Yakeen NEET 2.0 2026

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Sir Solutions

DPP: 3

Q1 Which of the following is the expression of Raoult's law?
$(\mathrm{p} =$ vapour pressure of pure solvent, $\mathrm{p_s} =$ vapour pressure of the solution)
(A) $\frac{\mathrm{p}-\mathrm{p_s}}{\mathrm{p}} = \frac{\mathrm{n}}{\mathrm{n}+\mathrm{N}}$
(B) $\frac{\mathrm{p_s}-\mathrm{p}}{\mathrm{p}} = \frac{\mathrm{N}}{\mathrm{N}+\mathrm{n}}$
(C) $\frac{\mathrm{p}-\mathrm{p_s}}{\mathrm{p_s}} = \frac{\mathrm{N}}{\mathrm{N}-\mathrm{n}}$
(D) $\frac{\mathrm{p_s}-\mathrm{p}}{\mathrm{p}} = \frac{\mathrm{N}-\mathrm{n}}{\mathrm{N}}$

Q2 The vapour pressure of water at room temperature is lowered by 5% by dissolving a solute in it, then the approximately molality of solution is
(A) 2 (B) 1
(C) 4 (D) 3

Q3 Relative lowering of vapour pressure of a dilute solution is 0.2 . What is the mole fraction of the non-volatile solute?
(A) 0.8 (B) 0.5
(C) 0.3 (D) 0.2

Q4 The statement "the relative lowering of the vapour pressure is equal to the ratio of moles of the solute to the total number of the moles in the solution" refers to
(A) Hess's law (B) Dalton's law
(C) Raoult's law (D) Charles' law

Q5 The vapour pressure of water at $20^{\circ}\mathrm{C}$ is $17.54\ \mathrm{mm}$. When $20\ \mathrm{g}$ of non-ionic substance is dissolved in $100\ \mathrm{g}$ of water, the vapour pressure is lowered by $0.30\ \mathrm{mm}$. What is the molecular weight of the substance?
(A) 210.48 (B) 206.88
(C) 215.2 (D) 200.8

Q6 Which of the following is incorrect?
(A) Relative lowering of vapour pressure is independent of the nature of the solute and the solvent.
(B) The relative lowering of vapour pressure is a colligative property.
(C) Vapour pressure of a solution is lower than the vapour pressure of the solvent.
(D) The relative lowering of vapour pressure is directly proportional to the original pressure.

Q7 Elevation in boiling point was $0.52^{\circ}\mathrm{C}$ when $6\ \mathrm{g}$ of a compound X was dissolved in $100\ \mathrm{g}$ of water. Molecular weight of X is
$\left(\mathrm{K_b} = 0.52\mathrm{Kkgmol^{-1}}\right)$
(A) 120 (B) 60
(C) 600 (D) 180

Q8 If $0.15\ \mathrm{g}$ of a solute dissolved in $15\ \mathrm{g}$ of solvent is boiled at a temperature higher by $0.216^{\circ}\mathrm{C}$ than that of the pure solvent. The molecular weight of the substance (molal elevation constant for the solvent is $2.16^{0}\mathrm{C\ kg}\ mol^{-1}$) is
(A) $1.01\ \mathrm{g/mol}$
(B) $10\ \mathrm{g/mol}$
(C) $10.1\ \mathrm{g/mol}$
(D) $100\ \mathrm{g/mol}$

Q9 If the elevation in boiling point of a solution of $10\ \mathrm{g}$ of solute (mol. wt. $= 100\ \mathrm{g}$) of $100\ \mathrm{g}$ water is $\Delta\mathrm{T_b}$, the ebullioscopic constant of water is
(A) 10
(B) $100\Delta\mathrm{T_b}$
(C) $\Delta\mathrm{T_b}$
(D) $\frac{\Delta\mathrm{T_b}}{10}$

Q10 For a solution of volatile liquids, the partial vapour pressure of each component in solution is

directly proportional to:

(A) Molarity (B) Mole fraction

(C) Molality (D) Normality

Q11 The vapour pressure lowering caused by the addition of 342 g of sucrose (molar mass is 342 g mol^{-1}) to 522 g of water if the vapour pressure of pure water at 25°C is 23.8 mm of Hg is:

(A) 1.25 mm of Hg (B) 0.8 mm of Hg

(C) 1.15 mm of Hg (D) 0.012 mm of Hg

Q12 Which of the following substances will have the highest boiling point?

(A) Camphor (B) Cyclohexane

(C) Benzene (D) Water

Q13 When $10\ \text{g}$ of a non-volatile solute is dissolved in $100\ \text{g}$ 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) $223\ \text{g/mol}$

(B) $233\ \text{g/mol}$

(C) $243\ \text{g/mol}$

(D) $253\ \text{g/mol}$

Q14 At 100°C the vapour pressure of a solution of $6.5\ \text{g}$ of a solute in $100\ \text{g}$ water is $732\ \text{mm}$. If $\text{k}_\text{b} = 0.52$, the boiling point of this solution will be

(A) 102°C

(B) 103°C

(C) 101°C

(D) 100°C

Answer Key

Q1	(A)
Q2	(D)
Q3	(D)
Q4	(C)
Q5	(B)
Q6	(D)
Q7	(B)
Q8	(D)
Q9	(C)
Q10	(B)
Q11	(B)
Q12	(D)
Q13	(D)
Q14	(C)