

Chemistry → Class XII
HOLIDAY ASSIGNMENT.

Solutions XII

- Two liquids A and B on mixing produce a warm solution. Which type of deviation from Raoult's law does it show? Explain. (2)
- Mention a large scale use of reverse osmosis. (1)
- What are:
(a) azeotropes (b) molar elevation in boiling point (c) colligative properties? (3)
- Which colligative property is the best to measure molecular mass and why? (2)
- Give reasons why:
(a) CaCl₂ is used to clear the snow.
(b) Freezing point depression of 0.1M NaCl is nearly twice that of 0.1M glucose solution?
(c) Why use of pressure cooker reduces the cooking time? (3)
- A 5% solution of cane sugar (mol. mass = 342 g/mol) is isotonic with 0.877% solution of urea. Calculate mol. mass of urea. (3)
- Vapour pressures of pure A and B are 450 and 700 mm. at 350 K. Calculate the composition of liquid mixture if total vapour pressure is 600 mm. Also calculate the composition in vapour phase. P-T = (3)

8. Boiling point benzene rises from 80.1°C to 82.4°C when 13.76 g of diphenyl is dissolved in 100 g of benzene. Calculate latent heat of vaporization of benzene. (3)
9. Calculate Van Hoff factor of $\text{K}_4\text{Fe}(\text{CN})_6$ when it is 80% dissociated. (2)
10. Molar freezing point depression constant of benzene is $4.90\text{ K kg mol}^{-1}$. Selenium exists as Se_8 . When 3.26 g of selenium is dissolved in 226 g of benzene, observed ΔT_f freezing point is 0.112°C lower than pure benzene. What is the formula of selenium at wt. of $\text{Se} = 78.8\text{ g mol}^{-1}$. (3)
11. Draw a graph showing depression in freezing point of a solvent when a non volatile solute is dissolved in it and label it. (2)
12. A solution of glycerol was prepared by dissolving some glycerol in 500 g of water. This solution has a boiling point of 100.42°C . What mass of glycerol was dissolved. K_b of water is $0.512\text{ K kg mol}^{-1}$. (3)