.

21. (a) Define 1 kWh.

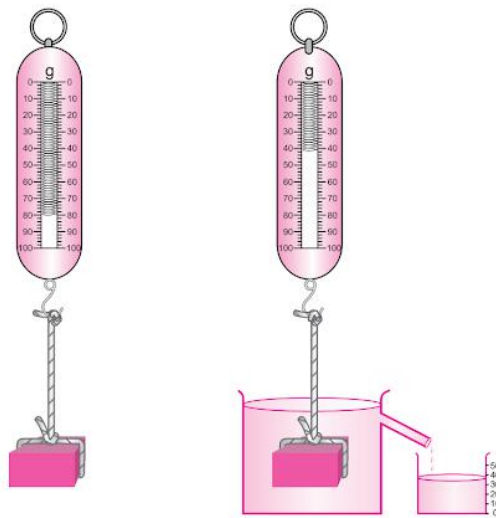
- (b) A man whose weight is 500 N move up 15 steps each of height 15 cm in 40 seconds. Calculate the power used in climbing those stairs.

## SECTION-B

22. How would you confirm in your school laboratory whether a given solution is a suspension or not? Give at least two basis (tests).

23. If 10 g of barium chloride is mixed with 15 g of sodium sulphate, what will be the total mass of the products formed?

24. Which is a better mounting medium,  $H_2O$  or glycerine?
25. A plant was uprooted carefully and its roots were observed for the classification of the plant. How can roots help in classification?
26. While performing the experiment for determining the velocity of a pulse through a stretched string, a student had to choose between a  
(a) thick silk string and a thick cotton string.  
(b) stop clock and a table clock.  
What should be his combination for performing the experiment?
27. For performing an experiment to verify Archimedes' Principle, a student used a spring balance to measure the weight of a solid as shown in figure. The solid was then lowered in water contained in a overflow-can and the water displaced by solid was collected in a graduated cylinder as shown in figure.



Find the volume of the water displaced by the solid.

