Solutions

1. **Cryoscopic constant is the depression in freezing point produced by**

   [comed 2008]

   1. 1 % solution   2. 1 molar solution

   3. 1 molar solution   4. 1 N solution

2. **When mercuric iodide is added to the aqueous solution of potassium iodide**

   [BHU2008]

   1. Freezing point is raised   2. Freezing point is lowered

   3. Freezing point does not change   4. Boiling point is raised

3. **Which among the following gas will greatly deviate from Henry's law in**

   water?   **[PMT2008]**

   1. H_2 2. N_2 3. CH_4 4. CO_2 5. Ar

4. **A 0.002 m aqueous solution of an ionic compound** $Co(NH_3)_5(NO_2)Cl$ **freezes**

   at $-0.00732^0 C$ **. Number of moles of ions which 1 mol ionic compound produces**

   on being dissolves in water will be; $(K_f = -1.86^0 C/m)$ **[CBSE2009]**

   1. 1   2. 2   3. 3   4. 4

5. **A solution of sucrose (molar mass =** $342\ mol^{-1}$ **) has been prepared by**

   dissolving 68.5 g of sucrose in 1000g of water. The freezing point of the

   solution obtained will be   **[CBSE2010]**

   $[(K_f\ for\ water = 1.86\ K\ kg\ mol^{-1})$

   1. $-0.372^0 C$ 2. $-0.520^0 C$ 3. $+0.372^0 C$ 4. $-0.570^0 C$

6. **Pure benzene freezes at** $5.3^0 C$ **. A solution of 0.223 g of phenyl acetic acid**

   $(C_6 H_5 CH_2 COOH)$ **in 4.4g of benzene** $(K_f = 5.12\ K\ kg\ mol^{-1})$ **freezes at** $4.47^0 C$ **.**

   From the observations one can conclude that   **[AFMC2010]**

   1. Phenyl Acetic Acid exists as such in Benzene

   2. Phenyl Acetic Acid undergoes partial ionization in Benzene

3. Phenyl Acetic Acid undergoes complete ionization in Benzene

4. Phenyl Acetic Acid dimerizes

7. Mole fraction of the solute in a 1.00 molal aqueous solution is [AIPMT2011]

1. 1.7700   2. 0.1770   3. 0.0177   4. 0.0344

8. The Van't Hoff factor i for a compound which undergoes dissociation in one solvent and association in other solvent is respectively   [AIPMT2011]

1. Greater than one and greater than one

2. Less than one and greater than one

3. Less than one and less than one

4. Greater than one and less than one

9. The freezing point depression constant for water is $-1.86^0 C\ m^{-1}$. If 5.00 g Na_2SO_4 is dissolved in 45.0 g H_2O, the freezing point is changes by $-3.82^0 C$. Calculate the Van't Hoff factor for Na_2SO_4.   [AIPMT2011]

1. 0.381   2. 2.05   3. 2.63   4. 3.11

10. The system that forms maximum boiling azeotrope is   [PMT2011]

1. Carbon Disulphide – Acetone   2. Benzene – Toluene

3. Acetone – Chloroform   4. n – Hexane - n – Heptane

5. Ethanol – Acetone

KEY

1)3   2)1   3)4   4)2   5)1   6)4   7)3   8)4   9)3   10)3