

CHEMISTRY CLASS 12 BATCH

SOLUTIONS

DPP-05

- Correct expression for Van't Hoff factor in case of association is
(1) $i = 1 + \left(\frac{1}{n} - 1\right)\alpha$ (2) $i = 1 + (n - 1)\alpha$
(3) $i = 1 + \left(\frac{n}{2} - 1\right)\alpha$ (4) None of these
- Correct expression for Van't Hoff factor in case of dissociation of $\text{Al}_2(\text{SO}_4)_3$ is
(1) $i = 1 + 3\alpha$ (2) $i = 1 + 2\alpha$
(3) $i = 1 + 4\alpha$ (4) $i = 1 + \frac{\alpha}{2}$
- Elevation in boiling point for equimolal solutions of NaCl , $\text{Al}_2(\text{SO}_4)_3$, BaCl_2 and MgSO_4 is highest for (assume $\alpha = 1$)
(1) NaCl (2) Na_2SO_4
(3) $\text{Al}_2(\text{SO}_4)_3$ (4) MgSO_4
- Elevation in boiling point of 1 molal aqueous solution of Na_3PO_4 is (assume $\alpha = 0.2$)
(1) 0.52°C (2) 0.83°C
(3) 0.46°C (4) 0.64°C
- The relationship between osmotic pressure of equimolar solutions of KCl , $\text{Ca}(\text{NO}_3)_2$ and Na_2SO_4 is ($\alpha = 1$)
(1) $\pi_{\text{Na}_2\text{SO}_4} < \pi_{\text{Ca}(\text{NO}_3)_2} = \pi_{\text{KCl}}$
(2) $\pi_{\text{KCl}} < \pi_{\text{Ca}(\text{NO}_3)_2} = \pi_{\text{Na}_2\text{SO}_4}$
(3) $\pi_{\text{Ca}(\text{NO}_3)_2} = \pi_{\text{KCl}} = \pi_{\text{Na}_2\text{SO}_4}$
(4) $\pi_{\text{Ca}(\text{NO}_3)_2} \neq \pi_{\text{KCl}} \neq \pi_{\text{Na}_2\text{SO}_4}$
- A solution of a non-electrolyte substance is isotonic with decimolar solution of NaCl . The molarity of solution of substance is
(1) 0.2 (2) 0.4
(3) 0.5 (4) 0.9
- Which of the following pairs of solutions are expected to be isotonic at same temperature?
(1) 0.1 M urea and 0.1 M NaCl
(2) 0.1 M urea and 0.2 M MgCl_2
(3) 0.1 M NaCl and 0.1 M Na_2SO_4
(4) 0.1 M $\text{Ca}(\text{NO}_3)_2$ and 0.1 M Na_2SO_4
- A 0.2 molal aqueous solution of a weak acid HX is 20% ionized. The freezing point of this solution is ($K_f = 1.86 \text{ K kg/mole}$)
(1) -0.45°C (2) -0.34°C
(3) -0.54°C (4) -0.24°C
- An aqueous solution of NaCl contains 90 gram of water and 58.5 g of NaCl . If vapour pressure of water = 720 mm of Hg at that temperature, find vapour pressure of the solution assuming 100% dissociation.
(1) 480 mm (2) 624 mm
(3) 464 mm (4) 564 mm
- $\text{K}_2[\text{PtCl}_4]$ is 30% ionized in aqueous solution. The value of its Vant Hoff factor is
(1) 1.2 (2) 1.4
(3) 1.6 (4) 1.8
- The osmotic pressure of decimolar $\text{K}_4[\text{Fe}(\text{CN})_6]$ at 227°C is (assuming $\alpha = 75\%$)
(1) 12.2 atm (2) 13.4 atm
(3) 15.9 atm (4) 16.4 atm
- Osmotic pressure of 3.725% (w/v) solution of KCl at 27°C is 21.6 atm. Find degree of dissociation of KCl .
(1) 20% (2) 30%
(3) 60% (4) 80%

13. Correct expression for degree of dissociation ' α ' of electrolyte A_xB_y is given by

$$\begin{array}{ll} (1) \quad \alpha = \frac{i-1}{x+y-1} & (2) \quad \alpha = \frac{i-1}{(1+y+1)} \\ (3) \quad \alpha = \frac{1-i}{1-x-y} & (4) \quad \alpha = \frac{(1+y+1)}{i-1} \end{array}$$

14. Elevation in boiling point for 2 molal solution of glucose is $2K$. The depression in the freezing point for molal solution of glucose is $2K$. The relation between K_b and K_f is

$$\begin{array}{ll} (1) \quad K_b = 2K_f & (2) \quad K_f = 2K_b \\ (3) \quad K_b = K_f & (4) \quad \text{None of these} \end{array}$$

15. The process used for desalination of sea water is

- (1) Osmosis
- (2) Centrifugation
- (3) Reverse osmosis
- (4) Distillation

ANSWER KEY

1. (1)
2. (3)
3. (3)
4. (2)
5. (2)
6. (1)
7. (4)
8. (1)

9. (1)
10. (3)
11. (4)
12. (4)
13. (1, 3)
14. (2)
15. (3)