



CHEMISTRY

BOOKS - SAI CHEMISTRY (TELUGU ENGLISH)

SOLUTIONS

Mcq

1. 18 g of glucose is dissolved in 90 g of water.

The relative lowering of vapour pressure of

the solution is equal to

A. 6.1

B. 0.2

C. 5.1

D. 0.02

Answer: (d)



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2. A gas 'X' is dissolved in water at '2' bar pressure. Its mole fraction is 0.02 in solution. The mole fraction of water when the pressure of gas is doubled at the same temperature is

A. 0.04

B. 0.98

C. 0.96

D. 0.02

Answer: (c)



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3. What is the weight (in g) of Na_2CO_3 (molar mass= 106) present in 250 mL of its 0.2 M solution?

A. 1.06

B. 53

C. 5.3

D. 10.6

Answer: (c)





4. An aqueous dilute solution containing non-volatile solute boils at $100.052^{\circ}C$. What is the molality of solution? ($K_b = 0.52 \text{ kg. mol}^{-1}K$, boiling temperature of water = $100^{\circ}C$)

A. 0.1m

B. 0.01m

C. 0.001m

D. 1.0m

Answer: (a)



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5. The molar mass of a solute X in g mol^{-1} , if its 1% solution is isotonic with a 5% solution of cane sugar (molar mass = 342g mol^{-1}), is

A. 68.4

B. 34.2

C. 136.2

D. 171.2

Answer: (a)



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6. Vapour pressure in mm Hg of 0.1 mole of urea in 180 g of water at $25^{\circ}C$ is (The vapour pressure of water at $25^{\circ}C$ is 24 mm Hg)

A. 2.376

B. 20.76

C. 23.76

D. 24.76

Answer: (c)



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7. Which one of the following pair of solutions is an isotonic?

A. 0.15 M NaCl and 0.1 M Na_2SO_4

B. 0.2 M Urea and 0.1 M Sugar

C. 0.1 M $BaCl_2$ and 0.2 M Urea

D. 0.4 M $MgSO_4$ and 0.1 M NH_4Cl

Answer: (a)



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8. The vapour pressure in mm of Hg, of an aqueous solution obtained by adding 18 g of glucose ($C_6H_{12}O_6$) to 180 g of water at $100^\circ C$ is

A. 7.60

B. 76.0

C. 759

D. 752.4

Answer: (d)



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9. The weight in grams of a non-volatile solute (mol.wt.60) to be dissolved in 90 g of water to produce a relative lowering of vapour pressure of 0.02 is

A. 4

B. 8

C. 6

D. 10

Answer: (c)



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10. The volume in mL of 0.1 M solutions of NaOH required to completely neutralise 100 mL of 0.3 M solution of H_3PO_3 is

A. 60

B. 600

C. 300

D. 30

Answer: (b)



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11. Which of the following is the ratio of the lowering of vapour pressure of 0.1 M aqueous

solutions of $BaCl_2$ NaCl and $Al_2(SO_4)_3$ respectively.

A. 3 : 2 : 5

B. 5 : 2 : 3

C. 5 : 3 : 4

D. 2 : 3 : 5

Answer: (a)



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12. If $BaCl_2$ ionizes to an extent of 80% in aqueous solution, the value of van't Hoff factor is

A. 2.6

B. 0.4

C. 0.8

D. 2.4

Answer: (a)



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13. X is non-volatile solute and Y is a volatile solvent. The following vapour pressures are observed by dissolving X and Y



A. $P_1 < P_2 < P_3$

B. $P_3 < P_2 < P_1$

C. $P_3 < P_1 < P_2$

D. $P_2 < P_1 < P_3$

Answer: (d)



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14. During the depression in freezing point experiment, an equilibrium is established between the molecules of

A. Liquid solvent and solid solvent

B. Liquid solute and solid solvent

C. Liquid solute and solid solute

D. Liquid solvent and solid solute

Answer: (a)



15. When 25 g of a non-volatile solute is dissolved in 100g of water, the vapour pressure is lowered by $2.25 \times 10^{-1} \text{ mm}$. If the vapour pressure of water at 20° C is mm, what is the molecular weight of the solute?

A. 206

B. 302

C. 350

D. 276

Answer: (c)



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16. 138 g of ethyl alcohol is mixed with 72 g of water. The ratio of mole fraction of alcohol to water is

A. 3 : 4

B. 1 : 2

C. 1 : 4

D. 1 : 1

Answer: (a)



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17. The vapour pressure of water at $23^{\circ}C$ is 19.8 mm. 0.1 mole of glucose is dissolved in 178.2 g of water. What is the vapour pressure (in mm) of the resultant solution?

A. 19.0

B. 19.602

C. 19.402

D. 19.202

Answer: (b)



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18. x gm of water is mixed with 69 gm of ethanol . The mole fraction of ethanol in the resulting solution is 0.6 . What is the value of x in gm

A. 54

B. 36

C. 180

D. 18

Answer: (d)



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19. A non-volatile solute (A) is dissolved in a volatile solvent (B). The vapour pressure of the resultant solution is P_s . The vapour pressure of pure solvent is P_B° . If X_B is the mole

fraction of the solvent, which of the following is correct?

A. $P_s = X_A \cdot P_B^\circ$

B. $P_B^\circ = P_s \cdot X_A$

C. $P_s = X_B \cdot P_B^\circ$

D. $P_B^\circ = P_s \cdot X_B$

Answer: (c)



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20. 10.6 g of a substance of molecular weight 106 was dissolved in 100 ml. 10 ml of this solution was pipetted out into a 1000 ml flask and made up to the mark with distilled water. The molarity of the resulting solution is

A. $1.0M$

B. $10^{-2}M$

C. $10^{-3}M$

D. $10^{-4}M$

Answer: (b)



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21. The weight (in gram), of KCl (mol. wt. = 74.5) in 100 ml of a 0.1 M KCl solution is

A. 74.5

B. 7.45

C. 0.745

D. 0.0745

Answer: (c)



22. 5.85g of NaCl (mol. wt. 58.5) is dissolved in water and the solution is made up to 500 ml.

The molarity of the solution will be

A. $0.1M$

B. $1.0M$

C. $1.0M$

D. $0.117M$

Answer: (b)



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23. A solution that obeys Raoult's law is called

- A. Normal solution
- B. Molar solution
- C. Ideal solution
- D. Saturated solution

Answer: (c)



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24. If 20 mL of 0.4 N NaOH solution completely neutralised 40 mL of a dibasic acid, the molarity of the acid solution is

A. $0.1M$

B. $0.2M$

C. $0.1 = 3M$

D. $0.4M$

Answer: (a)



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25. The relative lowering of vapour pressure is equal to

A. Ratio of the number solute molecules to the total number of molecules in solution

B. Ratio of the number of solvent molecules to the number of solute molecules

C. Ratio of the number of solute molecules to the number of solvent molecules

D. Ratio of the number of solvent molecules to the total number of molecules in solution

Answer: (a)



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26. 9.8 g of H_2SO_4 is present in two litres of a solution. The molarity of the solution is,

A. $0.1M$

B. $0.05M$

C. $0.2M$

D. $0.01M$

Answer: (b)



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27. The weight of oxalic acid crystals, $H_2C_2O_4 \cdot 2H_2O$ required to prepare 500 ml of 0.2 N solution is,

A. 3.4g

B. 63g

C. 6.3g

D. 126g

Answer: (c)



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