

CBSE Class 9 Science Sample Paper

SUBJECT: SCIENCE
CLASS : IX

MAX. MARKS : 80
DURATION : 3 HRS

General Instructions:

1. The question paper comprises of five sections – A, B, C, D and E. You are to attempt all the sections.
 2. All questions are compulsory.
 3. Internal choice is given in sections B, C, D and E.
 4. Question numbers 1 and 2 in **Section-A** are one mark questions. They are to be answered in one word or in one sentence.
 5. Question numbers 3 to 5 in **Section- B** are two marks questions. These are to be answered in about 30 words each.
 6. Question numbers 6 to 15 in **Section-C** are three marks questions. These are to be answered in about 50 words each.
 7. Question numbers 16 to 21 in **Section-D** are 5 marks questions. These are to be answered in about 70 words each.
 8. 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 the term which is used for the following:
 - (i) The left and right halves of the body have the same design.
 - (ii) The animal tissue differentiate from the three embryonic germ layers.
2. What would happen if carbon dioxide content of the atmosphere increases?

SECTION – B

3. What is biological fixation? How is it different from nitrification? Give an example of organism involved in each of these.
4. (a) Sound is produced when your school bell is struck with a hammer. Why?
(b) Which characteristic of sound helps to identify your friend by his voice while sitting with others in a dark room?

OR

Define wavelength and relate it with frequency of sound and its velocity.

5. Where is ozone layer found in atmosphere? What is its importance? Write the harmful effects of UV rays?

SECTION – C

6. A student lifts an object in the upward direction. In doing so, he applies the force on the object in the upward direction and displaces it in that direction: (However, the force of gravity is also acting on the object.)
 - (a) State the direction in which force of gravity is acting on it.
 - (b) Which one of these forces is doing positive work? Give reason.
 - (c) Which one of these forces is doing negative work? Give reason.

OR

(a) Define kinetic energy.

(b) The masses of scooter and bike are in the ratio of 2 : 3, but both are moving with the same speed of 108 km/h. Compute the ratio of their kinetic energy.

7. Define weeding. Name some common tools used for weeding.
8. Give reasons:
(a) A karate player suddenly reduces the speed of his hand while hitting an ice slab.
(b) Glass ware are covered with paper and straw while transportation.
9. (a) Define matter and write its three states.
(b) Explain how these states of matter arise due to variation in the characteristics of the particles.

OR

Define the following terms: (a) Latent heat of fusion. (b) Melting point. (c) Fusion.

10. Define solubility. How does solubility of a solid in water change with temperature?
11. (a) Define atomic mass unit.
(b) Distinguish between molecular mass and molar mass.
(c) Give an example of (i) diatomic, and (ii) triatomic molecule of compounds.
12. Define the following terms: Protoplasm, cytoplasm, nucleoplasm

13. Write the name used for the following:
(a) Plants which bear naked seeds.
(b) Animals which have pseudocoelom.
(c) Animals which maintain a certain body temperature over a wide range of temperature in the environment.

OR

- (a) List any two main characteristics of protochordates.
(b) In which class would you place any organism which has-
(i) four chambered heart and lay eggs.
(ii) skeletons made of both bones and cartilage and are cold-blooded.

14. State universal law of gravitation. The gravitational force between two objects is 100 N. How should the distance between the objects be changed so that the force between them becomes 50N?
15. (a) What are communicable diseases?
(b) What are common methods of transmission of diseases?

SECTION – D

16. (a) Calculate the number of oxygen atoms in 0.10 mole of $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$.
(b) If one mole of sulphur weighs 32 grams, what is the mass (in grams) of 1 atom of sulphur?
(c) Identify the correct formula for ammonium sulphate from the following formula:
 $(\text{NH}_4)(\text{SO}_4)_3, (\text{NH}_4)_2\text{SO}_4, \text{NH}_4(\text{SO}_4)_2$
17. How were cathode rays produced using a discharge tube? Give four properties of cathode rays. Why does e/m ratio of negatively charged particles remain constant for all gases? Draw a neat and labelled diagram of a cathode ray tube.

OR

- (a) What are the postulates of Bohr's model of an atom?
(b) Show diagrammatically the electron distributions in Sodium, Lithium and Aluminium atoms.
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18. (a) Define 1 kWh.

(b) A crane is lifting a body to a height h in time t . Find the relation between the power of crane to the speed at which it is lifting the object.

