INDIAN SCHOOL AL WADI AL KABIR

PRE-MIDTERM EXAMINATION (2024- 25)

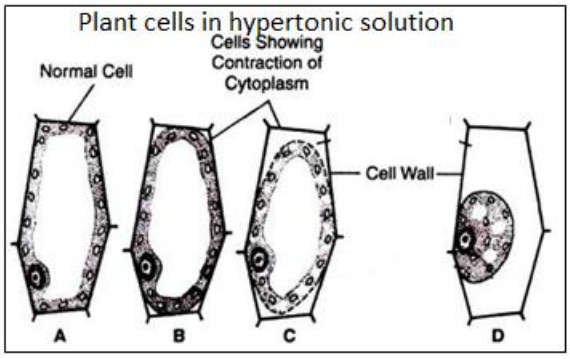
Class: IX Sub: SCIENCE (086) Max Marks: 30

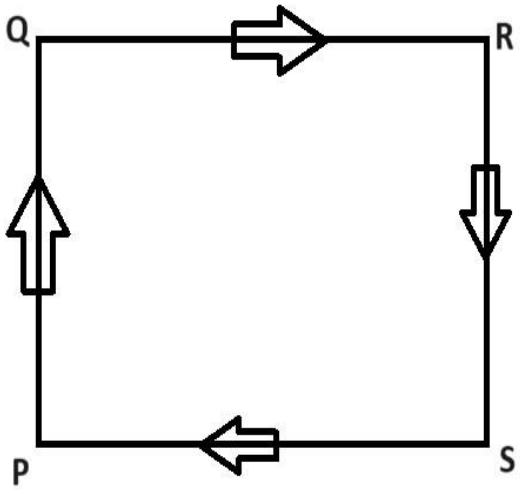
Date:04.06.2024 Set-2 Time: 1 hour

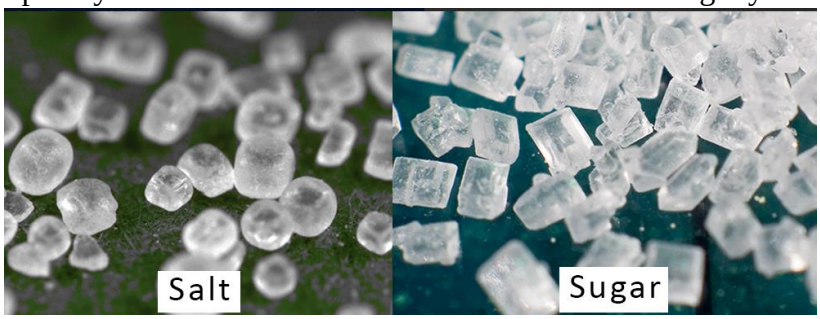
General Instructions:

i) All the questions are compulsory.
ii) The question paper has five sections and 14 questions.
iii) Section–A has 6 questions of 1 mark each.
Section–B has 2 questions of 2 marks each.
Section–C has 2 questions of 3 marks each.
Section–D has 1 question of 5 marks.
Section -E has 3 case-based questions of 3 marks each.
iv) Internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.

NO	QUESTIONS	MARKS
	SECTION A	
1.	Amoeba acquires its food by the process of: a) Exocytosis b) Endocytosis c) Osmosis d) Diffusion	1
2.	Which of the following is not a property of gas? a) Gases have a definite shape. b) Gases have no definite volume. c) The rate of diffusion of a gas is higher. d) Gaseous particles are in a state of random motion.	1
3.	Which of the following statements is true about speed and velocity? a) Velocity is a scalar quantity while speed is a vector quantity. b) Velocity is a vector quantity while speed is a scalar quantity. c) Velocity and speed are both scalar quantities. d) Velocity and speed are both vector quantities.	1
For question numbers 4, 5 and 6, two statements are given- one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below: a) Both A and R are true and R is correct explanation of the assertion. b) Both A and R are true but R is not the correct explanation of the assertion. c) A is true but R is false. d) A is false but R is true.		

