

**CBSE
Class IX Science
Sample Paper – 3**

Time: 3 hrs

Total Marks: 80

General Instructions:

- The question paper comprises five sections – A, B, C, D and E. You are to attempt all the sections.
 - All questions are compulsory.
 - Internal choice is given in sections B, C, D and E.
 - Question numbers 1 and 2 in Section A are one mark questions. They are to be answered in one word or in one sentence.
 - Question numbers 3 to 5 in Section B are two marks questions. These are to be answered in about 30 words each.
 - Question numbers 6 to 15 in Section C are three marks questions. These are to be answered in about 50 words each.
 - Question numbers 16 to 21 in Section D are five marks questions. These are to be answered in about 70 words each.
 - Question numbers 22 to 27 in Section E are based on practical skills. Each question is a two marks question. These are to be answered in brief.
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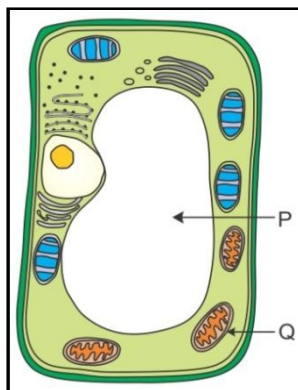
Section A

1. Name two processes which play an important role in the oxygen cycle. (1)
2. List any two useful traits in improved crops. (1)

Section B

3. What is sublimation? Name the substances that undergo sublimation. (2)
- OR**
- What is Brownian movement?
4. How can reverberations in a large hall or auditorium be reduced? (2)

5. Observe the figure carefully and answer the questions which follow: (2)
- (a) What is the role of P in the cell?
- (b) What will happen in the absence of Q in the cell?



Section C

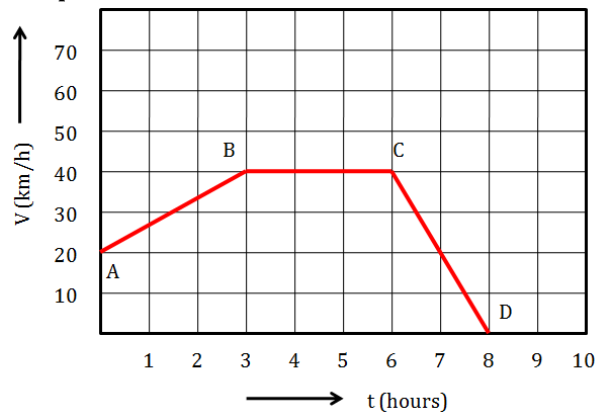
6. Answer the following: (3)
- (a) Define speed. State its SI unit.
- (b) What is meant by (i) average speed and (ii) uniform speed?
- (c) What is the difference between speed and velocity?
7. (3)
- (a) Give four general characters of Phylum Mollusca.
- (b) Write two examples.
8. (3)
- (a) Why is it dangerous to jump from a moving bus?
- (b) Why does a cricketer move his hand backwards while catching a ball?
9. A 0.24-g sample of a compound of oxygen and boron was found by analysis to contain 0.096 g of boron and 0.144 g of oxygen. Calculate the percentage composition of the compound by weight. (3)
10. A maid working at Sarla's place did not turn up for work as her daughter was down with diarrhoea. Hearing this, Sarla volunteered to take the child to the doctor. (3)
- (a) What could be the cause for the child's illness?
- (b) What immediate help can be given to the child before taking her to the doctor?
- (c) What values are depicted by Sarla?

11. A 20-g bullet is travelling at a speed of 400 m/s. It strikes a 1.5-kg target which is initially at rest and remains embedded in it. What is the speed with which the target will move? (3)

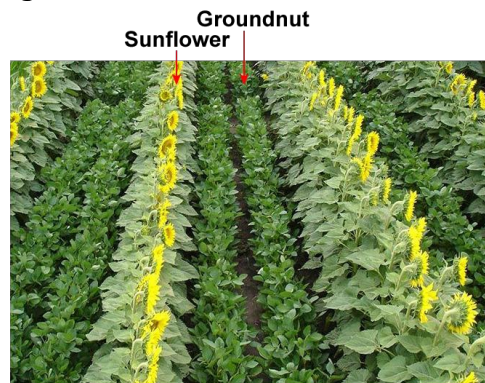
OR

The velocity–time graph for a moving body is given alongside. Find (3)

- (a) Acceleration between points A and B
 (b) Acceleration between points B and C
 (c) Acceleration between points C and D



12. A field with sunflower and groundnut is shown below. (3)



- (a) What pattern of cropping does the field show?
 (b) Mention any two advantages of this type of cropping pattern.

OR

- (a) How can we obtain the maximum benefit from a crop field? (3)
 (b) Which of the following crops would require a minimum quantity of fertilisers for its proper growth? Why?
 Paddy, Pea, Wheat, Sugarcane

13. Among the electrons revolving around the nucleus, which electron will (3)

- (a) Determine the chemical properties of an element
 (b) Not determine the chemical properties of an element
 Give a reason for your answer.

OR

- (a) If $Z = 11$ for element A and $Z = 12$ for element B, then what would be the valency of the elements? Name elements A and B.
- (b) Explain isotopes with the help of suitable examples.

14. Is it possible to turn liquid into vapour without heating? Explain your view. (3)

15. Give reasons: (3)

- (c) It is difficult to pull out the husk of coconut.
- (d) Xylem and phloem are called complex tissues.
- (e) Erythrocytes of mammals carry much more haemoglobin in them as compared to other animals.

