

NEET ANSWER KEY & SOLUTIONS

SUBJECT :- CHEMISTRY

CLASS :- 11th

PAPER CODE :- CWT-1

CHAPTER :- MOLE CONCEPT

ANSWER KEY

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

SOLUTIONS

SECTION-A

1. (A)
Sol. This is the required relation in Centigrade and Fahrenheit scales.

2. (C)
Sol. Theory based

3. (B)
Sol. Molecular weight of $\text{SO}_2 = 32 + 16 \times 2 = 64$ amu

4. (B)
Sol. $\text{mole} = \frac{\text{mass}}{\text{at. wt.}} = \frac{46}{23} = 2$ mole.

5. (A)
Sol. We know that, $1 \text{ amu} = \frac{1}{12} \times \text{weight of one } ^{12}\text{C atom}$ or weight of one $^{12}\text{C atom} = 12$ amu (at. wt. of C = 12 amu). Similarly, as the atomic weight of He is 4 amu, weight of one He atom = 4 amu. Thus, the number of atoms in 100 amu of He = $\frac{100}{4} = 25$.

6. (A)
Sol. In 18 g, no. of molecules = N_A
 so in 0.09 g no. of molecules = $\frac{N_A}{18} \times 0.09 = \frac{N_A}{2 \times 100} = 3.01 \times 10^{21}$.

7. (B)
Sol. $\text{mole} = \frac{w}{m} = \frac{1}{m}$
 for largest no. of molecule m should be lowest.

8. (B)

Sol. molecule of $\text{H}_2\text{SO}_4 = \frac{196}{98} = 2$.
 Hence : H = 4 atoms, S = 2 atoms, O = 8 atoms.

9. (D)
Sol. 1 mole $\text{P}_4 = N$ molecules of $\text{P}_4 = 4 N$ atoms of P_4 .

10. (A)
Sol. (1) moles of C = $24/12 = 2$, So no. of atoms = $2N_A$
 (2) moles of Fe = $56/56 = 1$, So no. of atoms = N_A
 (3) moles of Al = $27/27 = 1$, So no. of atoms = N_A
 (4) moles of Fe = $108/108 = 1$, So no. of atoms = N_A

11. (A)
Sol. $12 \text{ g } ^{12}_6\text{C}$ contains $6N_A$ electrons and $6 N_A$ neutrons.

12. (C)
Sol. Mole of Aluminium = $\frac{54}{27} = 2$ mole.
 Al and Mg have same number of atoms (given). Hence same moles also.
 \therefore Mass of magnesium = $2 \times 24 = 48$ g.

13. (B)
Sol. $\frac{1}{2} \times 6.023 \times 10^{23} = 3.0125 \times 10^{23}$

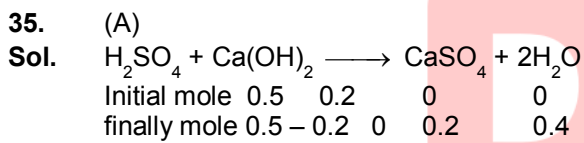
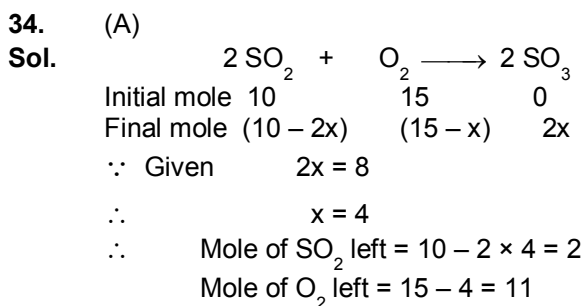
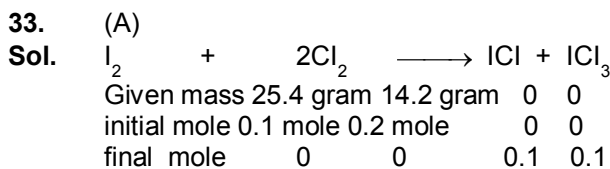
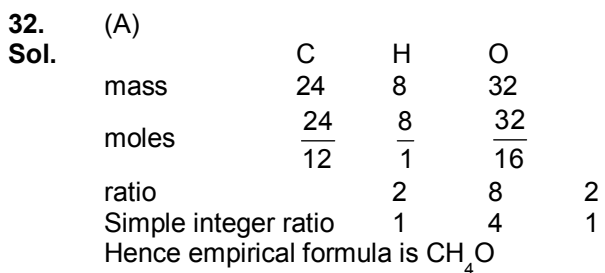
14. (D)
Sol. $9.108 \times 10^{-31} \text{ kg}$ is the wt. of $1 e^- = \text{moles of } e^-$ So 1 kg is the wt. of $1 e^-$
 $= \frac{1}{9.108 \times 10^{-31}} \times \frac{1}{N_A}$
 $= \frac{1}{9.108 \times 10^{-31} \times 6.023 \times 10^{23}}$
 $= \frac{10^8}{9.108 \times 6.023}$

