

Prayas JEE 2026

Chemistry

Solutions

DPP: 4

- Q1** Elevation in boiling point was 0.52°C when 6 g of a compound X was dissolved in 100 g of water. Molecular weight of X is ($K_b = 0.52\text{K kg mol}^{-1}$)
 (A) 120 (B) 60
 (C) 600 (D) 180
- Q2** If 0.15 g of a solute dissolved in 15 g of solvent is boiled at a temperature higher by 0.216°C than that of the pure solvent. The molecular weight of the substance (molal elevation constant for the solvent is $2.16^{\circ}\text{C kg mol}^{-1}$) is
 (A) 1.01 g/mol
 (B) 10 g/mol
 (C) 10.1 g/mol
 (D) 100 g/mol
- Q3** If the elevation in boiling point of a solution containing 10 g of solute (mol. wt. = 100 g) of 100 g water is ΔT_b , the ebullioscopic constant of water is
 (A) 10
 (B) $100\Delta T_b$
 (C) ΔT_b
 (D) $\frac{\Delta T_b}{10}$
- Q4** For an aqueous solution, freezing point is -0.186°C . Elevation of the boiling point of the same solution is ($k_f = 1.86\text{K kg mol}^{-1}$ and $K_b = 0.52\text{K kg mol}^{-1}$).
 (A) 0.186°C
 (B) 0.052°C
 (C) 1.86°C
 (D) 5.12°C
- Q5** The vapour pressure lowering caused by the addition of 100 g of sucrose (molecular mass = 342) to 1000 g of water if the vapour pressure of pure water at 25°C is 23.8 mmHg, is:
 (A) 1.25 mmHg
 (B) 0.125 mmHg
 (C) 1.15 mmHg
 (D) 0.012 mmHg
- Q6** When 10 g of a non-volatile solute is dissolved in 100 g of benzene, it raises boiling point by 1°C then molecular mass of the solute is (k_b for $\text{C}_6\text{H}_6 = 2.53\text{K kg mol}^{-1}$)
 (A) 223 g/mol
 (B) 233 g/mol
 (C) 243 g/mol
 (D) 253 g/mol
- Q7** If for a sucrose solution elevation in boiling point is 0.1°C then what will be boiling point of NaCl solution for the same molal concentration?
 (A) 0.1 (B) 0.2
 (C) 0.16 (D) 0.26
- Q8** At 100°C the vapour pressure of a solution of 6.5 g of a solute in 100 g water is 732 mm. If $k_b = 0.52$, the boiling point of this solution will be
 (A) 102°C
 (B) 103°C
 (C) 101°C
 (D) 100°C
- Q9** A solution containing 6 g of a solute dissolved in 250ml of water gave an osmotic pressure of 4.5 atm at 27°C . Calculate the boiling point of the solution. The molal boiling point elevation constant for water is 0.52K kg mol^{-1} .
 (A) 100.095°C
 (B) 10.095°C
 (C) 1.095°C
 (D) 1000.095°C



Q10 Which of the following substances will have the highest boiling point?

(A) Camphor
(C) Benzene

(B) Cyclohexane
(D) Water



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Answer Key

Q1 (B)
Q2 (D)
Q3 (C)
Q4 (B)
Q5 (B)

Q6 (D)
Q7 (B)
Q8 (C)
Q9 (A)
Q10 (D)



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