

NEET SOLUTIONS — OSMOSIS AND OSMOTIC PRESSURE — PYQS

Max. Marks: 36

Questions: 9

Section A (MCQ) — 9 questions

- Q.1** The plot of osmotic pressure (Π) vs concentration (mol L^{-1}) for a solution gives a straight line with slope $25.73 \text{ L bar mol}^{-1}$. The temperature at which the osmotic pressure measurement is done is (Use $R = 0.083 \text{ L bar mol}^{-1} \text{ K}^{-1}$) [NEET (UG) 2024]
 (1) 37°C (2) 310°C (3) 25.73°C (4) 12.05°C

 Scan or tap for the
full solution


- Q.2** Mass of glucose ($\text{C}_6\text{H}_{12}\text{O}_6$) required to be dissolved to prepare one litre of its solution which is isotonic with 15 g L^{-1} solution of urea (NH_2CONH_2) is (Given: Molar mass in g mol^{-1} C : 12, H : 1, O : 16, N : 14) [RE-NEET (UG) 2024]
 (1) 55 g (2) 15 g (3) 30 g (4) 45 g

 Scan or tap for the
full solution


- Q.3** The following solutions were prepared by dissolving 10 g of glucose ($\text{C}_6\text{H}_{12}\text{O}_6$) in 250 ml of water (P_1), 10 g of urea ($\text{CH}_4\text{N}_2\text{O}$) in 250 ml of water (P_2) and 10 g of sucrose ($\text{C}_{12}\text{H}_{22}\text{O}_{11}$) in 250 ml of water (P_3). The right option for the decreasing order of osmotic pressure of these solutions is : [NEET (UG) 2021]
 (1) $P_3 > P_1 > P_2$ (2) $P_2 > P_1 > P_3$
 (3) $P_1 > P_2 > P_3$ (4) $P_2 > P_3 > P_1$

 Scan or tap for the
full solution


- Q.4** 200 mL of an aqueous solution of a protein contains its 1.26 g. The osmotic pressure of this solution at 300 K is found to be $2.57 \times 10^{-3} \text{ bar}$. The molar mass of protein will be ($R = 0.083 \text{ L bar mol}^{-1} \text{ K}^{-1}$) [AIPMT 2011 (Mains)]
 (1) 51022 g mol^{-1} (2) $122044 \text{ g mol}^{-1}$
 (3) 31011 g mol^{-1} (4) 61038 g mol^{-1}

 Scan or tap for the
full solution


- Q.5** During osmosis, flow of water through a semipermeable membrane is [AIPMT 2006]

- (1) from solution having lower concentration only
 (2) from solution having higher concentration only
 (3) from both sides of semipermeable membrane with equal flow rates
 (4) from both sides of semipermeable membrane with unequal flow rates.

 Scan or tap for the
full solution


- Q.6** A solution containing 10 g per dm^3 of urea (molecular mass = 60 g mol^{-1}) is isotonic with a 5% solution of a nonvolatile solute. The molecular mass of this nonvolatile solute is [AIPMT 2006]
 (1) 200 g mol^{-1} (2) 250 g mol^{-1}
 (3) 300 g mol^{-1} (4) 350 g mol^{-1}

 Scan or tap for the
full solution


- Q.7** A solution contains non-volatile solute of molecular mass M_2 . Which of the following can be used to calculate the molecular mass of solute in terms of osmotic pressure? [AIPMT 2002]
 (1) $M_2 = \left(\frac{m_2}{\pi}\right) VRT$ (2) $M_2 = \left(\frac{m_2}{V}\right) \frac{RT}{\pi}$
 (3) $M_2 = \left(\frac{m_2}{V}\right) \pi RT$ (4) $M_2 = \left(\frac{m_2}{V}\right) \frac{\pi}{RT}$

 Scan or tap for the
full solution


- Q.8** Pure water can be obtained from sea water by [AIPMT 2001]
 (1) centrifugation (2) plasmolysis
 (3) reverse osmosis (4) sedimentation

 Scan or tap for the
full solution


- Q.9** From the colligative properties of solution, which one is the best method for the determination of molecular weight of proteins and polymers? [AIPMT 2000]
 (1) Osmotic pressure
 (2) Lowering in vapour pressure
 (3) Lowering in freezing point
 (4) Elevation in boiling point

 Scan or tap for the
full solution


ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9		
Ans.	1	4	2	4	4	3	2	3	1		