NEET ANSWER KEY & SOLUTIONS

SUBJECT :- CHEMISTRY
CLASS :- 12th **PAPER CODE :- CWT-1**
CHAPTER :- SOLUTION

ANSWER KEY

1.	(A)	**2.**	(C)	**3.**	(A)	**4.**	(C)	**5.**	(D)	**6.**	(B)	**7.**	(C)
8.	(B)	**9.**	(B)	**10.**	(C)	**11.**	(D)	**12.**	(B)	**13.**	(C)	**14.**	(C)
15.	(C)	**16.**	(B)	**17.**	(D)	**18.**	(B)	**19.**	(D)	**20.**	(B)	**21.**	(B)
22.	(D)	**23.**	(D)	**24.**	(D)	**25.**	(D)	**26.**	(B)	**27.**	(A)	**28.**	(A)
29.	(C)	**30.**	(A)	**31.**	(A)	**32.**	(A)	**33.**	(C)	**34.**	(A)	**35.**	(C)
36.	(D)	**37.**	(C)	**38.**	(A)	**39.**	(B)	**40.**	(C)	**41.**	(C)	**42.**	(D)
43.	(B)	**44.**	(D)	**45.**	(C)	**46.**	(B)	**47.**	(D)	**48.**	(D)	**49.**	(D)
50.	(B)												

SOLUTIONS

SECTION-A

1. (A)
Sol. Due to H-bonding

2. (C)
Sol. $\frac{\frac{8}{40}}{1} = 0.2$ M

3. (A)
Sol. Total mass of solution = (15 + 35) gram = 50 gram
mass percentage of methyl alcohol
$= \frac{\text{Mass of methyl alcohol}}{\text{Mass of solution}} \times 100$
$= \frac{15}{50} \times 100 = 30\%$

4. (C)
Sol. $\frac{0.25}{1} = \frac{\frac{w}{46}}{\frac{w}{46} + \frac{100-w}{18}}$

$\frac{0.25}{1} = \frac{\frac{w}{46}}{\frac{w}{46} + \frac{100-w}{18}}$

w = 46
w% = 46%

5. (D)
Sol. We know, $m = \frac{x_B \times 1000}{(1-x_B)m_A}$
Given m = 5.2 and m_A = 18
$5.2 = \frac{x_B \times 1000}{(1-x_B)18}$
$x_B = 0.086$

6. (B)
Sol. V.P. does not depends on surface area of liquid. (it depends on temperature).

7. (C)
Sol. V.P. depends on temperature.

8. (B)
Sol. Non volatile substance has no V.P.

9. (B)
Sol. Vapour pr. depends on temperature not volume.

10. (C)
Sol. Colligative properties of the solution depend upon concentration of solute particles.

11. (D)

12. (B)
Sol. For dissociation (i > 1)

13. (C)
Sol. $i = \frac{C\ (1-\alpha) + \frac{C\alpha}{n}}{C} \Rightarrow i = 1 - \alpha + \frac{\alpha}{n}$

14. (C)

15. (C)
Sol. $\frac{\Delta P}{P_0} = X_B \approx \frac{n_B}{n_A} = \frac{w_B \times m_A}{m_B \times w_A}$

$\left(\frac{w_B \times m_A}{m_B \times w_A}\right)_{glucose} = \left(\frac{w_B \times m_A}{m_B \times w_A}\right)_{urea}$

$\frac{w_B \times 18}{180 \times 100} = \frac{1 \times 18}{60 \times 50}$

$W_B = 6g$

16. (B)
Sol. $\text{RLVP} = \frac{in}{in + N}$

so $0.167 = \frac{2 \times n}{2n + \frac{180}{18}}$

so n = 1

17. (D)

Sol. On addition of water, mole fraction of solvent will increase hence vapour pressure of solution will also increase

$p = p_0 x_A$

18. (B)

Sol. $\frac{268-167}{167} = x/1 \Rightarrow$ So x = 0.605

19. (D)

Sol. $\frac{P^o - P}{P^o}$ **=** $0.05 = X_B$

Where X_B = mole fraction of solute.

Molality $= \frac{1000 \times X_B}{(X_A \times M_A)}$ = 1000 × 0.05 / 0.95 × 18

20. (B)

21. (B)

Sol. $\pi V = \frac{w_B}{m_B} RT$

$6 \times 10^{-4} \times 1 = \frac{4}{m_B} \times 0.082 \times 300$

$m_B = 1.6 \times 10^5$

22. (D)

Sol. All solution have same No. of particle and also have same value of π. $n_1 = n_2$; $\pi_1 = \pi_2$ (Isotonic).

23. (D)

Sol. For isotonic solution $\pi_1 = \pi_2$; $C_1 = C_2$; $n_1 = n_2$

$\frac{W_1}{M_1} = \frac{W_2}{M_2} \Rightarrow \frac{10.5}{M} = \frac{30}{180}$

$\Rightarrow M = \frac{10.5 \times 180}{30} = 63$ Ans.

24. (D)

Sol. $AlPO_4 \rightleftharpoons Al^{3+} + PO_4^{3-}$

i = 1 + x = 2

ΔT_b = molality $K_b i$

$\therefore \frac{\Delta T_b}{K_b} = 0.02.$

25. (D)

Sol. Highest boiling point will be of that solutions for which ΔT_b is high.

