



CHEMISTRY

CH: 1 SOLUTIONS

Name: _____

Date: _____

Class: XII Sec: ____

Answer the following

1. Define the following: a) azeotropes b) ebullioscopic constant c) cryoscopic constant d) van't Hoff factor e) osmosis f) osmotic pressure g) reverse osmosis.
2. Aquatic species are more comfortable in cold water than warm water. Why?
3. At higher altitudes people suffer from anoxia resulting in inability to think. Why?
4. A and B liquids on mixing produced a cold solution. Which type of deviation is there and why?
5. What type of azeotropic mixture will be formed by a solution of acetone and chloroform? Justify on the basis of intermolecular interactions that develop in the solution.
6. What is the van't Hoff factor for a compound which undergoes dimerisation in an organic solvent?
7. What is the advantage of using osmotic pressure as compared to other colligative properties for the determination of molar masses?
8. On mixing liquid X and liquid Y, volume of the resulting solution decreases. What type of deviation from Raoult's law is shown by the resulting solution? What change in temperature would you observe after mixing liquids X and Y ?
9. Will the elevation in boiling point be same if 0.1 mol of sodium chloride or 0.1 mol of sugar dissolved in 1 L of water ? Explain.
- 10.. Henry's law constant K_H for the solution of CH_4 in benzene at 298 K is 4.27×10^5 mm Hg. Calculate the solubility of methane in benzene at 298 K & 760 mm Hg.
11. A solution is prepared by dissolving 5g of a nonvolatile solute in 95 g of water. It has a vapour pressure of 23.375 mm Hg at $25^\circ C$. Calculate the molar mass of solute at $25^\circ C$. Vapour pressure of pure water at $25^\circ C$ is 23.75 mmHg.
12. A 1.00 molal aqueous solution of trichloroacetic acid is heated to its boiling point. The solution has a boiling point of $100.18^\circ C$. Determine the van't Hoff factor for trichloroacetic acid. K_b for water = $0.512 K kgmol^{-1}$
- 13.. Assuming complete dissociation calculate the expected freezing point of a solution prepared by dissolving 6 g Glauber,s salt $Na_2SO_4 \cdot 10 H_2O$ in 0.1 Kg of water.