

**CBSE**  
**Class IX Science**  
**Sample Paper - 10**

**Time: 3 hrs**

**Total Marks: 80**

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- 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 nitrogen compounds obtained by industrial fixation. (1)
2. List two desirable traits for fodder crops. (1)

**Section B**

3. What are the different types of ions formed by iron? Give their names and valency. (2)
4. A person fires a gun and its echo is heard after 3 s. Find the distance of the gunman from the cliff which produces the echo (speed of sound is 330 m/s). (2)
5. Why striated muscles are also called voluntary and skeletal muscles? (2)

**OR**

Name the plant tissue found in the husk of coconut. Identify the chemical which is responsible for its stiffness.

### Section C

6. State one function of the following nuclear parts: (3)
- (a) Nuclear pore
  - (b) Nuclear membrane
  - (c) Chromosomes

7. List three groups of vascular plants. Out of these, which group is further classified on the basis of number of cotyledons? State two of its characteristics. (3)

**OR**

List two differences and one similarity between Platyhelminths and Nematodes.

8. Two cars of mass 750 kg and 1500 kg are required to be pushed by a person while the driver is accelerating the car. The force applied to both cars is the same. Find the relation between the accelerations of both cars. (3)

**OR**

Prove the law of conservation of momentum with a clear explanation, diagram and equation.

9. 'Water is a compound and not a mixture'. Justify this statement. (3)
10. What harm can be caused to crops if they are excessively irrigated? (3)
11. Identify the genus and species name in the scientific name of coconut, *Cocos nucifera*. How did you identify? (3)
12. (a) How many grams of chlorine are contained in one mole of chlorine?  
(b) How many molecules are present in 1 g of chlorine?  
(Gram atomic mass of chlorine = 35.5 g) (3)

**OR**

The percentage of three elements calcium, carbon and oxygen in a sample of calcium carbonate is

Calcium = 40%; Carbon = 12.0%; Oxygen = 48%

If the law of constant proportions is true, what weights of these elements will be present in 1.5 g of another sample of calcium carbonate?

13. What is buoyant force? What are the factors affecting the buoyant force? What is buoyant force also called? (3)
14. Neha and Rahul were performing an activity related to conservation of mass in their school Chemistry laboratory. They took barium chloride and sodium sulphate solutions and mixed them together. Rahul commented that since they already know the quantity of both compounds taken, they need not measure the amount of the final solution. But Neha insisted on measuring the amount of the final solution. (3)
- (a) Determine the molecular mass of
- Barium chloride
  - Sodium sulphate
- (b) Comment on Neha's insistence on measuring the amount of the final solution.
15. Define speed. Is it a scalar quantity or vector quantity? (3)
- Give reason for your choice.

### Section D

16. (5)
- (a) What did Bohr contribute to the atomic structure?
- (b) Describe Bohr's model of an atom in detail with the help of a neat and labelled diagram.

**OR**

Give the atomic number of magnesium atom and magnesium ion; also diagrammatically show the electron distribution.

17. Urbanisation and industrialisation are mainly responsible for the increase in environmental pollution. Justify this statement and suggest ways and means to keep it in check. (5)
18. (5)
- (i) Check the following cases and tell whether the work done is positive, negative or zero. Give reason for the same.
- a) A football moving in a certain direction is hit by the player along the direction of its motion.
  - b) A metal bob tied to a thread is revolved continuously.
  - c) A moving football stops due to the frictional force of the ground.
- (ii) State and explain Newton's first law of motion. Explain using one example.

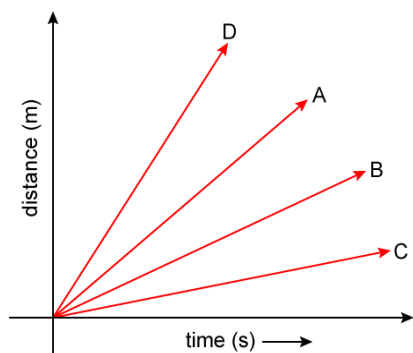
19. (5)

- (i) Write the second kinematical equation of motion.
- (ii) An object is thrown upward to a certain height with a velocity of 3 m/s. If the time required to reach the height is 5 s, calculate the height at which it was thrown.

