

QB365 Question Bank Software Study Materials

Solutions 50 Important 1 Marks Questions With Answers (Book Back and Creative)

11th Standard

Chemistry


Total Marks : 50

Multiple Choice Question

50 x 1 = 50

- The molality of a solution containing 1.8g of glucose dissolved in 250 g of water is _____
(a) 0.2 M **(b) 0.01 M** (c) 0.02 M (d) 0.04 M
- Stomach acid, a dilute solution of HCl can be neutralised by reaction with Aluminium hydroxide
 $\text{Al(OH)}_3 + 3\text{HCl(aq)} \rightarrow \text{AlCl}_3 + 3\text{H}_2\text{O}$
How many millilitres of 0.1 M Al(OH)_3 solution are needed to neutralise 21 mL of 0.1 M HCl ?
(a) 14 mL **(b) 7 mL** (c) 21 mL (d) none of these
- The partial pressure of nitrogen in air is 0.76 atm and its Henry's law constant is 7.6×10^4 atm at 300K. What is the mole fraction of nitrogen gas in the solution obtained when air is bubbled through water at 300K ?
(a) 1×10^{-4} (b) 1×10^{-6} (c) 2×10^{-5} **(d) 1×10^{-5}**
- Which one of the following is incorrect for ideal solution ?
(a) $\Delta H_{mix} = 0$ (b) $\Delta U_{mix} = 0$ (c) $\Delta P = P_{observed} - P_{calculated\ by\ Raoult's\ law} = 0$ **(d) $\Delta G_{mix} = 0$**
- Which one of the following gases has the lowest value of Henry's law constant ?
(a) N_2 (b) He **(c) CO_2** (d) H_2
- P_1 and P_2 are the vapour pressures of pure liquid components, 1 and 2 respectively of an ideal binary solution if x_1 represents the mole fraction of component 1, the total pressure of the solution formed by 1 and 2 will be _____
(a) $P_1 + x_1(P_2 - P_1)$ (b) $P_2 - x_1(P_2 + P_1)$ **(c) $P_1 - x_2(P_1 - P_2)$** (d) $P_1 + x_2(P_1 - P_2)$
- Osmotic pressure (π) of a solution is given by the relation _____
(a) $\pi = nRT$ **(b) $\pi V = nRT$** (c) $\pi RT = n$ (d) none of these
- Which one of the following binary liquid mixtures exhibits positive deviation from Raoult's law ?
(a) Acetone + chloroform (b) Water + nitric acid (c) HCl + water **(d) ethanol + water**
- According to Raoult's law, the relative lowering of vapour pressure for a solution is equal to _____
(a) mole fraction of solvent **(b) mole fraction of solute** (c) number of moles of solute (d) number of moles of solvent
- At same temperature, which pair of the following solutions are isotonic ?
(a) 0.2 M BaCl_2 and 0.2M urea (b) 0.1 M glucose and 0.2 M urea (c) 0.1 M NaCl and 0.1 M K_2SO_4
(d) 0.1 M $\text{Ba(NO}_3)_2$ and 0.1 M Na_2SO_4
- The empirical formula of a nonelectrolyte(X) is CH_2O . A solution containing six gram of X exerts the same osmotic pressure as that of 0.025 M glucose solution at the same temperature. The molecular formula of X is _____
(a) $\text{C}_2\text{H}_4\text{O}_2$ **(b) $\text{C}_8\text{H}_{16}\text{O}_8$** (c) $\text{C}_4\text{H}_8\text{O}_4$ (d) CH_2O
- The K_H for the solution of oxygen dissolved in water is 4×10^4 atm at a given temperature. If the partial pressure of oxygen in air is 0.4 atm, the mole fraction of oxygen in solution is _____
(a) 4.6×10^3 (b) 1.6×10^4 **(c) 1×10^{-5}** (d) 1×10^5