Section D

16. (5)

- (a) Define the term 'energy' of a body. What is the SI unit of energy?
- (b) What are the various forms of energy?
- (c) State what energy do the following objects possess:
- (i) A man climbing Mount Everest
 - (ii) A stretched spring on the ground
 - (iii) A man standing on the top of a building
 - (iv) A formula one race car on a track

17. (5)

- (a) What are decomposers?
- (b) State their role in the ecosystem.
- (c) In which type of plants do nitrogen-fixing bacteria reside?
- (d) Explain the various forms in which carbon is found on the Earth.

OR

- (a) With the help of a neat and labelled diagram, show the nitrogen cycle in nature.
- (b) Describe briefly any two processes involved in the cycling of N_2 in the environment.

18. Answer the following: (5)

- (a) Temperature remains constant until the whole solid changes to liquid although heat energy is constantly supplied. Why?
- (b) Temperature remains constant during boiling although heat is constantly supplied. Why?
- (c) Ice has lower density than water. Why?

19. Briefly describe how to separate a mixture of (5)

- (a) Sulphur and sand
- (b) CuO and ZnO
- (c) Cream from milk
- (d) Iron filings and sugar
- (e) Kerosene oil and water

OR

- (a) What is fractional distillation? List the two conditions essential for using fractional distillation as a method of separation of components of a mixture.
- (b) Which method is used to separate a mixture of two immiscible liquids? What is the principle behind this separation technique?

20. (5)

- (a) Which of the following do you think is a more basic characteristic for scientifically classifying organisms? Why?
 - (i) Habitat (or place where they live)
 - (ii) Cell type (or kind of cells they are made of)
- (b) You are given specimens of Leech, *Nereis*, prawn and scorpion. All these organisms have segmented body organisation. Will you classify them in one group? If not, state the important characters based on which you will separate them into different groups.

21. (5)

- (a) The Earth exerts more force on heavier bodies than on lighter bodies. Why is it that when dropped, heavier bodies do not fall faster than lighter bodies?
- (b) When two equal weights of unequal volumes are balanced in air, what will happen when they are completely dipped in water? Why?
- (c) An egg sinks when placed in water. What happens when salt is added to the beaker containing water?

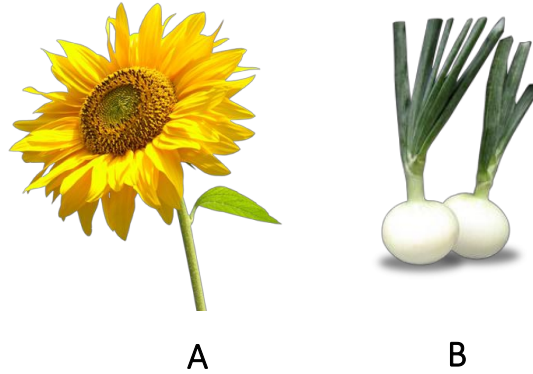
OR

- (a) Determine the value and units of the universal gravitational constant, G ?
- (b) A stone is dropped from the edge of the roof. It passes a window 2 m high in 0.1 s. How far is the roof above the window?

Section E

22. Observe figures A and B carefully.

(2)

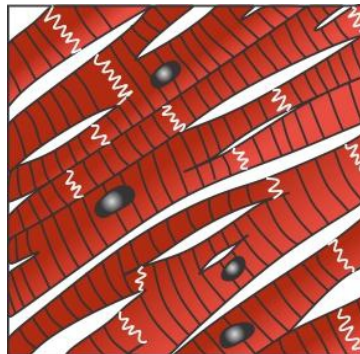


(a) Identify the monocot and dicot plant.

(b) Which of the given plants has a fibrous root system and parallel venation?

23. The given figure represents a tissue found in the human body.

(2)

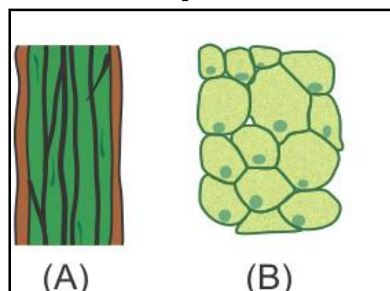


(a) Identify the tissue and state its location in the body.

(b) Is it voluntary or involuntary in nature?

OR

Observe the figure below and answer the questions based on it.



(a) Which of the above figures shows parenchyma cells?

(b) List any one point of difference between figures A and B.

24. A pulse was created in a stretched string of length of 5 m by four students A, B, C and D. They observed that the pulse returned after reflection at the point of creation 5 times in 10 seconds and calculated the speed as given in the table below: (2)

| Student | A | B | C | D |
|-------------|-----|-----|---|----|
| Speed (m/s) | 0.5 | 2.5 | 5 | 10 |

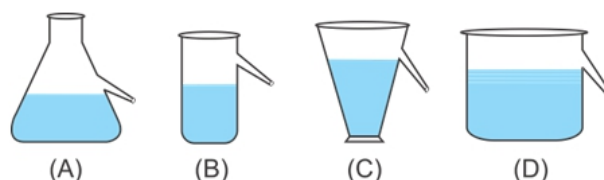
Which student has reported the speed correctly?

OR

Heena and Radhika are communicating with each other. Their friend Rima can differentiate between their voices even though she is in another room. Which characteristic of sound helps Rima to differentiate between the voices of her friends? Define it.

25. A gas jar containing air is inverted over a gas jar of bromine vapour. It is observed that after some time, the gas jar containing air also becomes completely reddish brown. Give reason for this process.

26. Four students A, B, C and D performed an experiment to establish the relation between the loss of weight of a small solid when fully immersed in tap water and the weight of water displaced by it. They used four overflow cans of different shapes to hold the water. Which student will get the desired results and why? (2)



27. You are given a mixture of carbon disulphide, benzene and water. How will the layers form and why? Suggest a method to separate them. (2)

OR

The following substances are added to water in a beaker as shown and the mixture is stirred well. Which beaker contains a true solution? Explain.

