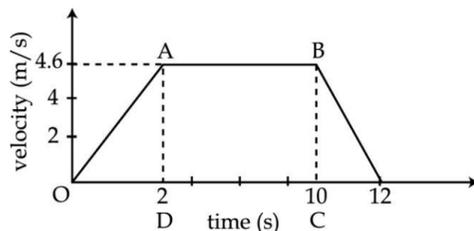


- What is the velocity of the particle at point 'A'.
- Find the momentum of the particle, at time  $t = 4$  s.
- What does the slope of graph represent?
- Calculate the distance travelled in 4 seconds.

**Or**

Study the velocity – time graph of an ascending passenger lift in the figure shown below. What is the acceleration of the lift:



- During the first two seconds.
- between second and tenth second
- during the last two seconds.
- Which physical quantity is measured by area under the quadrilateral ABCD? Calculate it.

24. (a) Which variety of bee is advantageous - *Apis cerena indica* or *Apis mellifera* and Why ?
- (b) What is pasturage? How is it related to honey production ?

**Or**

- What is intercropping?
- How does intercropping give better returns to the farmers than the normal method of cultivation?
- State any four losses due to biotic and abiotic factors during storage of grains.



**Science**

(Test 1 for SA – 1, Sep' 2012)

**Time allowed: 2½ hours**

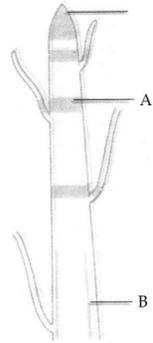
**Maximum Marks: 72**

**General Instructions:**

- All questions are compulsory.
- 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.
- Questions 1 to 3 in section A are one mark questions. These are to be answered in one word or in one sentence.
- Questions 4 to 7 in section A are two marks questions. These are to be answered in about 30 words each.
- Questions 8 to 19 in section A are three marks questions. These are to be answered in about 50 words each.
- Questions 20 to 24 in section A are five marks questions. These are to be answered in about 70 words each.

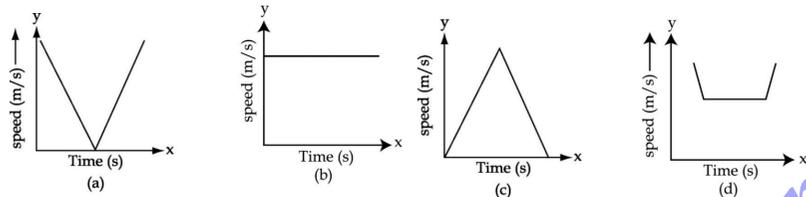
Section A

- Give one example to show that gases diffuse in liquids.
- What will happen to the momentum of a body whose velocity is doubled?
- Name the cell organelle which is able to destroy a damaged cell.
- Tabulate any two differences between mixtures and compounds.
- State the universal law of gravitation. List two phenomena illustrating its importance.
- What will happen to a plant cell if it is kept in a:
  - hypotonic solution
  - hypertonic solution.
- (a) Observe the diagram given below carefully and label the regions marked A and B in the diagram.



(b) Which meristematic tissue is responsible for increase in length of root and for the transformation of the stem of a plant into trunk when it grows into a tree.

8. (a) What happens when acetone is poured on the palm?  
 (b) Name the process involved in the following changes :  
 (i) liquid to solid (ii) gas to liquid (iii) solid to gas (iv) solid to liquid
9. List three differences between mixtures and compounds.
10. Four speed - time graphs are shown below.



Which graph represents the following case?

- (a) A ball thrown vertically upwards and returning to the hand of the thrower?  
 (b) A body decelerating to a constant speed and then accelerating.  
 (c) Uniform motion of a car.
11. State the effect of force in each of the following cases :  
 (i) A spring is stretched  
 (ii) A hockey player hits an incoming ball  
 (iii) A football lying on the ground is kicked.
12. Derive an expression for acceleration due to gravity on a planet of mass  $M$  and radius  $R$ .
13. Interpret force in terms of momentum. Represent the following graphically:  
 (a) momentum versus mass when velocity is constant.  
 (b) momentum versus velocity when mass is fixed.
14. A ball is gently dropped from a height of 20 m. If its velocity increases uniformly at the rate of  $10 \text{ m/s}^2$ , with what velocity will it strike the ground? After what time will it strike the ground?
15. List any six characteristics of parenchyma tissue.

16. Draw labelled diagrams to show the difference between the structures of any two types of muscle fibres.
17. Draw a diagram of a plant cell and label the following parts :  
 (i) Cell wall. (ii) Nucleus. (iii) Vacuole. (iv) Golgi apparatus.
18. Give three management practices which are common in dairy and poultry farming.
19. (a) Differentiate between macronutrients and micronutrients mentioning two examples of each.  
 (b) State reasons to show how organic matter is important for crop production.
20. Name and describe the method used for separating the components present in a sample of ink. List its any two applications.
- Or**
- (a) How can we separate a mixture of two miscible liquids?  
 (b) Draw a neat labelled diagram of the apparatus used for separating acetone and water (forming a miscible mixture) from their mixture.  
 (c) Can all mixtures of two or more miscible liquids be separated by this process?  
 (d) List two criteria needed for using this process.
21. Distinguish, in tabular form, between solids, liquids and gases under the following characteristics :  
 (i) Intermolecular attraction (ii) density (iii) fluidity (iv) Diffusion  
 (v) Kinetic energy of particles at a given temperature

**Or**

What is evaporation? In the following examples state which factor is responsible for the change in rate of evaporation and how?

- (i) Clothes dry faster on a windy day.  
 (ii) Wet clothes dry faster on spreading them.  
 (iii) Clothes dry faster in sun than in shade.  
 (iv) Clothes take longer time to dry on a rainy day.
22. (a) How much momentum will an object of 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.
23. The velocity time graph of a particle of mass 50 g moving in a definite direction is shown in the following figure. Answer the questions based on this figure: