CHEMISTRY

31. Which of the following is not a colligative property?
    (1) Osmotic pressure
    (2) Elevation in B.P.
    (3) Vapour pressure
    (4) Depression in freezing point

32. For a solution of volatile liquids the partial vapour pressure of each component in solution is directly proportional to
    (1) Molarity
    (2) Mole fraction
    (3) Molality   (4) Normality

33. When a substance is dissolved in a solvent the vapour pressure of the solvent is decreased. This results in
    (1) An increase in the b.p. of the solution
    (2) A decrease in the b.p. of the solvent
    (3) The solution having a higher freezing point than the solvent
    (4) The solution having a lower osmotic pressure than the solvent

34. Which one of the following is non-ideal solution?
    (1) Benzene + toluene
    (2) n -hexane + n -heptane
    (3) Ethyl bromide + ethyl iodide
    (4) $CCl_4 + CHCl_3$

35. A non ideal solution was prepared by mixing 30 mL chloroform and 50 mL acetone. The volume of mixture will be
    (1) > 80 mL   (2) < 80 mL
    (3) = 80 mL   (4) ≥ 80 mL

36. In which case Raoult's law is not applicable
    (1) 1M NaCl   (2) 1 M urea
    (3) 1 M glucose   (4) 1 M sucrose

37. In osmosis
    (1) Solvent molecules move from higher concentration to lower concentration
    (2) Solvent molecules move from lower to higher concentration
    (3) Solute molecules move from higher to lower concentration
    (4) Solute molecules move from lower to higher concentration

38. A solution of sucrose (molar mass = 342 g mol^{-1}) is prepared by dissolving 68.4 g of it per litre of the solution, what is its osmotic pressure
    (R = 0.082 L atm K^{-1} mol^{-1}) at 273K
    (1) 6.02 atm   (2) 4.48 atm
    (3) 4.04 atm   (4) 5.32 atm

39. If 0.15 g of a solute dissolved in 15 g of solvent is boiled at a temperature higher by $0.216\ ^{\circ}C$ than that of the pure solvent. The molecular weight of the substance (molal elevation constant for the solvent is $2.16\ ^{\circ}C$) is
    (1) 1.01   (2) 10
    (3) 10.1   (4) 100

40. The molal elevation constant is the ratio of the elevation in B.P. to
    (1) Molarity
    (2) Molality
    (3) Mole fraction of solute
    (4) Mole fraction of solvent