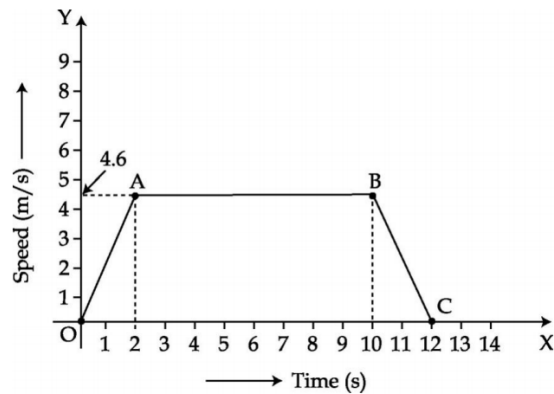


23. The velocity-time graph of an ascending passenger lift is as in the figure shown below.



- (i) Identify the kind of motion of lift represented by lines OA and BC.  
 (ii) Calculate the acceleration of the lift:  
 (a) During the first two seconds.  
 (b) Between the 3<sup>rd</sup> and 10<sup>th</sup> second.  
 (c) During the last two seconds.
- OR**
- (a) Draw velocity-time graph for the following cases.  
 (i) When the object is at rest  
 (ii) When the object is thrown vertically upwards  
 (b) A motorcyclist riding motorcycle A who is travelling at 36 km/h applies the brakes and stops the motorcycle in 10s. Another motorcyclist of motorcycle B who is travelling at 18 km/h applies the brakes and stops the motorcycle in 20s. Plot speed-time graph for the two motorcycles. Which of the two motorcycles traveled farther before it comes to a stop?
24. (a) A farmer found that xanthium and parthenium are also growing along with paddy in the field? What are such plants called? How the presences of these plants affect the crop yield?  
 (b) List any four methods for controlling and preventing the growth of such plants?
- OR**
- (a) List the different ways in which biotic and abiotic factors affect stored food grains?  
 (b) What preventive and controlling measures need to be taken before and after storing the grains?

**Science**

(Test 2 for SA - 1, Sep' 2012)

**Time allowed: 3 hours**

**Maximum Marks: 90**

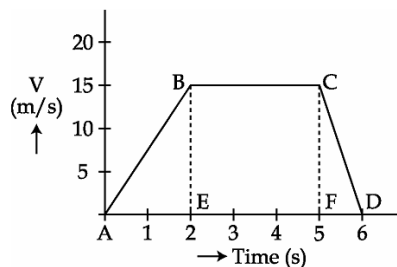
**General Instructions:**

- (i) The question paper comprises of two sections, A and B. You are to attempt both the sections.
- (ii) All questions are compulsory.
- (iii) There is no overall choice. However, internal choice has been provided in all the five questions of five marks category. Only one option in such questions is to be attempted.
- (iv) All questions of section A and all questions of section B are to be attempted separately.
- (v) Questions 1 to 3 in section A are one mark questions. These are to be answered in one word or in one sentence.
- (vi) Questions 4 to 7 in section A are two marks questions. These are to be answered in about 30 words each.
- (vii) Questions 8 to 19 in section A are three marks questions. These are to be answered in about 50 words each.
- (viii) Questions 20 to 24 in section A are five marks questions. These are to be answered in about 70 words each.
- (ix) Questions 25 to 42 in section B are multiple choice questions based on practical skills. Each question is a one mark question. You are to select one most appropriate response out of the four provided to you.

Section A

1. What is dry ice? What happens when the pressure under which it is stored is decreased to 1 atmosphere?
2. Why is glass or chinaware packed with straw?
3. Name the processes by which CO<sub>2</sub> and H<sub>2</sub>O move into and out of the cell?
4. List in tabular form any two differences between homogeneous and heterogeneous mixtures.
5. State universal law of gravitation. Express it mathematically.
6. Differentiate between the plasma membrane and cell wall.
7. List any four salient features of meristematic tissue.

8. (a) Define evaporation.  
 (b) Explain how the following factors affect the rate of evaporation of a liquid:  
 (i) Temperature of the liquid.  
 (ii) Area of the exposed surface.  
 (iii) Moisture in the surrounding air.  
 (iv) Increase in wind speed.
9. (i) Name the process or the separation technique you would follow to separate:  
 (a) Dyes in black ink  
 (b) Butter from cream  
 (c) Ammonium chloride and common salt  
 (d) Iron filings and sand  
 (ii) State the principle used in separation by centrifugation.
10. (a) What is acceleration? Write its unit.  
 (b) Draw velocity-time graph, when an object has
11. The velocity-time graph of a car is given below. The car weights 1000 kg.  
 (i) What is the distance travelled by the car in the first 2 seconds?  
 (ii) What is the braking force at the end of 5 seconds to bring the car to a stop within one second?



12. Prove that if a body is thrown vertically upward, the time of ascent is equal to the time of decent.
13. A man throws a ball of mass 0.5 kg vertically upward with a velocity of 25 m/s. Find:  
 (a) The initial momentum of the ball  
 (b) Momentum of the ball at the half way mark of the maximum height (given  $g = 10 \text{ m/s}^2$ )
14. Calculate the force of gravitation between the earth and the sun. [Given that the mass of the earth =  $6 \times 10^{24} \text{ kg}$ , mass of the sun =  $2 \times 10^{30} \text{ kg}$ , average distance between the two is  $1.5 \times 10^{11} \text{ m}$  and  $G = 6.67 \times 10^{-11} \text{ Nm}^2\text{kg}^{-2}$ ].
15. (a) State the constituents of phloem.  
 (b) How does cork act as a protective tissue?
16. Give the location and functions of the following tissues:  
 (a) Cartilage  
 (b) Areolar tissue

