## SECTION–A

1. Arrange the following substances in the increasing order of force of attraction between their particles :

   Oxygen, Salt, milk (1)

2. State the function of chromosome in a cell. (1)

3. Name the force which is responsible for change in position or state of an object. (1)

4. Define the term sublimation. Write the names of any two substances which sublime. (2)

5. A solution is prepared by adding 40 g of sugar in 100g of water. Calculate the concentration in terms of mass percentage of solution. (2)

6. Draw a labelled diagram of a neuron. (2)

7. Find the weight of a 80 kg man on the surface of moon ? What should be his mass on the earth and on the moon ? ($g_e$ = 9.8 m/s$^2$ ; $g_m$ = 1.63 m/s$^2$) (2)

8. Define crop rotation. While choosing plants for crop rotation, what factors should be kept in mind ? (3)

9. List any three management practices while designing a shelter for cattle. (3)

10. Explain the following : (3)

   (i) Gases exert pressure on the walls of the container.

   (ii) Water is liquid at room temperature.

   (iii) Evaporation causes cooling.

11. (a) You are given a mixture of mustard oil and water. Name the process that can be used to obtain mustard oil from the above mixture.

   (b) Draw a well labelled diagram of the above process. (3)

12. Write two similarities and one dissimilarity between mitochondria and plastid. (3)

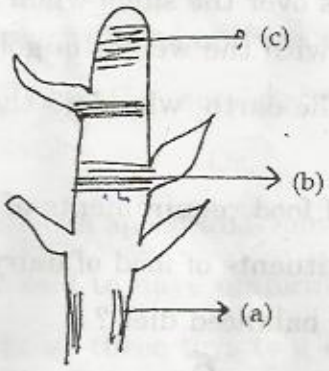
13. Write one term for the following tissues : (3)

   (a) that joins muscle to bone

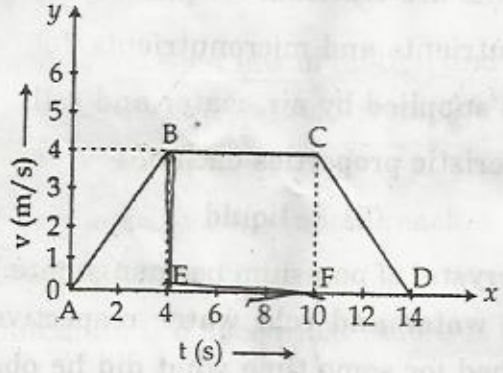
   (b) fat reservoir of our body

   (c) supporting, fills the space inside the organs, and helps in repair of tissues.

14. Label the following and give one function of each part labelled (a), (b) and (c). (3)




15. Study the given graph and answer the following questions. (3)




(i) Which part of the graph shows accelerated motion ?

(ii) Which part of the graph shows retarded motion ?

(iii) Calculate the distance travelled by the body in first 4 seconds of journey graphically ?

16. A man weighing 60 kg runs along the rails with a velocity of 18 $kmh^{-1}$ and jumps into a car of mass 1 quintal (100 kg) standing on the rails. Calculate the velocity with which car will start travelling along the rails. (3)

17. State reason for the following : (3)

(a) All the cars are provided with seat belts

(b) It is dangerous to move out of a moving bus

(c) Road accidents at high speeds are very much worse than accidents at low speeds.

18. A stone is thrown vertically upwards with a velocity of 40 m/s and is caught back. Taking g = 10 $m/s^2$, calculate the maximum height reached by the stone. What is the net displacement and total distance covered by the stone ? (3)

19. (i) Seema buys few grains of gold at the poles as per the instructions of one of her friends. She hands over the same when she meets her at the equator. Will the friend agree with the weight of gold bought ? If not, why ?

(ii) If the moon attracts the earth, why does the earth not move towards the moon ?

20. (i) State the two types of food requirements of dairy animals ?

(ii) List the various constituents of food of dairy animals.

(iii) Why do cattle need a balanced diet ?

Or

(i) How many nutrients are essential for plants ?

(ii) What are macronutrients and micronutrients ?

(iii) List the nutrients supplied by air, water and soil.

21. (a) State two characteristic properties each of : (5)

(i) solid (ii) liquid (iii) Gas

(b) Archit dropped a crystal of potasium permanganate into two beakers A and B containing hot water and cold water respectively. After keeping the beakers undisturbed for some time what did he observe and why ?

