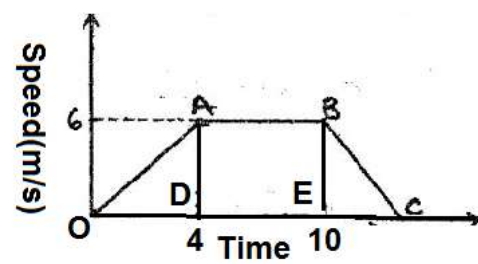


## Section - A

1. Which part of the cell in eukaryotic organisms plays an-important role in cellular reproduction?
2. if first law of motion holds true, why does a ball rolling on ground stop on its own?
3. State Universal law of Gravitation.
4. Name the process or the separation technique the following mixtures:
  - a. Cream from milk
  - b. Dye from black ink
  - c. Oil and water
  - d. Alcohol and water
5. Differentiate smooth and rough endoplasmic reticulum. How is endoplasmic reticulum important for membrane biogenesis?
6. Differentiate between mass and weight.
7. Neena took some Ammonium Chloride in a china dish and put an inverted funnel with a cotton plug on its stem. She then heated it slowly.
  - (i) What would she observe?
  - (ii) Name & define the phenomenon that takes place.
  - (iii) Name any two other substances with which she can make similar observations.
- 8.(a) Wax is heated in a china dish. How will the following change during heating:
  - (i) Kinetic energy of particles
  - (ii) Inter particle distance(b) Melting point of three substances A,B & C are  $52^{\circ}\text{C}$ ,  $180^{\circ}\text{C}$  &  $90^{\circ}\text{C}$ . Arrange them in the decreasing order of the inter particle force of attraction in each of them. Give reason for your answer.
- 9.(a) Distinguish between homogeneous & heterogeneous mixtures (any 2 points)  
(b) Classify the following mixtures as homogeneous or heterogeneous mixtures
  - (i) Sugar solution
  - (ii) Air
10. Give three differences between ligaments and tendons.
11. Define fertilizers. Mention two disadvantage of using fertilizers in the agricultural field.
12. Two bodies P and Q having masses  $m_1$  and  $m_2$ , when separated by a distance  $d$ , exert a force  $F$  on each other. What happens when
  - (a) Masses of both the object' s. are doubled
  - (b) Distance between the two objects is reduced to half
  - (c) the space between the two objects has no air and it is complete vacuum.
13. A farmer moves along the boundary of a square field of side 10m in 40s. What will be the magnitude of displacement at the end of 2 minutes and 20seconds?
14. Give reasons for the following:
  - (i) Mitochondria are called 'powerhouse' of the cell
  - (ii) Lysosomes are called the 'suicide bag'
  - (iii) Chloroplasts are called the ' kitchens' of the cell.
15. 'You are told by your teacher that plants have mostly dead cells in its body on the other hand most of the animal cells are alive. A student wants to know from your teacher . If it gives any advantage to the organisms.

- (i) What advantage do plants get by having mostly dead cells?  
 (ii) Why should we protect trees? (iii) What value is shown by the student?
16. Obtain mathematically the first law of motion from Newton's second law of motion
17. (a.) State law of conservation of momentum. A body of mass 2Kg, initially moving with a velocity of 10m/s, collides another body of mass 5Kg at rest. After the collision, velocity of first body becomes 1m/s. Find the velocity of second body.
18. (a) Derive relationship between 'g' and 'G'. (b) Define Gravitational Constant.
19. Convert following temperature into Kelvin scale: (i) 100°C (ii) 250°C (iii) 27°C
- (b) Write the physical state of water at (i) 258°C (ii) 8°C
- 20.a. Define an element. b. Now are elements classified?  
 c. Which two properties of metals enable us to give desired shape to them?  
 d. Name a metal which is liquid at room temperature
21. (i) Draw a labelled diagram of a neuron (four labelling)  
 (ii) Identify the tissue which is made up of these cells.  
 (iii) Name one organ that is made of this tissue.

22. (a) Differentiate between balanced and unbalanced forces. (b) A trolley, while rolling down an inclined plane, has an acceleration of 2m/s<sup>2</sup>; What distance will it cover in 3s after the start?  
 (c) Study the speed -time graph of a body given below and answer the following questions:



- (i) What type of motion represented by OA?  
 (ii) What type of motion is represented by AB?  
 (iii) Find out the distance travelled by the body from A to B.
23. (a) Define Momentum. Write its S.I. unit. (b) Explain how a karate player can break a pile of tiles with a single blow of his hand. c) Which would require a greater force accelerating a 2Kg mass at 5m/s<sup>2</sup> or a 4Kg mass at 2 m/s<sup>2</sup>?
24. (i) "Removal of weeds from cultivated fields during the early stages of growth of crops is essential for a good harvest" Justify the statement ( ii) List five preventive methods that help in weed control.

**SECTION B**

25. In the cells of an onion peel the nucleus is seen on one side of the cell' because of the  
 (a) Presence of large central Vacuoles (b) Presence of many large Vacuoles.  
 (c) Presence of many small Vacuoles. (d) Absence of Vacuoles.
26. By adding iodine solution to a food extracts the colour 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
27. When we burn a clean piece of Magnesium ribbon in air, we observe:  
 a. a white residue left after burning b. a white dazzling light while burning  
 C. a black residue left after burning d. both a & b

28. Which one of the following cannot be separated by the process of sublimation?  
a. Camphor    b. Iodine    c. Ammonium Chloride    d. Copper Sulphate
29. For the accurate determination of the boiling point of water, we should use  
(a) Tap water (b) Distilled water (c) boiled water (d) hard water
30. While preparing a temporary mount of onion peel cells or human cheek cells, a cover slip 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 glycerin
31. Mohan heated a mixture 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 dissolves                      (d) no change takes place
32. When 2 – 4 drops of conc. hydrochloric acid are added in the given sample of arhar dal, the pink colour is due to : (a) Metanil yellow (b) Starch (c) Turmeric powder (d) Chalk powder
33. Rima took fine chalk powder, egg albumin starch powder and alum powder in four test tubes A, B, C and D respectively. After adding water to all the four test tubes, identify the four test tubes as solution, suspension and colloid.
34. While make a colloidal solution of starch in why is constant stirring is required? Should we use dry corn starch to boiling water or boiling water to corn starch?
35. in an experiment to determine boiling point of water, state reason for the following precaution :  
(i) The bulb of a thermometer should not touch the sides of the beaker.  
(ii) While boiling water, pumice stone should be added.