15. (B)
Sol. Mol. wt. of gas is $= \frac{16 \times 22.4}{5.6} = 64 \text{ g}$
 $32 + 16x = 64$
 $x = 2$
16. (A)
Sol. Number of electrons $= \frac{1.8 \times 10}{18} \times N_A$
17. (C)
Sol. $2 \text{ Al} + \frac{3}{2} \text{ O}_2 \longrightarrow \text{Al}_2\text{O}_3$
 \Rightarrow weight of Al required $= 2 \times 27 = 54 \text{ g}$
18. (B)
Sol. $\text{KClO}_3 \longrightarrow \text{KCl} + \frac{3}{2} \text{ O}_2$
 $\frac{3}{2}$ mole or 33.6 litre O_2 from 1 mole KClO_3
11.2 litre of O_2 formed by $\frac{1}{3}$ mole KClO_3
19. (B)
Sol. By applying POAC for C atoms
moles of ethylene $\times 2 =$ mole of polythene
 $\times n \times 2$
 $\frac{100 \text{ g}}{28} \times 2 = \frac{\text{wt. of polythene}}{28 \times n} \times n \times 2$
wt. of polythene $= 100 \text{ g}$
20. (A)
Sol. $\text{Zn} + \text{Fe} + 2\text{S} \longrightarrow \text{Zn}(\text{FeS}_2)$

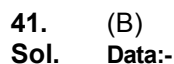
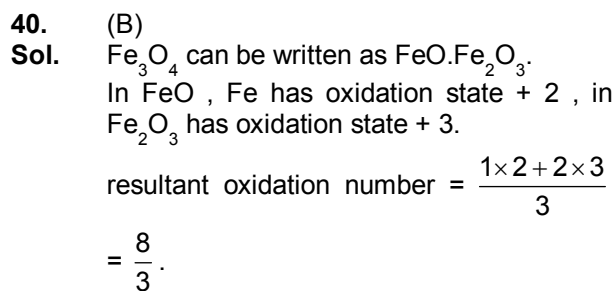
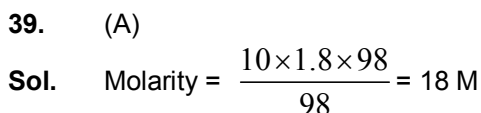
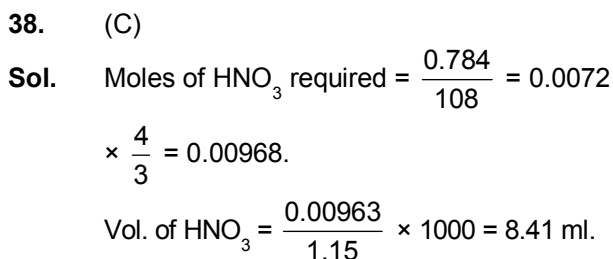
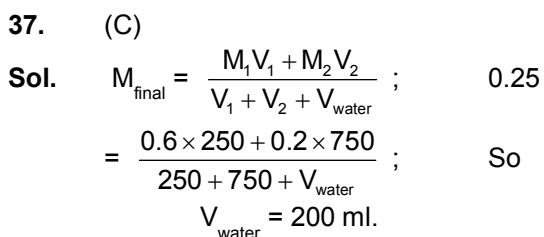
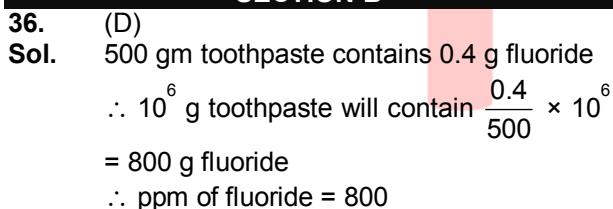
initial mole	2	3	5	0
final mole	0	3-2	5-4	2
		= 1	= 1	

