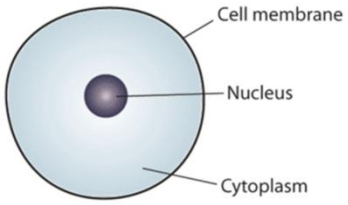
Sample Paper _271125
Pre Midterm Examination

Class: IX | Subject: SCIENCE (086) Set- II | Max. marks: 30 Time: 1 hour

	Section – A	MARKS
1	B. Cells in Slide B are larger than those in Slide A	1
2	A. Both A and R are true, and R is the correct explanation of A	1
3	**Students to attempt either option A or B.** A. (i) When a plant cell is placed in a hypertonic solution, water moves out of the cell by osmosis. As a result, the cell shrinks (the cytoplasm shrinks away from the cell wall). (ii) A cell shows no net movement of water in an isotonic solution. Reason: In an isotonic solution, the concentration of solutes inside and outside the cell is equal. /The medium has exactly the same water concentration as the cell. **OR** B. (i) Proteins in the membrane act like gatekeepers in helping substances pass through. (ii) The membrane has a lipid bilayer (two layers of special fat molecules with water attracting heads outwards and water repelling tails inwards)	1+1=2
	(i) Diagram 1+ Label- cytoplasm+ Nucleus = 1  (ii) All living organisms are made up of one or more cells. / The cell is the basic structural and functional unit of life. / All cells arise from pre-existing cells (Any 2)	2+1=3
5	A. Thermophiles are microorganisms, especially bacteria, that can survive and grow in very high temperatures, such as those found in hot springs (Heat loving bacteria) B. Unicellular organisms are made up of a single cell, whereas multicellular	1X3=3

	organisms are made up of many cells that work together C. Calcium carbonate deposits may have protected early organic molecules from harsh conditions and helped in the formation of the first protective boundary of life, supporting early life development.	
	Section – B	
6	A. Particles from their solution can be separated by filtration.	1
7	D. A is false, but R is true.	1
8	Any 2 difference.	2
9	<u>Attempt either option A or B.</u> A.(i) The amount of solute dissolved in a given amount of solvent or solution is termed the concentration of the solution. (ii) Mass of water is 150g OR B. (i) No, a solution is not always a liquid. A solution is defined as a homogeneous mixture of two or more substances, regardless of their state of matter. The state of the solvent determines the physical state of a solution. Explanation with examples like air, alloys, etc (ii) Soda water- solute: CO_2, solvent: Water Copper sulphate solution- Solute: Copper sulphate, Solvent: Water	3
10	A. flour in water- Suspension Milk in water- Colloid B. Both are heterogeneous mixtures as the particles are distributed non uniformly. C. Copper and water	3
	Section – C	
11	C. Distance	1
12	B. Both A and R are true, and R is not the correct explanation of A.	1
13	A. $\text{Average speed} = \frac{\text{total distance travelled}}{\text{time interval}} = \frac{100\text{m}}{100\text{s}} = 1ms^{-1}$ (1 mark) B. $\text{Average velocity} = \frac{\text{displacement}}{\text{time interval}} = \frac{0\text{m}}{100\text{s}} = 0ms^{-1}$ (1 mark) C. The magnitude of average velocity equals average speed when the object moves in a straight line in one direction only (without changing direction), so that distance travelled = magnitude of displacement. (1 mark)	3
14	**<u>Attempt either option A or B.</u>** A. (i) 2 differences (2 marks) (ii) (a) Distance covered = $\pi \times OA = \pi \times 5 = 5\pi$ cm (b) Displacement = $2 \times OB = 2 \times 5 = 10$ cm along AB (2 x1.5 =3 marks) **OR**	5

	B. (i) Acceleration is the rate of change of velocity. (1 mark) (ii) 2 point difference (2 marks) (iii) $v = \pi d / t$ $V = 3.14 \times 105 / 5 \times 60 = 1.1$ m/s (2 marks)	