Or

(a) When a solid melts, its temperature remains the same. Give reason.

(b) How can we liquefy a gas ?

(c) Solid $CO_2$ is also known as dry ice. Why ?

(d) Write the full form of :

(i) CNG (ii) LPG

22. What is chromatography ? How will you separate the components of black ink using chromatography ? Write any two applications of chromatography. (5)

Or

(a) Give any ~~one~~ two points of difference between true solution, colloidal solution and suspension.

(b) 20 g of sodium chloride is dissolved in 100 ml of water. How will you test whether the given solution is saturated or unsaturated at the given temperature ?

(c) Suggest any one method by which we can increase the solubility of saturated solutions.

23. (a) Differentiate between uniform linear and uniform circular motion.

(b) Write any four examples of uniform circular motion.

(c) Is uniform circular motion accelerated motion. (2+2+1=5)

Or

(a) Differentiate between speed and velocity.

(b) When is a body said to have uniform velocity ?

(c) A shopkeeper shows three toys to a child made up of aluminimum, steel and wood, of same shape and volume. Which one of them would have highest inertia ? Why ?

24. (a) State Newton's second law of motion and show that the first law of motion can be mathematically stated from the mathematical expression for the second law of motion.

(b) A stone dropped from a window reaches the ground in 0.5 seconds (given $g = 10\ ms^{-2}$)

(i) Calculate the speed just before it hits the ground.

(ii) What is the average speeed during 0.5s?

(iii) Calculate the height of window from the ground.

Or

(i) Name the property of bodies to resist a change in their velocity.

(ii) What is relationship between force and acceleration ?

(iii) What name is given to the product of mass and velocity of a body ?

(iv) Which physical quantity corresponds to the rate of change of momentum ?

(v) Name the principle on which a rocket works.

## Section-B

25. Rohan added iodine solution to four samples of food I, II, III and IV. Which will develop blue black colour ?

(i) Boiled Rice (ii) Crushed potato

(iii) Boiled arhar dal (iv) Powdered arhar dal

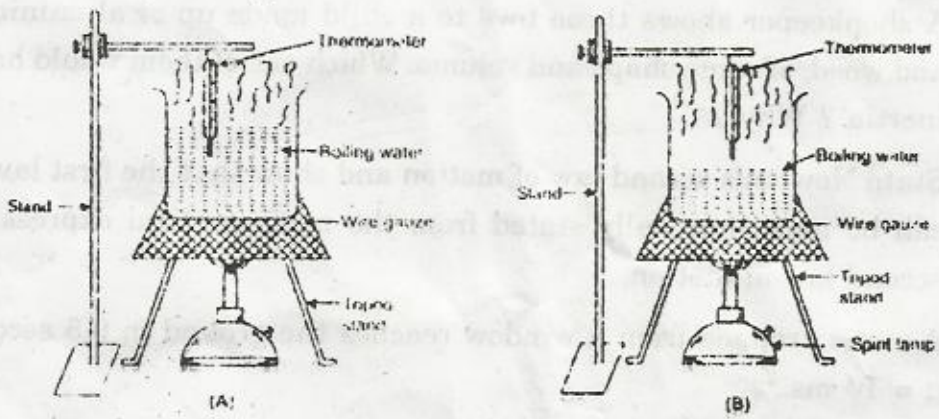
(a) I, II (b) I, II, III (c) I, II, IV (d) I, III, IV

26. When 2-4 drops of conc. hydrochloric acid are added in the given sample of arhar dal, the pink colour is due to : (1)

(a) Metanil yellow (b) Starch

(c) Turmeric powder (d) Chalk powder

27. Two students Arpit and rakshita are asked to arrange the apparatus to determine the boiling point of water. They arranged the apparatus as shown below by figures A and B respectively : (1)

