

CLASS – XII**SUBJECT : CHEMISTRY****MONTH : APRIL 2025**

QUES NO	TYPE OF QUESTION (REASONING / MCQ / MATRIX / GRID / OTHER)	QUESTION	OPTION PROVIDED	CORRECT OPTION	EXPLANATION	% OF STUDENTS ATTEMPTED CORRECTLY
01	MCQ	Which of the following is not a solid solution?	A. Brass B. Bronze C. Hydrated salts D. Foam	D. Foam	It is a colloid not a solution	
02	MCQ	Which of the following cannot form an azeotrope?	A. $\text{H}_2\text{O} + \text{C}_2\text{H}_5\text{OH}$ B. $\text{CHCl}_3 + \text{C}_2\text{H}_5\text{OH}$ C. $\text{HCl} + \text{H}_2\text{O}$ D. Benzene + Toluene	D. Benzene + Toluene	Ideal solutions do not form azeotropes	
03	MCQ	Two components A and B have their pure vapour pressures in the ratio 1 : 4 and respective mole fractions in solution in ratio 1 : 2. What is the mole fraction of component B in vapour phase?	A. 0.8889 B. 0.1250 C. 0.8000 D. 0.2000	A. 0.8889	$P_a = P_a^\circ \times \text{mole fraction of A}$ $P_a = 0.2 \times 0.33 = 0.066$ $P_b = P_b^\circ \times \text{mole fraction of B}$ $P_b = 0.8 \times 0.66 = 0.528$ total v p = $0.66 + 0.528 = 0.594$ mole fraction of B in Vapour phase =	

					$0.528/0.594 = 0.88889$	
04	MCQ	A pair of solution bears the same osmotic pressure. What is this pair of solutions called?	A. Equimolar B. Hypertonic C. Hypotonic D. Isotonic	D. Isotonic	BY THE DEFINITION	
05	MCQ	The pH of a 2 M solution of a weak monobasic acid (HA) is 4. What is the value of the Van't Hoff factor? (Antilog 4 = 10^4)	A. 0.00005 B. 1.005 C. 1.0005 D. 1.00005	D. 1.00005	$[H^+] = 1/\text{antilog pH} = 10^{-4}$ $[H^+] = C \times \alpha$ $\alpha = [H^+] / C = 0.0001 / 2 = 0.00005$ Van't Hoff factor = $1 + \alpha = 1 + 0.00005 = 1.00005$	
06	MCQ	A volatile liquid with vapour pressure 85 kPa (at sea level, 25° C) is taken to the peak of Mt. Everest. Which of the following is true? (More than one answer)	A. The vapour pressure of the solution decreases B. The solution will condense quickly than when at sea level C. The solution will vaporize quickly than when at sea level D. The vapor pressure of the solution increases	A. The vapour pressure of the solution decreases C. The solution will vaporize quickly than when at sea level		
07	MCQ	The molal elevation constant depends upon *	Nature of solute. Nature of the solvent. Vapour pressure of the solution.	Enthalpy of vapourization of solvent		

			Enthalpy of vapourization of solvent			
08	MCQ	In which of the following solutions will the Van't Hoff Factor for the solute be greater than 1?	Sodium chloride in water Benzoic acid in benzene Acetic acid in benzene Phenol in benzene	Sodium chloride in water	dissociation of solute	
09	MCQ	Consider 100 ml of 0.3 molar solution formed by dissolving 3.33g of XCl ₂ in water. What is the molar mass of element X? (Atomic mass of Cl = 35.5)	9 24 40 87	40	apply formula of molarity	
10	MCQ	If an aqueous solution of a solute boils at 373.5 K, at what temperature will it freeze ? (Given molal ebullioscopic and cryoscopic constants for solvent respectively = 0.52 K kg/ mol, 1.86 K kg/ mol,)	A. -373.5 K B. 273 K C. 271.86 D. 273.5 K	D. 273.5 K	use the following formula $\Delta T_b / \Delta T_f = K_b / K_f$ $373.5 - 373.15 / \Delta T_f = 0.52 / 1.86$ $\Delta T_f = 1.3 \text{ K}$ $T_f = 273.15 - 1.3 = 271.8 \text{ K}$	