Maximum Marks: 09   **(OBJECTIVE TYPE)**   Time Allowed: 10 Min.

NOTE: Tick The Correct Option:

1. **Two solutions of NaCl and KCl are prepared separately by dissolving same amount of the solute in water. Which of the following statements is true for the solutions?**
   (a) KCl solution will have higher boiling point than NaCl solution.
   (b) Both the solutions have different boiling point.
   (c) KCl and NaCl solutions possess same vapour pressure.
   (d) KCl solution possess lower freezing point than NaCl solution.

2. **The molal boiling point constant is the ratio of the elevation in boiling point to:**
   (a) Molarity   (b) Molality
   (c) Mole fraction of solvent   (d) Mole fraction of solute

3. **_____ salt gives neutral solution when dissolved in water:**
   (a) NH_4Cl (b) $AlCl_3$ (c) $CuSO_4$ (d) Na_2SO_4

4. **The colligative properties are those which depend upon the number of:**
   (a) Solute molecules   (b) Solvent molecules   (c) Solute ions   (d) All

5. **The elevation in boiling point (ΔT_b) is directly related to:**
   (a) Molarity   (b) Molality   (c) Both   (d) None

6. **Beckmann's method is used to determine the:**
   (a) Lowering of vapor pressure   (b) Elevation in boiling point
   (c) Depression in freezing point   (d) Osmotic pressure

7. **When one mole of NaCl is dissolved in 800-1000 moles of water, the enthalpy change is:**
   (a) +2.008 kJ   (b) -2.008 kJ   (c) +4.98 kJ   (d) -4.98 kJ

8. **The number of water of crystallization in copper sulphate is:**
   (a) 2   (b) 3   (c) 4   (d) 5

9. **SO_4^{2-} is a:**
   (a) Weak conjugate base   (b) Strong conjugate acid
   (c) Weak conjugate acid   (d) Strong conjugate acid

Maximum Marks: 16   **(SUBJECTIVE TYPE)**   Time Allowed: 30 Min.

SECTION-I

Q.2: Give brief answers to the following questions: (12)

   i. How does fractional crystallization help in removing the impurities from a solid substance?
  ii. Why 6 g urea, 18 g glucose and 34.2 g of sucrose produce same lowering in vapour pressure?
iii. Why do the boiling points of solvents increase due to the presence of non-volatile solutes?
 iv. NaCl and KNO_3 are used to lower the melting point of ice. Explain.
   v. Define hydration energy of ions.
 vi. What is water of crystallization? Give two examples.

SECTION-II

NOTE: Attempt All Questions: (04)

Q.3: What is solubility? Explain solubility curves.