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I-CHEMISTRY
DPP
DAILY PRACTICE PROBLEMS

TARGET : NEET (UG) 2024

Course : SARANSH (Youtube Live CRASH COURSE)

DPP NO. 1

Physical Chemistry : Solutions and Colligative Properties

DPP No. : 1

1. P_A and P_B are the vapour pressure of pure liquid components, A and B, respectively of an ideal binary solution. If X_A represents the mole fraction of component A, the total pressure of the solution will be.

(1) $P_A + X_A (P_B – P_A)$ (2) $P_A + X_A (P_A – P_B)$

(3) $P_B + X_A (P_B – P_A)$ (4) $P_B + X_A (P_A – P_B)$

2. Of the following 0.10m aqueous solutions, which one will exhibit the largest freezing point depression ?

(1) KCl (2) $C_6H_{12}O_6$

(3) $Al_2(SO_4)_3$ (4) K_2SO_4

3. Which one of the following electrolytes has the same value of van't Hoff's factor(i) as that of $Al_2(SO_4)_3$ (if all are 100% ionised) ?

(1) $K_3[Fe(CN)_6]$ (2) $Al(NO_3)_3$

(3) $K_4[Fe(CN)_6]$ (4) K_2SO_4

4. The boiling point of 0.2 mol kg^{-1} solution of X in water is greater than equimolal solution of Y in water. Which one of the following statements is true in this case ?

(1) Molecular mass of X is greater than the molecular mass of Y.

(2) Molecular mass of X is less than the molecular mass of Y.

(3) Y is undergoing dissociation in water while X undergoes no change.

(4) X is undergoing dissociation in water.

5. Which one is not equal to zero for an ideal solution ?

(1) ΔS_{mix} (2) ΔV_{mix} (3) $\Delta P = P_{observed} – P_{राउल्ट}$ (4) ΔH_{mix}

6. The van't Hoff factor (i) for a dilute aqueous solution of the strong electrolyte barium hydroxide is

(1) 3 (2) 0 (3) 1 (4) 2

7. Which one of the following is incorrect for ideal solution ?

(1) $\Delta G_{mix} = 0$ (2) $\Delta H_{mix} = 0$

(3) $\Delta U_{mix} = 0$ (4) $\Delta P = P_{obs} – P_{calculated\ by\ Raoult's\ law} = 0$

8. If molality of the dilute solution is doubled, the value of molal depression constant (K_f) will be :

(1) doubled (2) halved (3) tripled (4) unchanged

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9. The mixture that forms maximum boiling azeotrope is :

(1) Heptane + Octane

(2) Water + Nitric acid

(3) Ethanol + Water

(4) Acetone + Carbon disulphide

10. For an ideal solution, the correct option is :

(1) Δ_{mix} G = 0 at constant T and P

(2) Δ_{mix} S = 0 at constant T and P

(3) Δ_{mix} V $\neq$ 0 at constant T and P

(4) Δ_{mix} H = 0 at constant T and P

Answer Key

1.	(4)	**2.**	(3)	**3.**	(3)	**4.**	(4)	**5.**	(1)	**6.**	(1)	**7.**	(1)
8.	(4)	**9.**	(2)	**10.**	(4)								

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