NEW STANDARD ACADEMY

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CLASS 12 DPP (CHEMISTRY)

1. The van't Hoff factor (i) for a dilute aqueous solution of the strong electrolyte barium hydroxide is
   a) 0
   b) 1
   c) 2
   d) 3
2. Which one of the following is incorrect for ideal solution?
   a) $\Delta H_{mix}= 0$
   b) $\Delta U_{mix}= 0$
   c) $\Delta P = P_{mix} - P_{\text{calculate by raoult's law}} = 0$
   d) $\Delta G_{mix} = 0$
3. How many gram of concentrated nitric acid solution should be used to prepare 250mL of 2.0M HNO_3.The concentrated Acid is 70% HNO_3
   a) 90.0g conc.HNO_3
   b) 70.0g conc.HNO_3
   c) 54.0g conc.HNO_3
   d) 45.0g conc.HNO_3
4. 6.02×10^{20} molecules of urea are present in 100 mL of its solution. The concentration of solution is
   a) 0.01M
   b) 0.001M
   c) 0.1M
   d) 0.02M
5. A solution of sucrose (molar mass =342 g mol^{-1}) has been prepared by dissolving 68.5 g of sucrose in 1000 g of water. The freezing point of the solution will be (K_f for water =1.86 K kg mol^{-1})
   a) -0.570 ℃
   b) -0.372℃
   c) -0.520℃
   d) +0372℃
6. The number of moles of KMnO4 that will be needed to react with one mole of sulphite ion in acidic medium is
   a) $2/5$
   b) 1
   c) $3/5$
   d) $4/5$
7. A solution containing 10 g per dm^3 of urea (molar mass = 60 g mol^{-1}) is isotonic with a 5% solution of a nonvolatile solute. The molar mass of this nonvolatile solute is
   a) 200 g mol^{-1}
   b) 250 g mol^{-1}
   c) 300 g mol^{-1}
   d) 350 g mol^{-1}
8. A solution has 1:4 mole ratio of pentane to hexane. The vapour pressure of the pure hydrocarbon at 20℃ are 440 mm of Hg for pentane and hexane is 120mm of Hg in the vapor phase would be
   a) 0.200
   b) 0.478
   c) 0.549
   d) 0.786
9. The vapour pressure of two liquids 'P' and 'Q' are 80 and 60 torr, respectively. The total vapor pressure of solution obtained by mixing 3 moles of P and 2 moles of Q would be
   a) 72 torr
   b) 20 torr
   c) 68 torr
   d) 140 torr
10. A solution contains non- volatile solute of molecular mass M_2. Which of the following can be used to calculate the molecular mass of solute in terms of osmotic pressure?
   a) $M_2=\left(\frac{m_2}{V}\right)RT$
   b) $M_2=\left(\frac{m_2}{V}\right)\frac{RT}{\pi}$
   c) $M_2=\left(\frac{m_2}{V}\right)\pi RT$
   d) $M_2=\left(\frac{m_2}{V}\right)\frac{\pi}{RT}$