



INDIAN SCHOOL SOHAR
PERIODIC TEST I (2023-24)
SUBJECT: SCIENCE

SET I

CLASS: IX

DATE: /05/2023

MAX. MARKS: 20

TIME: 40 MINUTES

General Instructions:

- i. This question paper consists of 10 questions in 5 sections.
- ii. All questions are compulsory. However, an internal choice is provided in some questions. Student is expected to attempt only one of these questions.
- iii. **Section A** consists of six objective type questions carrying 1 mark each.
- iv. **Section B** consists of one very short question carrying 02 marks.
- v. **Section C** consists of one short answer type question carrying 03 marks.
- vi. **Section D** consists of one descriptive type question carrying 05 marks.
- vii. **Section E** consists of one case-based question carrying 04 marks with sub-parts.

SECTION – A		
Select and write one most appropriate option out of the four options given for each of the questions 1 to 4		
Q.No	Questions	Marks
1	If onion peel cells and RBCs are separately kept in hypotonic solution, what among the following will take place? (a) Both the cells will swell. (b) RBC will burst easily while cells of onion peel will resist the bursting to some extent. (c) Both the cells will remain same. (d) RBC and onion peel cells will behave similarly.	1
2	Plasmolysis in a plant cell is defined as (a) break down (lysis) of plasma membrane in hypotonic medium (b) shrinkage of cytoplasm in hypertonic medium (c) shrinkage of nucleoplasm (d) none of them	1
3	A particle is moving in a circular path of radius r , its displacement after moving through half the circle would be: (a) Zero (b) r (c) $2r$ (d) πr	1
4	Melting point of four solids A, B, C and D are 350K, 50K, 274K and 600K. The inter-particle forces of attraction are in the order (a) $A < B < C < D$ (b) $B < C < A < D$ (c) $C < B < A < D$ (d) $B < D < C < A$	1
Q. no 5 and 6 are Assertion - Reasoning based questions. These consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below: (a) Both A and R are true and R is the correct explanation of A (b) Both A and R are true and R is not the correct explanation of A (c) A is true but R is false (d) A is false but R is true		
5	Assertion (A): The plasma membrane allows the entry and exit of selected materials in and out of the cell. Reason(R): The plasma membrane is called selectively permeable membrane.	1
6	Assertion (A): The rate of diffusion of solids is higher than that of liquids. Reason(R): In liquid state, particles move freely and have greater space between each other as compared to solid state.	1

SECTION – B		
7	<p>(a) Why does the temperature of a substance remain constant at its melting point or boiling point?</p> <p>(b) Liquid oxygen used in rocket engines boils at 92K under normal atmospheric pressure. Express this temperature on Celsius scale</p>	2
SECTION – C		
8	<p>(a) Meena took some ammonium chloride in a china dish and put an inverted funnel with a cotton plug on its stem. She then heated it slowly.</p> <p>(i) What would she observe?</p> <p>(ii) Define the phenomenon that takes place in above case.</p> <p>(b) A solid X melts at 160°C and boils at 300°C.</p> <p>(i) What is the state of X at 290°C?</p> <p>(ii) As you cool it down from 290°C, at what temperature will X solidify?</p>	3
SECTION-D		
9	<p>(i) What is meant by uniform motion?</p> <p>(ii) State two differences between speed and velocity.</p> <p>(iii) Figure shows the distance-time graphs for three different objects A, B and C.</p> <p>Describe the motion of each of the objects A, B and C.</p>	5
SECTION – E		
10.	<p>Answer questions on the basis of your understanding of the following paragraph and the related studied concepts:</p> <p>Nucleus houses an organism’s genetic code, which determines the amino acid sequence of proteins. It primarily serves as the information centre of the cell. Information in DNA is transcribed, or copied, into a range of messenger ribonucleic acid (mRNA) molecules, each of which encodes the information for one protein (in some instances more than one protein, such as in bacteria). The mRNA molecules are then transported through the nuclear envelope into the cytoplasm, where they are translated, serving as templates for the synthesis of specific proteins.</p> <p>(a) What is the significance of pores present on the nuclear membrane?</p> <p>(b) What is the entangled mass of structures present in the nucleoplasm?</p> <p>(c) How is a eukaryotic nucleus differ from a nucleoid? (any two points)</p> <p style="text-align: center;">OR</p> <p>(c) A and B are two plant cells. The cell A was placed in isotonic solution whereas cell B was placed in an unknown solution. Identify the solution in which the plant cell B was kept. Mention the process.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>A</p> </div> <div style="text-align: center;"> <p>B</p> </div> </div> <p style="text-align: center;">*****THE END*****</p>	4



