

SECTION –A

Question numbers 1 to 3 in Sections-A one mark questions

1. Why the cell membrane is called a selectively permeable membrane ?
2. Why do a backseater moves forward when a fast moving bike is stopped suddenly ?
3. At a time when it is cloudy, there may be frequent thunder and lightning. The sound of thunder takes some time to reach you after you see the lightning. Why ?

Question numbers 4 to 6 in Sections-A are two marks questions

4. 23g of salt is dissolved in 100g of water at 293 K. What is the concentration of solution at this temperature?
5. Differentiate between eukaryotic and prokaryotic cell based on its size and number of chromosomes.
6. Explain free fall with the help of an example.

Question numbers 7 to 18 in Sections - A are three marks questions

7. A substance has fix shape and volume. it is incompressible. Predict the state the substance. Enlist four properties of this state of matter.
8. List the three characteristics of particles of matter.
9. Write the role of following in water purification system :
  - (a) Sedimentation Tank
  - (b) Loading tank
  - (c) Chlorination tank
10. Classify permanent tissues in plants.
11. Differentiate between the various types of meristematic tissues on the basis of location and function.
- 12 . On Earth, how much force is needed to lift an object of mass 100 g.
13. How is the momentum in the following cases?
  - a) A firecracker rocket explodes in the sky.
  - b) Two cars meet a head-on-collision and come to rest, experiencing sever damage.
  - c) A proton hits a nucleus, resulting in a fusion reaction.

14 . A truck of mass 2500 kg moving at 15 m/s collides with a car of mass 1000 kg moving at 5 m/s in the opposite direction. With what velocity would the two move together.

15 . (i) What is meant by free fall ? (ii) Why does not the moon fall into the earth by attractive pull?

16. A stone is dropped from the edge of a roof. How long does it take it to fall 4.9 m (given  $g = 9.8 \text{ ms}^{-2}$ ). Find the velocity of the stone when it crosses this point ?

17. Pardeep's uncle was maintaining a poultry farm with his friend. Pardeep advised him that leftover grains after harvesting which were unfit for human consumption be given to the fowls. His uncle accepted his advice but was not convinced. Pardeep explained him the advantage of this practice.

(i) highly nutritious animal protein food. Justify the statement.

(ii) Write the nomenclature used for the birds which are reared for eggs and those which are reared for meat ?

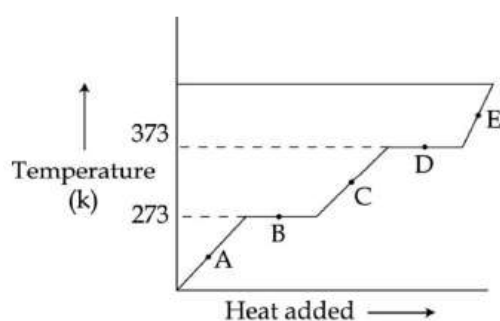
(iii) What values are exhibited by Pardeep here ?

18 . What are macronutrients? Which physiological processes of plants are affected by deficiency of such nutrients?

Question numbers 19 to 24 in Section - A are five marks questions.

20. Effect of heating on a substance is illustrated in heating curve as shown below

Answer the following questions:



(a) In which physical state of the substance Band D exist.

(b) Define melting point of the substance.

(c) Explain the effect of temperature on Ice.

(d) Define the boiling point of the substance.

(e) Can the given substance be ice at point A ?

20. A student was given the mixture of Iron filings and sulphur. He was told to heat it and observe the following

- (a) What is the colour of the compound formed ?
- (b) Write the effect of magnet on it.
- (c) Write the action of carbon disulphide on it.
- (d) Describe the effect of adding dilute hydrochloric acid to it. Identify the gas and write its two properties

21. (a) Show the diagrammatic representation of the location of lateral meristem and intercalary meristem tissue in plant body.

- (b) Name the meristem responsible for the increase of girth of root or stem.
- (c) Write two differences between meristematic and permanent tissues in a tabular form.

