Chemistry Study Materials for Class 12
(NCERT Based MCQ of Chapter -02)
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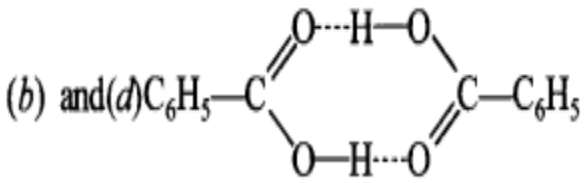
Solution

23. Benzoic acid, when dissolved in benzene, which of the following is correct.
(a) The benzoic acid will undergo dissociation.
(b) The benzoic acid will undergo association.
(c) Observed molar mass of benzoic acid in benzene will less than normal molar mass.
(d) Observed molar mass of benzoic acid in benzene is more than normal molar mass.

Explanation: Molar mass will be nearly double due to dimerisation.



24. Relative lowering of vapour pressure is a colligative property because _ .
(a) It depends on the concentration of a non electrolyte solute in solution and does not depend on the nature of the solute molecules.
(b) It depends on number of particles of electrolyte solute in solution and does not depend on the nature of the solute particles.
(c) It depends on the concentration of a non electrolyte solute in solution as well as on the nature of the solute molecules.
(d) It depends on the concentration of an electrolyte or nonelectrolyte solute in solution as well as on the nature of solute molecules.

Explanation:
(a) and (b) colligative property depends upon number of particles of solute in both electrolyte and non-electrolyte.

25. Mole fraction of glycerine $C_3H_5(OH)_3$ in solution containing 36 g of water and 46 g of glycerine is
(a) 0.46 (b) 0.40 **(c) 0.20** (d) 0.36

26. Match the items given in Column I with the type of solutions given in Column II.

Column I	Column II
(*a*) Soda water	(*i*) A solution of gas in solid
(*b*) Sugar solution	(*ii*) A solution of gas in gas
(*c*) German silver	(*iii*) A solution of solid in liquid
(*d*) Air	(*iv*) A solution of solid in solid
(*e*) Hydrogen gas in palladium	(*v*) A solution of gas in liquid
	(*vi*) A solution of liquid in solid

Explanation:

(a) – (v) (b) – (iii) (c) – (iv) (d) – (ii) (e) – (i)

27. In the following question a statement of assertion followed by a statement of reason is given. Choose the correct answer out of the following choices.

(a) Assertion and reason both are correct statements and reason is correct explanation for assertion.

(b) Assertion and reason both are correct statements but reason is not correct explanation for assertion.

(c) Assertion is correct statement but reason is wrong statement.

(d) Assertion and reason both are incorrect statements.

(e) Assertion is wrong statement but reason is correct statement.

Assertion: When methyl alcohol is added to water, boiling point of water increases.

Reason: When a volatile solute is added to a volatile solvent elevation in boiling point is observed.

Explanation:

(d) Assertion and reason both are incorrect statements.

28. Out of molality (m), molarity (M), formality (F) and mole fraction (x), those which are independent of temperature are

(a) M, m (b) F, x **(c) m, x** (d) M, x

29. Which of the following condition is not satisfied by an ideal solution?

(a) $\Delta H_{mixing} = 0$ (b) $\Delta V_{mixing} = 0$

(c) Raoult's Law is obeyed **(d) Formation of an azeotropic mixture**

30. The boiling point of an azeotropic mixture of water and ethanol is less than that of water and ethanol. The mixture shows

(a) no deviation from Raoult's Law.**(b) positive deviation from Raoult's Law.**

(c) negative deviation from Raoult's Law.(d) that the solution is unsaturated.

31. Which has the lowest boiling point at 1 atm pressure?
(a) 0.1 M KCl **(b) 0.1 M Urea** (c) 0.1 M $CaCl_2$ (d) 0.1 M $A1Cl_3$

32. Osmotic pressure of a solution is 0.0821 atm at a temperature of 300 K. The concentration in moles/litre will be
(a) 0.33 (b) 0.666 **(c) 0.3×10^{-2}** (d) 3

33. People add sodium chloride to water while boiling eggs. This is to
(a) decrease the boiling point. **(b) increase the boiling point.**
(c) prevent the breaking of eggs. (d) make eggs tasty.

34. The van't Hoff factor (i) accounts for
(a) degree of solubilisation of solute.
(b) the extent of dissociation of solute.
(c) the extent of dissolution of solute.
(d) the degree of decomposition of solution.

35. Which relationship is not correct?

(a) $\Delta T_b = \frac{K_b.1000.W_2}{M_2.W_1}$ (b) $M_2 = \frac{K_f.1000.W_1}{W_2.\Delta T_b}$

(c) $\pi = \frac{n_2}{V}$ (d) $\frac{p^o - p_s}{p^o} = \frac{W_2}{M_2} \times \frac{M_1}{W_1}$

Answer: b

36. The molal elevation constant depends upon
(a) nature of solute. **(b) nature of the solvent.**
(c) vapour pressure of the solution. (d) enthalpy change.

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