**OR**

The following is the graphical representation of cars A, B, C, D. Analyse the graph below and state which of the following statements are incorrect? If any particular statement is correct, give reason for it.

- a) Speed of Car D is the highest.
- b) Car A travels faster than Car B.
- c) Car A travels at the same speed as Car C.
- d) Speed of Car C is less.
- e) Car D is the slowest.



20. How will you separate dyes in black ink using chromatography?

Explain with the help of a diagram.

(5)

21. Piya's gardener was coughing continuously for the last few days and was suffering from low grade fever. He was taking home remedial treatment. One day Piya's physician visited their house. Piya got her gardener checked by the doctor. The gardener was advised to get a chest X ray and his sputum tested. (5)

- (a) Name the disease the gardener might be suffering from.
- (b) Name the causative organism of the disease.
- (c) Give two preventive measures for the disease.
- (d) Which two values were shown by Piya?

**OR**

- (a) State the conditions essential for maintaining good health.
- (b) Why is AIDS considered a syndrome and not a disease?

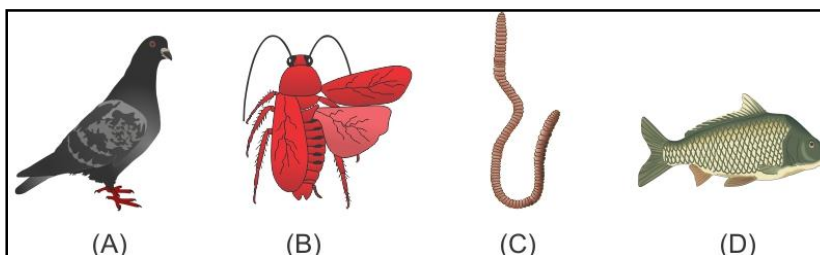
## Section E

22. (2)

- List any one plant with a tap root system.
- Which type of plants have tap roots? List any two characteristics of such plants.

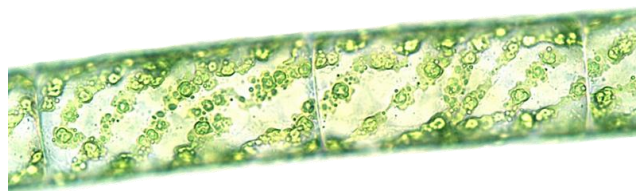
OR

Observe the specimen samples kept in the laboratory and answer the questions that follow:



- Which of the above specimens have jointed appendages for locomotion?
- List any two features which enable us to classify earthworm as annelid.

23. The teacher showed a student the given specimen. (2)



- Identify the specimen and the division to which it belongs.
- Which features will help the student in the identification of the specimen?

24. Observe the apparatus shown below and answer the following questions: (2)



- (a) Name the apparatus.  
(b) Write one use of the apparatus.

25. A 0.24 g sample of compound of carbon and oxygen on analysis was found to contain 0.096 g of carbon and 0.144 g of oxygen. Find the percentage composition of the compound by weight. (2)

**OR**

Two elements X and Y combine in the gaseous state to form XY in the ratio 1:35.5 by mass. What will be the mass of Y that combines with 2 g of X?

26. Why sound waves are called mechanical waves? Give one difference between sound waves and radio waves. What are light waves termed as? (2)

27. The weight of a metal bob in air is 100 g. The maximum loss in weight of the metal bob in a liquid is 40 g. How much must it weigh in a liquid? Also explain what you mean by maximum loss in weight. (2)

**OR**

(i) To move a wooden block A placed on a horizontal surface, Atul uses a spring balance and measures the minimum required force  $F_1$ . Now, he keeps one more block B over it and then measures the minimum required force as  $F_2$ . The relation between  $F_1$  and  $F_2$  is

- A.  $F_1 > F_2$
- B.  $F_2 > F_1$
- C.  $F_1 = F_2$
- D. Depends on which face of block A is placed on the surface

(ii) What will happen if the blocks are interchanged?