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SECTION – A		
Select and write one most appropriate option out of the four options given for each of the questions 1 to 4		
Q.No	Questions	Marks
1	Following are a few definitions of osmosis. Read carefully and select the correct definition. (a) Movement of water molecules from a region of higher concentration to a region of lower concentration through a semipermeable membrane. (b) Movement of solvent molecules from its higher concentration to lower concentration. (c) Movement of solute molecules from higher concentration to lower concentration of solution through a permeable membrane. (d) Movement of solute molecules from lower concentration to higher concentration of solution through a semipermeable membrane	1
2	Cell wall of which one of these is not made up of cellulose? (a) Bacteria (b) Hydrilla (c) Mango tree (d) Cactus	1
3	In which of the following cases of motions, the distance moved and the magnitude of displacement are equal? (a) If the car is moving on a straight road (b) If the car is moving in a circular path (c) The pendulum is moving to and fro (d) The earth is revolving around the Sun	1
4	The kinetic energy of water particles in three vessels A, B and C are EA, EB and EC respectively. The order of energy is EA> EB> EC. Arrange the temperatures TA, TB, TC of water in the three vessels in increasing order. (a) TC<TB<TA (b) TB<TC<TA (c) TA<TB<TC (d) TC<TA<TB	1
Q. no 5 and 6 are Assertion - Reasoning based questions. These consist of two statements – Assertion (A) and Reason (R). Answer these questions by selecting the appropriate option from below: (a) Both A and R are true and R is the correct explanation of A (b) Both A and R are true and R is not the correct explanation of A (c) A is true but R is false (d) A is false but R is true		
5	Assertion (A): Some substances like carbon dioxide or oxygen can move across the cell membrane by a process called diffusion. Reason(R): The plasma membrane is flexible and is made up of organic molecules called lipids and proteins.	1
6	Assertion (A): A gas exerts pressure on the walls of the container. Reason (R): Rate of diffusion of gases is more than that of liquids	1

SECTION – B

7	(a) Water as ice has a cooling effect, whereas water as steam may cause severe burns. Comment. (b) When 2 ml of detol is dissolved in 100 ml of water, the smell can be detected even on repeated dilution. Identify the physical nature of the matter.	2
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SECTION – C

8	(a) Carbon dioxide was taken in an enclosed cylinder and compressed by applying pressure at low temperature. (i) What is the common name of the product obtained in the above process? (ii) Define the process which takes place in above case. (iii) Which state of matter will be obtained after completion of the process? (b) A solid X melt at 140°C and boils at 250°C. (i) What is the state of X at 240°C? (ii) As you cool it down from 240°C, at what temperature will X solidify?	3
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SECTION-D

9	(i) What is meant by uniform motion? (ii) State two differences between speed and velocity. (iii) Fig shows the distance-time graphs for three different objects D, E and F. Describe the motion of each of the objects D, E and F.		5
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SECTION – E

10.	An experiment was conducted with some potatoes and sugar solution. Four peeled potato halves were taken and each one was scooped to make potato cups. One of these potato cups were made from boiled potato. Each potato cup was placed in a trough containing water.	4
	(i) Cup A was kept empty. (ii) Concentrated sugar solution was poured in cup B. (iii) Concentrated salt solution was poured in cup C. (iv) One teaspoon of sugar was added in the boiled potato cup D.	
	They were kept for two hours and then were observed. What might be the reason, (a) for increased water level in cup B. (b) for increased water level in cup C: (c) for same level of water in cup D:	
	OR	
	(c) Differentiate between osmosis and diffusion.	
	*****THE END*****	