Class 12 – Chemistry Date 02 May 2026.
Chapter: Solutions

Time: 30 Minutes **Maximum Marks: 15**

Section A – MCQs **and Very Short Answer (1 x 7)** - 10 Minutes

1. 234.2 gm of sugar syrup contains 34.2 gm of sugar. What is the molal concentration of the solution.

(a) 0.1 (b) 0.5 (c) 5.5 (d) 55

2. Which law explained solubility of gasses in a liquid?

(a) Charles law (b) Henry's law
(c) Raoult's law (d) Boyle's law

3. Which of the following fluoride is used as rat poison?

(a) CaF_2 (b) KF
(c) NaF (d) MgF_2

4. Most of the processes in our body occur in

(a) solid solution (b) liquid solution
(c) gaseous solution (d) colloidal solution

5. Choose the correct example for a non-ideal solution?

(a) Benzene + Toluene (b) Hexane + Heptane
(c) Chlorobenzene + Bromobenzene
(d) Ethanol + Hexane

6. Which condition holds for the ideal solution?

(a) Change in volume is zero
(b) Change in volume is non-zero
(c) Change in enthalpy is non-zero
(d) None of the above

7. Which condition holds for a non-ideal solution?

(a) Change is volume is zero
(b) Change in volume is non-zero
(c) Change is enthalpy is zero
(d) None of the above

Section B – Short Answer (2x2)

8.(E7). 18 g of glucose, $C_6H_{12}O_6$, is dissolved in 1 kg of water in a saucepan. At what temperature will water boil at 1.013 bar? K_b for water is 0.52 K kg mol^{-1}.

Or

(N6). H_2S, a toxic gas with rotten egg like smell, is used for the qualitative analysis. If the solubility of H_2S in water at STP is 0.195 m, calculate Henry's law constant.

9. (**B7**). A solution is obtained by mixing 300 g of 25% solution and 400 g of 40% solution by mass. Calculate the mass percentage of the resulting solution.

Or

N2. Calculate the mole fraction of benzene in solution containing 30% by mass in carbon tetrachloride.

Section C – Long Answer (1x4)

10. (B14.) What is meant by positive and negative deviations from Raoult's law and how is the sign of Δ_{mix} H related to positive and negative deviations from Raoult's law?