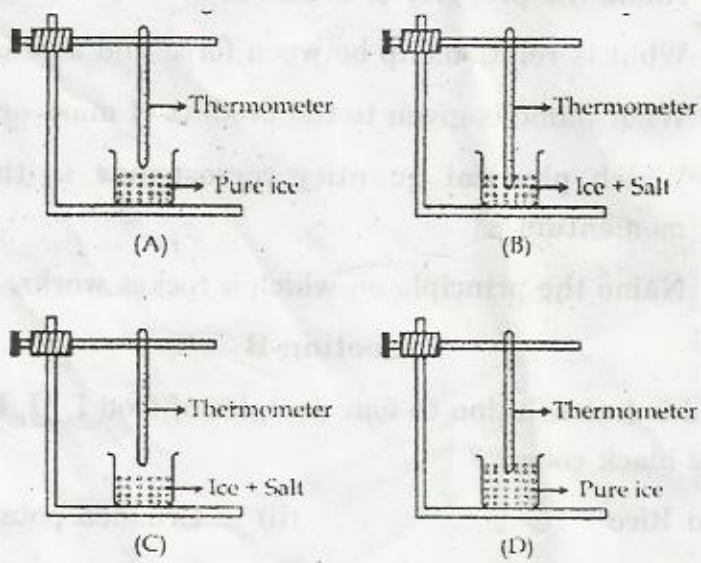



The diagram in which the apparatus is correctly arranged is :

(a) A only (b) B only

(c) both A and B (d) neither A nor B

28. Which of the following is the correct method of finding the melting point of ice ? (1)




(a) A (b) B (c) C (d) D

29. When a mixture of sand, sodium chloride and ammounium chloride is heated in a china dish dense white fumes are evolved on cooling these fumes on a glass plate a white deposit is obtained. The white deposit may be : (1)

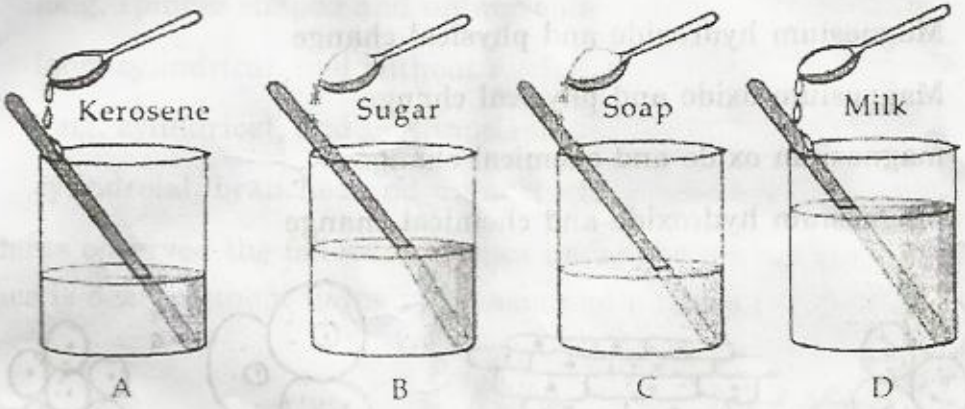
(a) Sodium chloride

(b) Sand

(c) Sodium chloride and ammonium chloride

(d) Ammonium chloride

30. The following substances are added to water in a beaker as shown below. The mixture is stirred well. A true solution is found in the beaker : (1)




(a) I A (b) II B (c) III C (d) IV D

31. When we heat a mixture of iron and sulphur for a short time and then move a magnet over it, the observation made is : (1)

(a) iron gets attracted

(b) sulphur gets attracted

(c) iron and sulphur both get attrached

(d) iron, sulphur as well as product formed all get attracted

32. The gas evolved when iron reacts with dilute sulphuric acid is : (1)

(a) colourless, odourless, burns with a pop sound

(b) colourless, foul smelling, burns with a pop sound

(c) colourless, pungent smelling, burns with a pop sound

(d) brown coloured, pungent smelling, does not burn

33. Mohan heated a misture of sulphur and iron filings in a china dish till a grey-black product was formed. On adding carbon disulphide and stirring the contents he observed that :

(a) Particles of sulphur dissolve

(b) Particles of iron dissolve

(c) grey black product dissolve

(d) no change takes place

34. On burning magnesium ribbon in air, a white ash is obtained. Name of the product and the type of change are : (1)

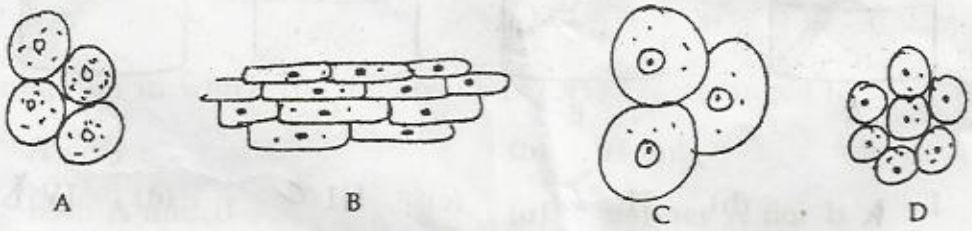
(a) Magnesium hydroxide and physical change

(b) Magnesium oxide and physical change

(c) magnesium oxide and chemical change

(d) Magnesium hydroxide and chemical change

35.




