

SOLUTIONS

- Cryoscopic constant is the depression in freezing point produced by :** [comed2008]

 - 1 % solution
 - 1 molar solution
 - 1 molal solution
 - 1 N solution
- When mercuric iodide is added to the aqueous solution of potassium iodide:** [BHU2008]

 - Freezing point is raised
 - Freezing point is lowered
 - Freezing point does not change
 - Boiling point is raised
- Which among the following gas will greatly deviate from Henry's law nter?** [PMT2008]

 - H_2
 - N_2
 - CH_4
 - CO_2
 - Ar
- A 0.002 m aqueous solution of an ionic compound $Co(NH_3)_5(NO_2)Cl$ freezes at $-0.00732^\circ C$. Number of moles of ions which 1 mol ionic compound produces on being dissolves in water will be; ($K_f = -1.86^\circ C/m$)** [CBSE2009]

 - 1
 - 2
 - 3
 - 4
- 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]

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

 - $-0.372^\circ C$
 - $-0.520^\circ C$
 - $+0.372^\circ C$
 - $-0.570^\circ C$
- Pure benzene freezes at $5.3^\circ C$. A solution of 0.223 g of phenyl acetic acid ($C_6H_5CH_2COOH$) in 4.4g of benzene ($K_f = 5.12\text{ K kg mol}^{-1}$) freezes at $4.47^\circ C$. From the observations one can conclude that:** [AFMC2010]

 - phenyl acetic acid exists as such in benzene
 - phenyl acetic acid undergoes partial ionization in benzene
 - phenyl acetic acid undergoes complete ionization in benzene
 - phenyl acetic acid dimerizes
- Mole fraction of the solute in a 1.00 molal aqueous solution is :** [AIPMT2011]

 - 1.7700
 - 0.1770
 - 0.0177
 - 0.0344
- The Van't Hoff factor i for a compound which undergoes dissociation in one solvent and association in other solvent is respectively:** [AIPMT2011]

 - greater than one and greater than one
 - less than one and greater than one
 - less than one and less than one
 - greater than one and less than one

9. The freezing point depression constant for water is $-1.86^{\circ}\text{C m}^{-1}$. If 5.00 g Na_2SO_4 is dissolved in 45.0 g H_2O , the freezing point is changes by -3.82°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. <i>n</i> -hexane - <i>n</i> -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