SOLUTIONS

MULTIPLE CHOICE QUESTIONS (1 MARK)	
1	K_H value for Ar(g), CO_2(g), HCHO (g) and CH_4(g) are 40.39, 1.67, 1.83 × 10^{-5} and 0.413 respectively. Arrange these gases in the order of their increasing solubility. a) HCHO < CH_4 < CO_2 < Ar b) HCHO < CO_2 < CH_4 < Ar c) Ar < CO_2 < CH_4 < HCHO d) Ar < CH_4 < CO_2 < HCHO
2	When a non-volatile solid is added to pure water it will: a) boil above 100°C and freeze above 0°C b) boil below 100°C and freeze above 0°C c) boil above 100°C and freeze below 0°C d) boil below 100°C and freeze below 0°C
3	Water- HCl mixture I. shows positive deviations II. forms minimum boiling azeotrope III. shows negative deviations IV. forms maximum boiling azeotrope a) I and II b) II and III c) I and IV d) III and IV
4	An azeotropic solution of two liquids has boiling point lower than either of them when solute solvent interactions are: a) Equal to solute solute and solvent solvent interactions b) Stronger than solute solute and solvent solvent interactions c)Weaker than solute solute and solvent solvent interactions d)None of the above
5	Molarity of a solution at 60°C is-------- than molarity at 30°C a) More b) less c) same d) no effect of temperature
6	For isotonic solutions which of the following is not equal a) concentration b) temperature c) osmotic pressure d) vapour pressure
7	For non-electrolyte solute value of Van't Hoff factor is a)0 b) 1 c) >1 d) <1
8	In reverse osmosis: a) a pressure greater than osmotic pressure is applied on pure water side b) a pressure lesser than osmotic pressure is applied on pure water side c)a pressure greater than osmotic pressure is applied on salt water side d)a pressure lesser than osmotic pressure is applied on salt water side

9	Which of the following salt will have same value of Van't Hoff's factor (i) as that of $K_4[Fe(CN)_6]$ (a) $Al_2(SO_4)_3$ (b) NaCl (c) $Al(NO_3)_3$ (d) Na_2SO_4
10	Pure benzene has vapour pressure three times that of pure toluene. They form nearly ideal solution. What would be the ratio of their mole fractions in the vapour phase of a solution having equal mole fractions of benzene and toluene. a)1 b) 2/3 c) 3 d) 1/3

ANSWERS

1 (a), 2 (a), 3 (d), 4 (c), 5 (b), 6 (d), 7 (b), 8 (c), 9 (a) , 10 (c)

ASSERTION REASON TYPE QUESTIONS (1 MARK)

	Note: In the following questions (1-5) a statement of assertion followed by a statement of reason is given. Choose the correct answer out of the following choices. (a) Assertion and reason both are correct statements and reason is the correct explanation for assertion. (b) Assertion and reason both are correct statements but the reason is not a correct explanation for assertion. (c) Assertion is a correct statement but the reason is the wrong statement. (d) Assertion is a wrong statement but the reason is a correct statement.
1	**Assertion:** When methyl alcohol is added to water, the boiling point of water decreases. **Reason:** When a volatile solute is added to a volatile solvent elevation in boiling point is observed.
2	**Assertion**: Cooking time in pressure cooker is reduced **Reason**: Boiling point inside the pressure cooker is raised
3	**Assertion**: Vapour pressure of a liquid is constant at a constant temperature **Reason:** At equilibrium rate of evaporation becomes equal to the rate of condensation.
4	**Assertion**: The components of azeotropic mixture can be separated by distillation **Reason**: At a particular composition azeotropic mixture boil at the same temperature.
5	**Assertion**: The shrinking of cells is called hemolysis. **Reason**: Hemolysis occurs when cell comes in contact with solution of lower osmotic pressure than that of cell

ANSWERS

1 (c), 2 (a) , 3 (a) , 4 (d) , 5 (d)