Raman prepared a temporary mount of onion peel and observed it under a microscope. His teacher asked him to draw the diagram. The correct diagram of the cells found in onion peel is :

(a) A (b) B (c) C (d) D

36. While observing a temporary mount of human check cells under a microscope a student noted that the correct feature of check cell is :

(i) absence of cell wall, nucleus and plastid

(ii) absence of nucleus, plastid

(iii) absence of cell wall, plastid and intercellular space

(iv) absence of intercellular space and nucleus

(a) I (b) II (c) III (d) IV

37. While preparing a temporary mount of onion peel cells or human check cells, a coverslip is put on the mounted material on a slide very gently to :

(a) avoid the crushing of mounted material

(b) avoid the entry of air bubbles

(c) avoid oozing of stain

(d) avoid oozing of glycerine

38. Sheela observed a slide of striated muscle fibre, under a microscope. Its cells would be :

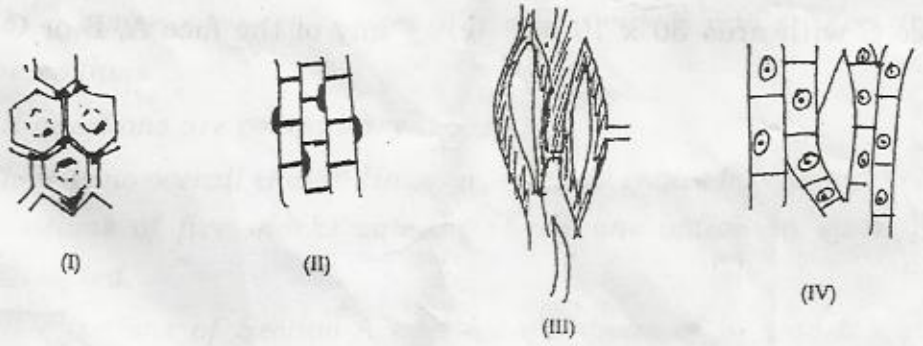
(a) long, spindle shaped and uninucleate

(b) long, cylindrical, and without nuclei

(c) long, cylindrical, and multinucleate

(d) cylindreial, branched and uninucleate

39. Students observed the following tissues under the microscope. Which one of the tissues is dead, without living cytoplasm and nucleus :




(a) (I) (b) (II) (c) (III) (d) (IV)

40. A student took x gram water in a beaker and dipped p gram of raisins in it. After keeping raisins in water for about 2 hours he measured the mass of soaked raisins as q grams. He also measured the mass of water absorbed from the beaker which was y gram. On the basis of his observations the percentage of water absorded by raisins would be :

(a) $\frac{(y-x)g}{x_g} \times 100$ (b) $\frac{(y-x)g}{y_g} \times 100$

(c) $\frac{(q-p)g}{q_g} \times 100$ (d) $\frac{(q-p)g}{P_g} \times 100$

41. After observing a temporary mount of onion peel cells under microscope, the correct statement is –

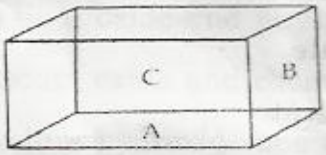
(a) Onion peel has closely arranged cells, without intercellular space

(b) arrangement of cells in onion peel appears like bricks arranged in a wall

(c) both 'a' and 'b'

(d) none of the above

42. In an experiment of establish the relationship between weight of a wooden cuboid lying on the horizontal surface and the minimum force required to move it which of the following faces of cuboid should be in contact with the surface ?




l = 30 m
b = 20 m
h = ~~20~~ 10 m

(a) Face A with area $30 \times 20$ $m^2$ (b) Face B with area $20 \times 10$ $m^2$

(c) Face C with area $30 \times 10$ $m^2$ (c) any of the face A, B or C