XII UNIT 2

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CHEMISTRY MANTRA 105 Dilbagh Nagar Extension Jalandhar

Unit 2
Solutions

Short Answer Questions

Q.1 Define (i) solute and (ii) solvent.
Answer: (i) Solute : A substance which dissolves in another substance. Its state changes or it is present in smaller quantity.
(ii) Solvent : A component of solution which has same physical state as solution or which is present in larger quantity.

Q.2 Is smoke a homogeneous solution?
Answer: No, smoke is a colloidal solution

Q.3 Oil and water don't mix. Why?
Answer: Oil is a non-polar ester and water is a polar molecule. Hence they do not mix according to like dissolves in like principle.

Q.4 Benzene is soluble in toluene but not in water. Why?
Answer: Benzene is a non-polar molecule. Hence it is soluble in toluene which is also non-polar but it is insoluble in water which is polar.

Q.5 Which concentration term remains unaffected by temperature?
Answer: Molality remains unaffected by temperature.

Q.6 Why does the molality of solution remain unchanged with temperature?
Answer: Because mass of solute and solvent are independent of temperature.

Q.7 Why is molality preferred over molarity of solution?
Answer: Because molality does not change with temperature.

Q.8 How does molarity of solution change with temperature?
Answer: With rise in temperature molarity decreases because volume of solution increases.

Q.9 Explain the term "mole fraction".
Answer: Mole fraction is the ratio of number of moles of solute or solvent and total number of moles of solution.

Q.10 Why is vapour pressure of solution of glucose in water lower than that of pure water?
Answer: When glucose is dissolved in water, some of the glucose molecules

displace water molecules from the surface. Therefore rate of evaporation of water decreases, hence vapour pressure decreases.

Q.11 Name two factors on which the vapour pressure of the liquid depends.
Answer: (i)Nature of liquid (intermolecular force).
(ii) Temperature.

Q.12 State any two characteristics of ideal solutions.
Answer: (i)They obey Raoult's law for entire range of composition.
(ii) There is no change in volume and enthalpy on mixing

Q.13 Give an example of ideal solution.
Answer: Solution of benzene and toluene.

Q.14 Give an example of solution showing negative deviation from ideal behaviour.
Answer: Water and sulphuric acid solution show negative deviation from ideal behaviour.

Q.15 Give an example of solution showing positive deviation from ideal behaviour.
Answer: A solution of ethanol in water shows positive deviation from ideal behaviour.

Q.16 What type of solution is formed when chloroform is mixed with acetone?
Answer: When chloroform is mixed with acetone, it shows negative deviation from ideal behaviour.

Q.17 What type of solution is formed when ethahol is mixed with water?
Answer: When ethanol is mixed with water, the solution shows positive deviation from ideal behaviour.

Q.18 Give an example of solution which shows negative deviation from ideality.
Answer: Chloroform Acetone.

Q.19 Give an example of solution which shows positive deviation from ideality.
Answer: Ethanol + Water.

Q.20 Define azeotropic mixture.
Answer: A mixture of liquids which boils at constant temperature without change in

composition is called azeotropic mixture