Maximum Marks: 08   **(OBJECTIVE TYPE)**   Time Allowed: 10 Min.

NOTE: **Tick The Correct Option:**

1. **Which of the following solution has the highest boiling point?**
   - (a) 5.85% solution of sodium chloride
   - (b) 18.0% solution of Glucose
   - (c) 6.0% solution of Urea
   - (d) 4.0% solution of Sucrose

2. **Relative lowering of vapour pressure is equal to:**
   - (a) Mole fraction of solute
   - (b) Mole fraction of solvent
   - (c) Molarity
   - (d) Molality

3. **2 g of NaCl dissolved in 20 g of water makes _____ solution.**
   - (a) 2% w/w
   - (b) 9% w/w
   - (c) 5% w/w
   - (d) 10% w/w

4. **The molarity of water is maximum at:**
   - (a) $0°C$
   - (b) $25°C$
   - (c) $4°C$
   - (d) $100°C$

5. **Cheese is an example of:**
   - (a) Solid into solid solution
   - (b) Solid into liquid solution
   - (c) Liquid into solid solution
   - (d) Liquid into liquid solution

6. **Which one is the equation for Raoult's law?**
   - (a) $P° = Px_1$
   - (b) $\dfrac{P°}{\Delta P} = x_2$
   - (c) $\Delta P = P°x_2$
   - (d) None

7. **The solubility of $CuSO_4$ at $100°C$ is:**
   - (a) 14.3 g
   - (b) 37.5 g
   - (c) 75.4 g
   - (d) None

8. **The antifreeze used in the automobile radiators is:**
   - (a) Glycerin
   - (b) Glycol
   - (c) Glycerol
   - (d) All

Maximum Marks: 32   **(SUBJECTIVE TYPE)**   Time Allowed: 65 Min.

SECTION-I

Q.2: Give brief answers to the following questions: **(20)**

i. The concentration in terms of molality is independent of temperature but molarity depends upon temperature. Why?

ii. Define mole fraction and parts per million.

iii. Why is glucose not soluble in CCl_4 but dissolves in water?

iv. What is negative deviation from Raoult's law?

v. Define solubility.

vi. Why 6 g urea, 18 g glucose and 34.2 g of sucrose dissolved in water cause equal elevation in boiling point?

vii. Write any two applications of boiling point elevation.

viii. Why Beckmann thermometer is used to note the depression of the freezing point?

ix. What are hydrates? Give examples. How are they formed?

x. Aqueous solution of $CuSO_4$ is acidic in nature. Justify.

SECTION-II

Q.3: Write a note on phenol water system.

Q.4: Define non-ideal solutions and explain positive deviation with the help of a graph.

Q.5: Define colligative properties. How molecular mass of a solute is determined by lowering in vapour pressure?