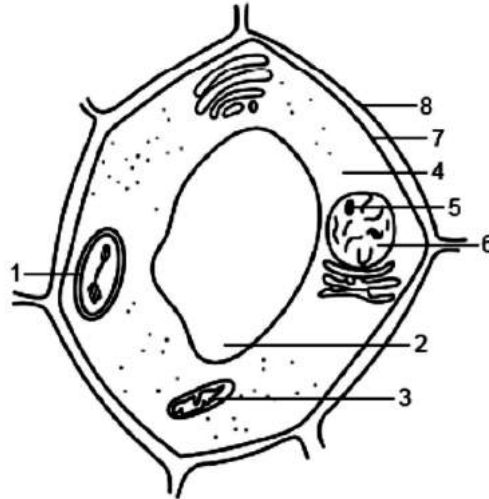
(c) If an electric iron of 1600 W is used for 45 minutes everyday, find the electric energy consumed in the month of March.

19. Given below is a diagrammatic sketch of a certain generalised cell.

(a) Name the parts numbered as 1 to 8.

(b) Is it a plant cell or an animal cell? Give two reasons in support of your answer.

(c) Give the functions of parts marked as 1, 6 and 8.



20. Draw velocity time graph for a body that has initial velocity 'u' and is moving with uniform acceleration 'a'. Use it to derive $v = u + at$; $s = ut + \frac{1}{2}at^2$, and $v^2 = u^2 + 2as$

OR

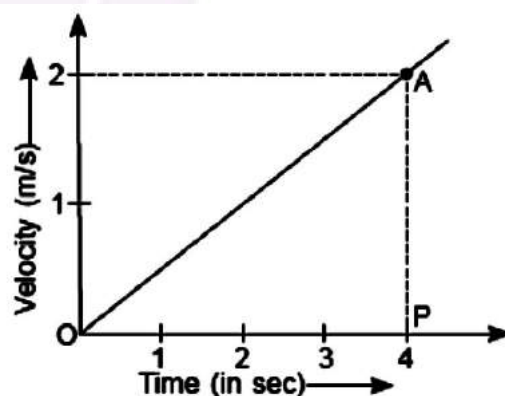
The velocity-time graph of a particle of mass 50 g moving in a definite direction is shown in the following figure. Answer the questions based on this figure.

(a) What is the velocity of the particle at point 'A'?

(b) Find the momentum of the particle at time $t = 4$ s.

(c) What does the slope of a graph represent?

(d) Calculate the distance travelled in 4 seconds.



21. Based upon cell shape, cell wall and intercellular spaces, prepare a comparative study table between parenchyma, collenchyma and sclerenchyma. Which of these tissues is dead.

OR

Answer the followings:

- (a) Name the constituents of phloem tissues.
- (b) Write the specific function of cardiac muscle.
- (c) State two differences between tendon and ligament.
- (d) Name the tissue that:
 - (i) forms inner lining of our mouth.
 - (ii) forms soft parts of leaf, stem, root and fruit.
- (e) Write two functions of adipose tissues.

SECTION – E

22. Two children stand on two separate carts as shown in the figure.



Each has a bag full of sand or some other heavy object. Let one child throw the bag to the other who catches it.

Does each of them receive an instantaneous reaction as a result of throwing the sand bag (action)? How do you observe that?

Why are skateboards not used in this case?

OR

During arm wrestling, participants put their arms on the table, and wrestle with the palms. If the force exerted by both the players is equal,

- (a) Where are balanced forces acting?
- (b) Where is the action reaction pair acting?

23. (i) Arrange the following substances in increasing order of force of attraction between the particles: (a) water (b) hydrogen (c) sand
(ii) Why does the temperature remain constant at the melting point?

24. Which of the two would be chemically more reactive; element 'X' of atomic number 18 or element 'Z' of atomic number 16 and why?

OR

Composition of the nuclei of two atomic species A and B are given as under:

Elements	A	B
Protons	17	17
Neutrons	18	20

- (a) What are the mass numbers of A and B?
- (b) How are they related to each other?

25. In a discus throw sports event, the athlete begins in a circular motion and then releases it. Why does it move in a straight line after releasing?

26. Two friends were practicing floriculture in their farm. They sold the flowers to florists in India. They felt that if they start bee-keeping too, their income will increase. They obtained more information from the local officer.
- (i) What is pasturage and how is it related to quality of honey?
 - (ii) Name a bee variety which is commonly used for commercial honey production.

27. Draw a graph for a wave representing wave disturbance and time for a sound changing from low pitch to high pitch, keeping the amplitude of the sound same.

OR

Three persons, A, B and C are made to hear a sound travelling through different media as given below:

Person	Medium
A	Iron Rod
B	Air
C	Water

Who will hear the sound first and why?

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