**Karan Arora** **R.L. Chemistry Classes M: 99968-68554 Max Time : 1 hr** **Class = 12th Chemistry Test**  **Max Marks : 25**

**Topic : Solution (upto Raoult’s Law)**

1. Define : Molarity and Molality. [ 2 ]
2. What type of deviation from Raoult’s law is shown by a mixture of ethanol and acetone? Give reason. [ 2 ]
3. Calculate the molarity and normality of a solution containing 9.8 g of H2SO4 in 250 cm3 of the solution. [ 2 ]
4. Calculate the mole fraction of ethylene glycol (C2H6O2) and water in a solution containing 20 % of C2H6O2 by mass. [ 2 ]
5. A 6.9 M solution of KOH in water contains 30 % by mass of KOH. Calculate the density of the KOH solution. (Molar mass of KOH = 56 g/mol) [ 2 ]
6. Calculate the molality and mole fraction of the solute in aqueous solution containing 3 g of urea (molar mass = 60 g/mol) per 250 g of water. [ 2 ]
7. The vapour pressure of a pure liquid A is 40 mm Hg at 310 K. The vapour pressure of this liquid in solution with liquid B is 32 mmHg. Calculate the mole fraction of A in the solution if the mixture obeys Raoult’s law. [ 2 ]
8. Two liquids A and B on mixing form an ideal solution. Their vapour pressures in the pure state are 200 and 100 mm respectively. What will be mole fraction of B in the vapour phase in equilibrium with an equimolar solution of the two ? [ 2 ]
9. Two liquids X and Y on mixing form an ideal solution. At 30˚C, the vapour pressure of the solution containing 3 moles of X and 1 mole of Y is 550 mm Hg. But when 4 moles of X and 1 mole of Y are mixed, the vapour pressure of the solution thus formed is 560 mm Hg. What would be the vapour pressure of pure X and pure Y at this temperature ? [ 3 ]
10. Write two differences between a solution showing positive deviation and a solution showing negative deviation from Raoult’s law. [ 3 ]
11. State Raoult’s law for the solution containing volatile components. Write two differences between an ideal solution and a non-ideal solution. [ 3 ]