22. If the engine of a car provides an acceleration of  $2 \text{ m/s}^2$  to start it from rest, assuming the mass to be roughly 1000 kg, calculate :

- (a) Force provided by the engine                      (b) Momentum after 10 sec.
- (c) Time after which the car comes to rest, if the engine is turned off after 15 sec. (frictional force 15 N)

23. (i) An object has a mass of 60 kg. What is its weight on :

- (a) Moon (value of  $g$  is  $1/6^{\text{th}}$  of the value on earth)
- (b) Other planet (value of  $g$  is 2 time than that of earth)
- (c) Is mass of scalar or vector quantity ?
- (ii) How does the force of gravity depend upon the masses of the bodies and the distance between them ?

24 (a) Mention and explain two fresh initiatives for increasing the water available for agriculture.

- (b) Explain the following terms : (i) Compost      (ii) Green manure      (iii) organic farming

Question numbers 25 to 33 in Section-B are multiple choice questions based on practical skills. Each question is a one mark question.

25. Metanil yellow is added to arhar dal so that its :

- (a) Colour and appearance gets improved
- (b) Weight gets increased

(c) Taste gets improved

(d) Consumption become unfit

26. Manu put a few drops of a solution from a bottle without label on potato slices. It showed colour change. What he might have observed ? What was the solution ?

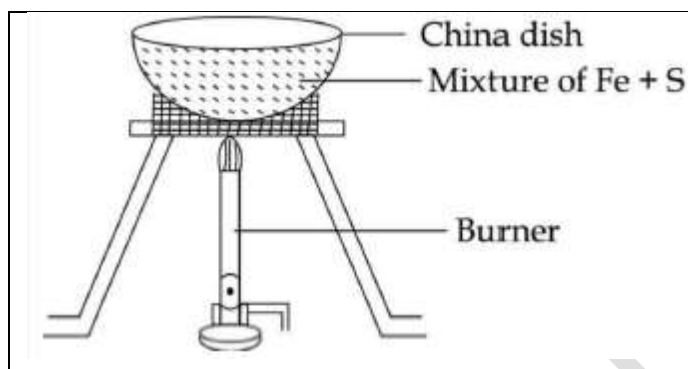
(a) Potato slices turned pink , solution was  $\text{H}_2\text{SO}_4$ .

(b) Potato slices might have turned red, solution was  $\text{HCl}$ .

(c) Potato slices turned blue black. Solution was Iodine solution.

(d) Potato slice turned blue, solution was sodium hydroxide.

27. On heating a mixture of Iron filings and sulphur powder in a china dish, colour of residue formed is :



(a) grey

(b) yellow

(c) black

(d) reddish

28. When carbon disulphide is added to a mixture of iron filings and sulphur powder taken in a boiling tube. Which one of the following is not observed ?

(a) Iron filings remain unaffected.

(b) Sulphide powder dissolved and yellow solution is formed.

(c) Iron sulphide, a black coloured mass is formed by combination of Iron and sulphur.

(d) Solid sulphur reappears, when yellow solution is evaporated.

29. When a burning match stick is brought near the mouth of the test tube containing hydrogen gas,

(a) white dense fumes are formed

(b) the gas smells with pungent odour

(c) a pop sound is heard

(d) reddish fumes are formed

30. The mounting medium used in the temporary mount of tissue is :

- (a) Alcohol                      (b) Glycerine                      (c) Vaseline                      (d) Water

31. While observing a permanent slide under microscope Rita identified the slide as of striated muscles due to :

- (a) uninucleate and spindle shaped cells  
(b) multinucleate and unbranched cells  
(c) uninucleate and branched cells  
(d) Multinucleate and branched cells

32. A mixture contains two solids A & B. Only A sublimes, both A & B dissolve in water. A student is asked to separate A and B. The method he applies is :

- (a) filtration followed by evaporation  
(b) evaporation only  
(c) sublimation only  
(d) decantation

33. Friction can be increased by :

- (a) By making the contact surface rough  
(b) By increasing the weight of one of the sliding bodies  
(c) Both a and b  
(d) None of the above

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

35. in an experiment to determine the boiling point of water. State reason for the following:-

- (a) Pumice stone pieces are added to water in the beaker. (b) A glass stirrer is used.

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.