- 13) Normality of 1.25M sulphuric acid is _____
 (a) 1.25 N (b) 3.75 N (c) **2.5 N** (d) 2.25 N
- 14) Two liquids X and Y on mixing gives a warm solution. The solution is _____
 (a) ideal (b) non-ideal and shows positive deviation from Raoult's law
 (c) ideal and shows negative deviation from Raoult's Law (d) **non-ideal and shows negative deviation from Raoult's Law**
- 15) The relative lowering of vapour pressure of a sugar solution in water is 3.5×10^{-3} . The mole fraction of water in that solution is _____
 (a) 0.0035 (b) 0.35 (c) 0.0035/18 (d) **0.9965**
- 16) The mass of a non-volatile solute (molar mass 80 g mol^{-1}) which should be dissolved in 92g of toluene to reduce its vapour pressure to 90% _____
 (a) 10g (b) 20g (c) 9.2g (d) **8.89g**
- 17) For a solution, the plot of osmotic pressure (π) versus the concentration (c in mol L^{-1}) gives a straight line with slope $310R$ where 'R' is the gas constant. The temperature at which osmotic pressure measured is _____
 (a) $310 \times 0.082 \text{ K}$ (b) 310°C (c) **37°C** (d) $\frac{310}{0.082} \text{ K}$
- 18) 200ml of an aqueous solution of a protein contains 1.26g of protein. At 300K, the osmotic pressure of this solution is found to be $2.52 \times 10^{-3} \text{ bar}$. The molar mass of protein will be ($R = 0.083 \text{ L bar mol}^{-1} \text{ K}^{-1}$) _____
 (a) **$62.22 \text{ Kg mol}^{-1}$** (b) 12444 g mol^{-1} (c) 300 g mol^{-1} (d) none of these
- 19) The Van't Hoff factor (i) for a dilute aqueous solution of the strong electrolyte barium hydroxide is _____
 (a) 0 (b) 1 (c) 2 (d) **3**
- 20) What is the molality of a 10% W/W aqueous sodium hydroxide solution ?
 (a) 2.778 (b) **2.5** (c) 10 (d) 0.4
- 21) The correct equation for the degree of an associating solute, 'n' molecules of which undergoes association in solution, is _____
 (a) $\alpha = \frac{n(i-1)}{n-1}$ (b) $\alpha^2 = \frac{n(1-i)}{(n-1)}$ (c) **$\alpha = \frac{n(i-1)}{1-n}$** (d) $\alpha = \frac{n(1-i)}{n(1-i)}$
- 22) Which of the following aqueous solutions has the highest boiling point ?
 (a) 0.1 M KNO_3 (b) **0.1 M Na_3PO_4** (c) 0.1 BaCl_2 (d) 0.1 M K_2SO_4
- 23) The freezing point depression constant for water is $1.86^\circ \text{K Kg mol}^{-1}$. If 5g Na_2SO_4 is dissolved in 45g water, the depression in freezing point is 3.64°C . The Van't Hoff factor for Na_2SO_4 is _____
 (a) **2.50** (b) 2.63 (c) 3.64 (d) 5.50
- 24) Equimolar aqueous solutions of NaCl and KCl are prepared. If the freezing point of NaCl is -2°C , the freezing point of KCl solution is expected to be _____
 (a) **-2°C** (b) -4°C (c) -1°C (d) 0°C
- 25) Phenol dimerises in benzene having van't Hoff factor 0.54. What is the degree of association ?
 (a) 0.46 (b) 92 (c) 46 (d) **0.92**
- 26) In a binary solution _____
 (a) solvent may be liquid (b) solvent may be solid (c) solute may be gas (d) **any of these**
- 27) Solubility of gas decreases in a liquid by _____
 (a) **increase of temperature** (b) cooling (c) increasing pH (d) decreasing pH

