Chemistry - 11th Class Chemistry Short Questions Chapter 9 Preparation

Q1. One molal solution of urea is more dilute as compared to its one molar solution.Why?

Ans 1: One molal solution contains one mole of urea per kg of solvent, while one mole solution contains one mole of urea per one dm^3 Of solution.In one molal solution amount of water is greater than one molar solution because amount of solution included in it.

Q2. Define solubility giving one example?

Ans 1: The solubility is defined as the concentration of the solute in the solution when it is in equilibrium with the solid substance at a particular temperature. Solubility is expressed in terms of number of grams of solute in 100g of solvent. At a particular temperature, saturated solution of NaCl in water at O° C contains 37.5g NaCl in 100g of water.

Q3. In summer the antifreeze solutions protect the radiations from boiling over.How?

Ans 1: The boiling point of liquid is increased by the addition of solute such as ethylene glycol in water.Therefore in summer the antifreeze liquids protect the water in car radiators from over boiling. Similarly the addition of a solute in water depress its freezing point. During winter it protect a car by preventing the liquid from freezing in radiators.

Q4. Why some properties are called colligative properties?

Ans 1: Colligative properties are called so because these depend upon the number of solute particle in definite amount of solvent and independent on the nature of solute.For example lowering of vapour pressure of water, caused by the addition of 6g of urea, 18 g of glucose and 34.2 g of sucrose is same although the solute particles are of different nature but their numbers are same.

Q5. Differentiate between continuous and discontinuous solubility curves?

Ans 1: Continuous Solubility Curve: These are smooth curves and do not show any sharp break points.(Continuous increase or decreases in solubility with temperature.e.g.Solubility curves of $KClO_3$,$K_2Cr_2O_7$ Etc.

Discontinuous Solubility Curves: These are not smooth and shows sudden breaks due to sudden changes in solubilities.e.g.Solubility curves of Na_2SO_4,$CaCl_2$ etc.

Q6. Fractional crystallization technique is used to purify the chemical products.Justify?

Ans 1: The separation of solid substance from a solution one by one on cooling is called fractional crystallization.Solubilities depends upon temperature.
E.g.Solubility of KNO_3 Rapidly changes with temperature but solubility of KCl and Kbr changes gradually.Thus one substance may precipitate earlier by cooling, leaving behind others.

Q7. Calculate percentage by weight of NaCl when 2g of NaCl is dissolved in 20g of water?

Ans 1: Mass of NaCl =2g
Mass of water =20g
Mass of solution= 20+2=22g
%by weight of NaCl=2/22x100=9.09%

Q8. Why is the vapour pressure of a solution less than pure solvent?

Ans 1: In pure solvent all the surface of solvent is covered by solvent molecules.But when a solute is added to it from a solution.Some surface is occupied by solute particles. Hence escaping tendency of solvent is decreases and thus vapour pressure of solution also lowered.

Q9. Can sugar cannot be dissolved in benzene.Give reason?

Ans 1: Can-sugar is apolar covalent substance and it is soluble in polar solvent like water. Sugar dissolve in water due to the formation of H-bonding between solute-solvent,but not in benzene.As we simply say that solubility based upon principle"Like dissolves like".

Q10. Differentiate between ideals and non-ideal solutions?

Ans 1: Ideal Solution:

1. The solutions which obey Raoult's law are called ideal solution
2. In these solution, enthalpy change is zero.

Ans 2: Non-Ideal Solution:

1. The solutions which do not obey Raoult's law are called non-ideal solution
2. In theses solutions, enthalpy change is not zero.