- (c) Adipose tissue
17. What will happen if:  
 (a) Ribosomes are removed from the cell,  
 (b) Golgi apparatus is removed from the cell,  
 (c) Plasma membrane ruptures?
18. What is animal husbandry? Differentiate between milch and draught animals. What do the following supply to dairy animals?  
 (i) Roughage (ii) Concentrates.
19. State differences between mixed cropping and intercropping with examples.
20. Based on the following characteristics distinguish in tabular form the behavior of true solution, suspension and colloidal solution.  
 (a) appearance (b) visibility (c) filterability  
 (d) Tyndall effect (e) particle size
- OR**
- (a) What is distillation? List the two conditions essential for using this as a method of separation of components of a mixture.  
 (b) Draw a labeled diagram of the apparatus used to separate a mixture of two miscible liquids.
21. Compare in tabular form, the properties of Solids, Liquids and Gases with respect to:  
 (i) Shape  
 (ii) Volume  
 (iii) Compressibility  
 (iv) Diffusion  
 (v) Fluidity or Rigidity

**OR**

Account for the following:

- (a) For any physical state of a substance, the temperature remains constant during its change of state.  
 (b) Water kept in an earthen pot becomes cool in summer.  
 (c) We are able to sip hot tea from a saucer rather than from a cup.
22. (a) How much momentum will an object mass 10 kg transfer to the floor, if it falls from a height of 0.8 m? ( $g = 10 \text{ ms}^{-2}$ )  
 (b) Explain why is it difficult for a fireman to hold a hose, which ejects large amount of water at a high velocity.
- OR**
- (a) State Newton's second law of motion. Apply this law to obtain the unit of force and define it.  
 (b) State the Law of Conservation of Momentum. Apply this law to explain the recoil of a gun, when a shell is fired from it.

35. A student put five raisins each in two beakers A and B. Beaker A contained 20 mL of distilled water and beaker B has 20 mL of saturated sugar solution. After some time the student would observe that:
- Raisins in beaker A were more swollen than those in beaker B.
  - Raisins in beaker B were more swollen than those in beaker A.
  - Raisins in both beakers A and B were equally swollen.
  - Raisins in beaker A did not swell up at all.
36. In the preparation of temporary mount of onion peel which of the following is not used:
- Water
  - glycerin
  - safranin
  - alcohol
37. Arun, Deepa, Uma and Priya were asked to select a plant material which would not give blue black colour with iodine solution. Who did not select the right material?
- Arun selected maize grains.
  - Deepa selected wheat grains.
  - Uma selected ground nut seeds.
  - Priya selected potato.
38. Deepak washed a few grains of tur dal in water. The water became yellow. He then added a few drops of HCl to the same test tube, the water turned pink in colour. From the above test Deepak concluded that tur dal contains.
- Proteins
  - starch
  - Turmeric
  - metanil yellow
39. Animal cells are commonly stained with:
- methylene blue
  - acetocarmine
  - Safranin
  - iodine solution
40. Aditi observed following observations while looking into a permanent slide.
- Cells are long and cylindrical
  - Light and dark bands are present.
- It could be a slide of:
- Striated muscle fibre
  - Smooth muscle fibre
  - Neuron
  - Parenchyma cells
41. A student recorded the mass of dry raisins as 2.5g and the mass of raisins after soaking in water as 4 g. While performing the above experiment. The percentage of water absorbed by raisin is :
- 20%
  - 30%
  - 60%
  - 40%
42. A permanent slide shows thin walled isodiametric cells with a large vacuole. The slide contains:
- Parenchyma cells
  - Nerve cells
  - Sclerenchyma cells
  - Collenchyma cells



## Section B

25. If common salt is added to the unsaturated solution of water and common salt it will
- Become a colloid
  - Become a suspension
  - Start showing Tyndall effect
  - Remain a true solution
26. A student was asked to mix the white of an egg with water and stir well. The student observed that
- A transparent solution is formed.
  - A translucent mixture is formed.
  - Egg white settles down at the bottom.
  - Egg white floats on the surface.
27. The reaction of iron and sulphur to form iron sulphide takes place at :
- At high temperature
  - In the presence of a catalyst
  - At moderate temperature
  - In the presence of an acid
28. Which of the following compounds when dissolved in water gives coloured solution?
- Barium chloride
  - sugar solution
  - Sodium chloride
  - copper sulphate
29. For determining the accurate melting point of ice we should prefer
- Ice made from distilled water
  - Ice made from tap water
  - Crushed dry ice mixed with salt
  - A mixture of ice and salt
30. Mohan used a thermometer having 20 divisions between 30° C mark and 40° C mark. While determining boiling point of water using this thermometer he observed that the level of mercury becomes constant just 3 divisions below the 100°C mark. Mohan should record in his mote book
- Least count = 0.5°C, B.P. = 97°C
  - L.C. = 0.5°C, B.P. = 98.5°C
  - L.C. = 1°C, B.P. = 98.5°C
  - L.C. = 1°C, B.P. = 97°C
31. Ramu was asked to separate a mixture of common salt and ammonium chloride. Sublimation is used to separate ammonium chloride because:
- Ammonium chloride sublimes
  - Ammonium chloride changes directly from solid to gaseous state on heating
  - Mixture contains a sublimesly volatile component and a non sublimesly impurity (salt)
  - All the above
32. Which is the correct colour sequence of iron filings, sulphur and iron sulphide ?
- Grayish black, yellow, black
  - Black, yellow, brown
  - Brown, yellow, black
  - Black, yellow, grayish black
33. The colour of magnesium after rubbing with sand paper is
- Silvery white
  - Grey
  - Black
  - Brown
34. Common salt and sand can be separated by :
- Filtration
  - Crystallization
  - Sedimentation and Decantation
  - First dissolving in water, then by filtration and followed by crystallisation.