4.	**Assertion(A)**: Displacement of a body may be equal to or less than the distance travelled by the body. **Reason(R)**: Displacement is the longest distance between initial and final positions of a body.	1
5.	**Assertion(A)**: A solid does not fill its container completely. **Reason(R)**: Particles are held together by strong force of attraction.	1
6.	**Assertion(A)**: Fungi and bacteria can withstand much greater changes in the surrounding medium than animal cells. **Reason(R)**: Fungi and bacteria have a cell wall.	1
	SECTION B	
7.	When a crystal of potassium permanganate is placed in a beaker containing water, its purple colour spreads throughout the water. What do you conclude from this observation about the nature of potassium permanganate and water?	2
8.	 Which process is being demonstrated with the plant cell in the above diagram? Explain the phenomenon with an example. **OR** State any two functions of nucleus.	2
	SECTION C	
9.	Give reasons for the following: a) Solids are incompressible. b) Solids have negligible kinetic energy. c) The smell of hot sizzling food reaches you several meters away, but to get the smell from cold food you have to go close. OR Define the following. a) Rigidity b) Compressibility c) Diffusion	3
10.	a) Draw neat and well labelled diagram of a typical prokaryotic cell. b) Differentiate between Prokaryotic cell and Eukaryotic cell. (one point)	3
	SECTION D	
11.	a) A train accelerates from 36 km/h to 54 km/h in 10 s. Calculate the acceleration of the train. b) Define velocity and write its SI unit.	5

	c) Under what condition is the magnitude of distance and displacement equal? OR a) A car accelerates from 18 km/h to 36 km/h in 5 s. Calculate the acceleration of the car. b) Define speed and write its SI unit. c) Can a body have zero average velocity but not zero average speed? Justify with an example.	
	SECTION E	
12.	A dedicated runner sets out on her morning workout, starting from point P and following a specific route around a rectangular park. Her journey begins with 200-meter run northwards to point Q. From there, she changes direction and continues for 300 meters eastwards to reach point R. After reaching point R, she turns south and runs 200 meters to point S. Finally, she completes her loop by running 300 meters westwards back to her starting point, P. This route forms a rectangular path around the park. Remarkably, despite the changes in direction, the runner returns to her original position upon completion of the loop. The total time taken for this rigorous workout is precisely 10 minutes. This journey exemplifies the runner's commitment to fitness.  Answer the following questions based on the above data: a) What is the distance and displacement covered by the runner during her workout? b) Calculate the average speed of the runner for the entire workout. c) Write any one difference between distance and displacement.	3
13.	From ancient Greece until the birth of modern chemistry in the 17th century, people may have been confused about what made salt and sugar so different. Without today's tools to identify the components in the crystals and their structures, the two would have looked as similar to them as they do to our naked eye today. As scientists began identifying and characterising elements in the 17th and 18th centuries, they would have been able to determine that salt is made of sodium and chlorine, while sugar consists of carbon, hydrogen, and	3

	oxygen, but they would probably still have wondered how such combinations of completely different elements lead to such similar-looking crystals.  You may not think of salt and sugar as solids because when you see them in the kitchen, they are such small particles. But each of these particles is as much a solid as a wooden table, a glass window, or a gold piece of jewellery. A solid is a collection of atoms or molecules that are held together so that, under constant conditions, they maintain a defined shape and size. a) A substance has a finite volume but no definite shape. Write the physical state of substance. b) Liquids generally have lower density than solids. Why? c) Arrange the following substance in the increasing order of force of attraction between their particles: Oxygen, salt, milk	
14.	Diffusion and osmosis are central concepts in Biology both at the cellular and organ levels. Some substances like carbon dioxide or oxygen can move across the cell membrane by a process called diffusion. There is spontaneous movement of a substance from a region of high concentration to a region where its concentration is low. Diffusion is involved in virtually all chemical processes in living organisms, while osmosis plays important roles such as salt balance in fish, kidney function and the concentration of solutes in intravenous fluids. The movement of water molecules through such a selectively permeable membrane is called osmosis. a) A student put five raisins each in two beakers A and B. Beaker A contained 50 ml of distilled water and beaker B contained 50 ml of saturated sugar solution. What will happen to the raisins after some time? b) What happens to the animal cell if too much water enters a cell via osmosis? c) State two conditions required for osmosis.	3