

IIT/EKLA VYA BATCH

THE GURUKUL INSTITUTE

PLOT 5C, 2ND FLOOR, GANAPATI COMPLEX, SEC-13, OPP. JAIPURIA
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DAILY PRACTICE PROBLEMS -1

LIQUID SOLUTIONS

- Which of the following modes of expressing concentration is independent of temperature?
a) Molarity b) Formality c) Normality d) Molality
- The solubility of gas depends upon
a) Nature of gas b) Pressure c) Temperature d) All of these.
- Equal volumes of 0.1M HCl and 0.1 M NaOH are mixed. The concentration of the resulting solution will be
a) 0.1M b) 0.2M c) 0.5 M d) 0.02 M
- When the solute is present in trace quantities following expression is used
a) Gram per million c) Microgram percent
b) Milligram percent d) Parts per million (ppm)
- An X molal solution of a compound in Benzene has mole fraction of solute equal to 0.2. The value of X is
a) 14 b) 3.2 c) 1.4 d) 2.0
- The amount of Oxalic Acid required to prepare 500 mL of its 0.10 N solution is
a) 0.315 g b) 3.150g c) 6.300 g d) 63.00 g
- The molarity of the solution containing 7.1 g of Na_2SO_4 in 100 mL of solution is
a) 2M b) 0.5M c) 1M d) 0.05M
- 12 g of Urea is dissolved in 1 Litre of water and 68.4 g of Sucrose is dissolved in 1 Litre of water. The lowering of Vapor Pressure of first case is
a) Equal to second b) greater than second
c) less than second d) double than second
- Select correct statement, if intermolecular forces in liquid A, B, and C are in the order $A < B < C$?
a) B evaporates more readily than A
b) B evaporates less readily than C
c) A and B evaporate at same rate
d) A evaporates more readily than C
- The aqueous solution that has the Lowest Vapor Pressure at a given temperature is
a) 0.1 molal Na_3PO_4 c) 0.1 molal of BaCl_2
b) 0.1 molal glucose d) 0.1 molal CH_3COOH
- At a particular temperature, the vapor pressure of two liquids A and B respectively 120 and 180 mm of mercury. If 2 moles of A and 3 moles of B are mixed to form Ideal Solution, the vapor pressure of the solution at the same temperature will be:
a) 156 mm b) 145 mm c) 150 mm d) 108 mm
- Which of the following is the expression of Raoult's Law:
Given : P_A = partial pressure of solvent
 P_A^0 = partial pressure of pure solvent
 X_A = mole fraction of solute
 X_B = mole fraction of solvent
a) $P_A = P_A^0 X_A$ b) $P_A = P_A^0 X_A \left(\frac{1}{X_A}\right)$ c) $P_A = P_A^0 X_B$ d) $P_A^0 = P_A \left(\frac{X_A}{X_B}\right)$
- Which of the following is not correct for Ideal Solution?
a) $\Delta H_{\text{mixing}} = 0$ b) $\Delta V_{\text{mixing}} = 0$ c) $\Delta S_{\text{mixing}} = 0$ d) It obeys Raoult's Law
- Which of the following show positive Deviation from Raoult's Law?
a) Benzene - Chloroform c) Benzene - Ethanol

- b) Benzene – Acetone d) Benzene – Carbon tetrachloride
15. In a mixture, A and B components show negative deviation as
 a) $\Delta V_{\text{mix}} > 0$ b) $\Delta V_{\text{mix}} < 0$
 c) A-B interaction is greater than A-A and B-B interaction d) None is correct
16. When mango is placed in dil. Aqueous solution of HCl, it
 a) Shrinks b) Swells c) Bursts d) Nothing happens
17. 0.1 M NaCl and 0.1 M CH_3COOH are kept in separate containers. If P_1 and P_2 are the osmotic pressure of NaCl and CH_3COOH respectively. Then,
 a) $P_1 > P_2$ b) $P_1 < P_2$ c) $P_1 = P_2$ d) $P_1 = P_2 = 0$ atm
18. Which among the following will show maximum Osmotic Pressure?
 a) 1 M NaCl b) 1M MgCl_2 c) 1M $(\text{NH}_4)_3\text{PO}_4$ d) 1 M Na_2SO_4
19. Isotonic solutions have
 a) Same boiling point c) Same vapor pressure
 b) Same melting point d) Same osmotic pressure
20. The osmotic pressure of 5% (mass volume) solution of Cane sugar at 150°C is
 a) 4 atm b) 5.07 atm c) 3.55 atm d) 2.45 atm
21. Solution boils at a temperature T_1 and the solvent at a temperature T_2 . The elevation of Boiling point is given by:
 a) $T_1 + T_2$ b) $T_1 - T_2$ c) $T_2 - T_1$ d) $(T_1 + T_2)^2$
22. If the elevation of Boiling point of a solution of 10 gm of solute (mol. Wt = 100) in 100 gm of water is ΔT_b , the ebullioscopic constant of water is
 a) 10 b) $10 \Delta T_b$ c) ΔT_b d) $\frac{\Delta T_b}{10}$
23. Which of the following is not a colligative property?
 a) Osmotic Pressure
 b) Vapor pressure
 c) Elevation in boiling point
 d) Depression in freezing point
24. Solution of glucose has Van't Hoff Factor
 a) Zero b) 1 c) 1.5 d) 2.0
25. If 5.85 g of NaCl are dissolved in 90 g of water, the mole fraction of NaCl is
 a) 0.1 b) 0.01 c) 0.2 d) 0.0196
26. How much water is needed to dilute 10 mL of 10 N HCl acid to make it exactly decinormal (0.1 N)?
 a) 990 mL b) 1000 mL c) 1010 mL d) 100 mL
27. 5 mL of N HCl, 20 mL of N/2 H_2SO_4 and 30 mL of N/3 HNO_3 are mixed together and volume is made to 1 litre. The normality of the resulting solution is
 a) N/40 b) N/20 c) N/10 d) N/5
28. 6.02×10^{20} molecules of Urea are present in 100 mL of its solution. The concentration of Urea solution is
 a) 0.02 M b) 0.01 M c) 0.0001 M d) 0.1 M
29. The depression of freezing point is directly proportional to
 a) Mole fraction of the solution
 b) Molarity of the solution
 c) Molality of the solution
 d) Molarity of the solvent
30. The Vant' Hoff Factor for an electrolyte which undergoes dissociation and association in solvents are respectively
 a) Greater than 1 and greater than 1.
 b) Less than 1 and greater than 1.
 c) Less than 1 and less than 1.
 d) Greater than 1 and less than 1.

PREPARED BY ; TEAM GURUKUL