- 28) A sample of toothpaste weighting 500g, on analysis was found to contain 0.2g of fluorine. The concentration of fluorine in ppm is _____
- (a) 4×10^3 **(b) 4×10^2** (c) 4×10 (d) 2×10^2
- 29) Correct statement among the following regarding osmosis is _____
- (a) Solvent flows from high concentration of solute to low concentration of solute
(b) Solvent flows from low concentration of solute to high concentration of solute
(c) Solute flows from high concentration to low concentration (d) Solute flows from low concentration to high concentration
- 30) For associative solutes _____
- (a) $i < 1$ and $a < 1$** (b) $i > 1$ and $a > 1$ (c) $i < 1$ and $a < 1$ (d) $i > 1$ and $a < 1$
- 31) Equimolar solution of non-electrolyte in the same solvent have _____
- (a) same boiling point and same freezing point** (b) different boiling point. and different freezing point
(c) same boiling point but different freezing point (d) same freezing point but different boiling point
- 32) Which of the following concentration terms is temperature independent?
- I) Molarity
II) Molality
III) Normality
IV) Mole fraction
- (a) I & II (b) I & III (c) II only **(d) II & IV**
- 33) Correct observation
- 
- (a) Vapour pressure of solution I is lowest **(b) Relative 'lowering' of vapour pressure is maximum in III**
(c) Freezing point is maximum for III (d) Boiling point is minimum for I
- 34) Which of the following is not an non-ideal solution showing negative deviation?
- (a) Phenol and aniline (b) Ethanol and water (c) Acetone + Chloroform **(d) n-Heptane and n-Hexane**
- 35) Molarity (M) is ____.
- (a) $\frac{\text{moles of solute}}{\text{vol. of solution (ml)}} \times 1000$** (b) $\frac{\text{moles of solvent}}{\text{mole of solute}} \times 100$ (c) $\frac{\text{mole of solute}}{\text{vol. of solution}} \times 100$ (d) None
- 36) Normality (N) is ____.
- (a) $\frac{\text{moles of solute}}{\text{wt. of solvent}} \times 1000$ (b) $\frac{\text{moles of solute}}{\text{vol. of solution}} \times 1000$ **(c) $\frac{\text{gram equiv. of solute}}{\text{wt. of solution(ml)}} \times 1000$** (d) $\frac{\text{gram equiv. of solute}}{\text{wt. of solution}} \times 100$
- 37) Mole fraction = ____.
- (a) $\frac{\text{gram equiv. of solute}}{\text{wt. of solution (ml)}} \times 1000$ (b) moles of solute + moles of solvent (c) $\frac{\text{mole of solvent}}{\text{mole of solute + moles of solvent}}$
(d) $\frac{\text{mole of solute}}{\text{mole of solute + moles of solvent}}$
- 38) A solution which obeys Raoult's law exactly at all concentrations and at all temperature is called ____.
- (a) binary solution (b) on-ideal.solution **(c) ideal solution** (d) none of these
- 39) 95.5% ethanol and 4.5% H₂O is an example for ____.
- (a) maximum boiling azeotropes **(b) minimum boiling azeotropes** (c) azeotropes = 0 (d) none
- 40) $m \propto p$ is explained by ____.
- (a) Rault's law (b) Gay-Lussac's law **(c) Henry's law** (d) Boyles law

- 41) Sea water is converted into fresh water based upon the phenomenon of _____.
(a) < div >diffusion< /div > (b) < div >osmosis< /div > (c) < div >plasmolysis< /div > **(d) < div >reverse osmosis< /div >**
- 42) Osmotic pressure is measured by _____.
(a) < div >Ostruald's method< /div > **(b) Berkeley and Hartley method** (c) < div >Pfeffer's method< /div >
(d) < div >Beckmann's method< /div >
- 43) Blood cells retain their normal shape in solution which are _____.
(a) < div >isotonic to blood< /div > (b) < div >hypotonic to blood< /div > (c) < div >hypertonic to blood< /div >
(d) < div >equinormal to blood< /div >
- 44) The ratio of the value of any colligative property for KCl solution to that for sugar solution is nearly _____.
(a) 1.0 (b) 0.5 **(c) 2.0** (d) 2.5
- 45) The unit of molality is _____.
(a) < div >mole per litre< /div > **(b) < div >mole per kg< /div >** (c) < div >permole per litre< /div >
(d) < div >mole litre< /div >
- 46) The molal elevation constant is the ratio of elevation in boiling point to _____.
(a) < div >molarity< /div > (b) < div >boiling point of pure liquid< /div > (c) < div >mole fraction of solute< /div >
(d) < div >molality of solution< /div >
- 47) What weight of NaOH should be dissolved to prepare 250 ml of 0.2 M solution ?
(a) 2g (b) 8g (c) 60g (d) 4g
- 48) 100 ml of 0.1 M solution. A is mixed with 20 ml of 0.2 M solution B. The final molarity of the solution is _____.
(a) 0.12 M (b) 0.15 M (c) 0.18 M (d) 0.21 M
- 49) The no. of moles of NaCl in 21 of 3 m NaCl solution is _____.
(a) 0.667 **(b) 6** (c) 1.5 (d) 1
- 50) Two liquids X and Y form an ideal solution. At 300K, vapour pressure of the solution containing 1 mole of X and 3 moles of Y is 550 mm Hg at the same temperature. If one mole of Y is further added to this solution vapour pressure of the solution increases by 10 mm Hg. Vapour pressure of X & Y in their pure states will be, respectively.
(a) 200 & 300 (b) 300 & 400 **(c) 400 & 600** (d) 500 & 300