**Karan Arora** **R.L. Chemistry Classes M: 99968-68554 Max Time : 1 hr** **Class = 12th Chemistry Test**  **Max Marks : 30**

**SOLUTION**

1. Two liquids A and B on mixing produce a warm solution. Which type of deviation from Raoult’s law does it show ? [ 1 ]
2. What do you expect to happen when Red blood corpuscles (RBCs) are placed in : [ 1 ]

(i) 1 % NaCl solution (ii) 0.5 % NaCl solution

1. When and why is molality preferred over molarity in handling solutions in chemistry? [ 1 ]
2. Why are the aquatic species more comfortable in cold water in comparison to warm water? [ 1 ]
3. What are isotonic solutions? [ 1 ]
4. Calculate the mass of urea (NH2CONH2) required in making 2.5 kg of 0.25 molal aqueous solution.

[ 2 ]

1. Calculate the freezing point of a solution containing 60 g of glucose in 250 g of water. (Kf for water = 1.86 K/m). [ 2 ]
2. Will the elevation in boiling point be same if 0.1 mol of sodium chloride or 0.1 mol of sugar is dissolved in 1 L of water? Explain. [ 2 ]
3. Define the following terms : (a) Osmotic pressure (b) Colligative properties [ 2 ]
4. Write two differences between a solution showing positive deviation and a solution showing negative deviation from Raoult’s law. [ 2 ]
5. How many grams of sucrose (Molar mass = 342) should be dissolved in 100 g water in order to produce a solution with 105˚C difference between the boiling point and the freezing point?

(Kf = 1.86 ˚C/m ; Kb = 0.51 ˚C/m). [ 3 ]

1. Calculate the mass fraction and mole fraction of ethyl alcohol and water in a solution containing 9.2 g of alcohol in 18 g of water. [ 3 ]
2. The Henry’s law constant for oxygen dissolved in water is 4.34 x 104 atm at 25˚C. If the partial pressure of oxygen in air is 0.2 atm under atmospheric conditions, calculate the concentration (in moles per litre) of dissolved oxygen in water in equilibrium with air at 25˚C. [ 3 ]
3. Define : (a) Molarity (b) Mole fraction (c) Molality [ 3 ]
4. Define Raoult’s law with positive deviation with example. [ 3 ]