Here in this case $\Delta T_b \propto i$ (van't hoff factor)

i = 4 for $Al(NO_3)_3$

$Al(NO_3)_3 \rightleftharpoons Al^{3+} + 3NO_3^-$

26. (B)

Sol. $x_3y_2 \rightleftharpoons 3x^{2+} + 2y^{3-}$ for complete ionization.

$1-\alpha \quad n\alpha \quad m\alpha$

$i = 1 + (m + n - 1)\alpha$

$i = 1 + (2 + 3 - 1) \times 0.25 = 1 + 1 = 2$

$\Delta T_b = i \times k_b \times m = 2 \times 0.52 \times 1 = 1.04$

B.P. of solution $(T_b) = \Delta T_b + T_b^\circ = 1.04 + 373 = 374.04$ K **Ans.**

27. (A)

Sol. $\Delta T_b = ik_b m$ so $i = \frac{2.08}{0.52 \times 1} = 4$

so the compex is $K_3[Fe(CN_6)]$

$K_3[Fe(CN)_6] \rightleftharpoons 3K^+ + [Fe(CN)_6]^{3-}$

28. (A)

Sol. Higher freezing point $\Rightarrow$ lesser ΔT_f

$\Rightarrow$ lesser molality

$\Rightarrow$ lesser number of particles

29. (C)

Sol. $\Delta T = K_f \times \frac{w_B \times 1000}{m_B \times w_A}$

$9.3 = 1.86 \times \frac{50 \times 1000}{62 \times w_A}$

$w_A = 161.29$ gm (water)

Amount of ice = 200 – 161.29 = 38.71 g

30. (A)

31. (A)

Sol. A : Benzene B : Toluene

$P = P_A + P_B$

$P = P_A^0 X_A + P_B^0 X_B$

$= 75 \times \frac{1}{2} + 22 \times \frac{1}{2} = 37.5 + 11 = 48.5$

Mole fraction of benzene in vapour , $Y_A = \frac{P_A}{P} = \frac{37.5}{48} = 0.78$

Similarly, mole fraction of toluene in vapour , $Y_B = 0.22$

$\therefore$ The vapour will contain higher percentage of benzene

32. (A)

Sol. $CHCl_6 + CHCOCH_3$

33. (C)

34. (A)

Sol. An azeotropic mixture boil at perticular temperture without changing its composition.

35. (C)

Sol. Some solids dissolves exothermically as LiCl (ΔH = –ve) and other dissolved endothermically as KCl (ΔH = +ve). solvent-solvent interaction and solute-solute interaction are endothermic while solvent-solute interaction is exothermic. The sum of the three interaction determines whether ΔH_{sol} is endothermic or exothermic.

SECTION-B

36. (D)

37. (C)

Sol. Solubility increases with decrease in temperature. But solubility increases with increase in pressure according to Henry's Law.

38. (A)

Sol. Henry's law is m = K · P ; where m = mass of gas absorbed by given volume of the solvent.

P = pressure of gas ;

$\therefore$ log m = log K + log P

39. (B)

Sol. Solubility $\propto$ pressure

$$\frac{S_2}{S_1} = \frac{P_2}{P_1}$$

$$S_2 = 5.3 \times 10^{-4} \times \frac{P_2}{P_1} = 6.8 \times 10^{-4}\ M$$

40. (C)

Sol. B.P. of water is elevated.

41. (C)

Sol. $P = X_AP_A^0 + X_BP_B^0 = (P_A^0 - P_B^0)X_A + P_B^0$

So $P_B^0 = 254$

$P_A^0 - P_B^0 = -119$

$P_A^0 = 135$

42. (D)

Sol. Semipermeable membrane allows the solvent particles only to pass through it.

43. (B)

Sol. $\pi \alpha$ No. of particle/ion.

$BaCl_2 = 3$, $NaCl = 2$ glucose = 1

So. order of π = $BaCl_2$ > NaCl > glucose.

44. (D)

Sol. for a ideal solution $\Delta S_{mix} \neq 0$

45. (C)

Sol. Isotonic solution has same conc.

$\pi_1 = \pi_2$ $C_1 = C_2$ $n_1 = n_2$ $\boxed{\frac{W_1}{M_1} = \frac{W_2}{M_2}}$

So, $\frac{x}{18} = \frac{4}{60}$ $\Rightarrow$ x = 12 g Ans.

46. (B)

Sol. $K_f = -186°\ cm^{-1}$

$\Delta T_f = i \times K_f \cdot m$

$3.82 = i \times 1.86 \times \frac{5 \times 1000}{142 \times 45}$

i = 2.63

47. (D)

Sol. $P = P_AX_A + P_BX_B$

$= P_AX_A + P_B(1 - X_A)$

$\Rightarrow P_AX_A + P_B - P_BX_A$

$\Rightarrow P_B + X_A(P_A - P_B)$

48. (D)

Sol. When solute undergoes dissociation than vant Hoff factor i > 1

$\Delta T_b = i K_b m$

49. (D)

Sol. K_f depends only nature of solvent, it doesnot depend on the concentration of solution.

50. (B)

Sol. The maximum boiling azeotrope is shows by negative deviation solution so it is H_2O and HNO_3 mixture