 $\text{Zn} + \text{Fe} + 2\text{S} \longrightarrow \text{Zn}(\text{FeS}_2)$
21. (B)
Sol. Molarity $= \frac{6.02 \times 10^{22}}{6.02 \times 10^{23}} \times \frac{1}{1/2} = 0.2$
22. (B)
Sol. Mole $= M \times V$
 $100 \times 10^{-3} = 0.8 \times V$
 $V = 0.125$
23. (A)
Sol. Molarity has volume term in its expression and volume is temperature dependent.

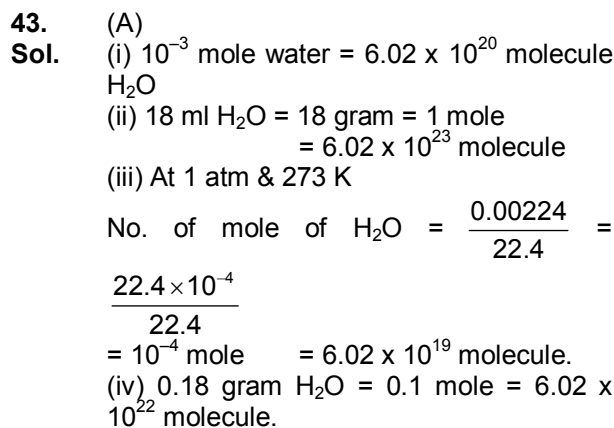
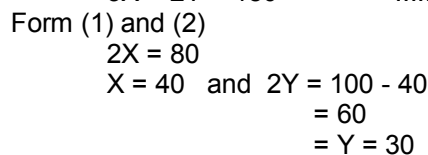
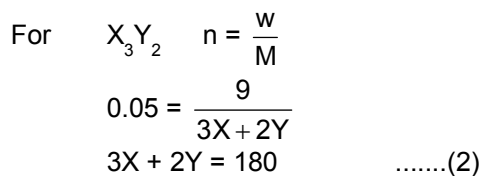
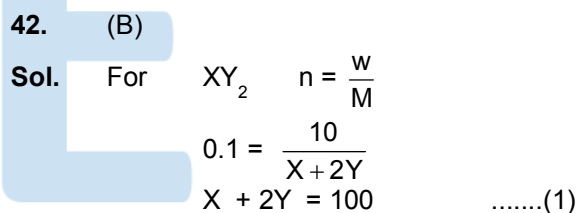
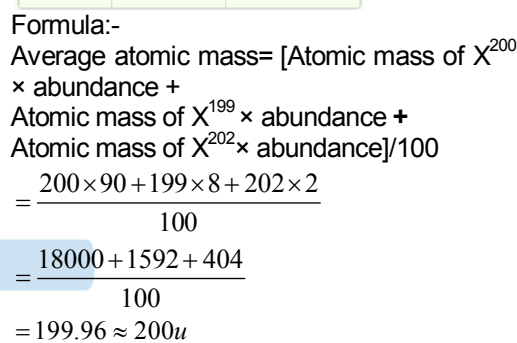
24. (B)
Sol. 1000 mL solution contain 2 mole of ethanol or $1000 \times 1.025 \text{ g}$ solution contain 2 mole of ethanol
wt. of solvent $= 1000 \times 1.025 - 2 \times 46$
 $m = \frac{2}{1000 \times 1.025 - 2 \times 46} \times 1000$
 $m = \frac{2}{933} \times 1000 = 2.143$
25. (C)
Sol. $M_1 V_1 + M_2 V_2 = M_R [V_1 + V_2]$
 $1 \times 500 + 3 \times 500 = M_R [500 + 500]$
 $M_R = 1$
26. (B)
Sol. Weight of NaOH $= 20 \text{ gram}$
Weight of solvent $= 80 \text{ g}$
 $M = \frac{20 \times 1000}{40 \times 80} = 6.25 \text{ m}$
27. (D)
Sol. $2(+1) + 2x = 0$
 $\therefore x = -1$
28. (B)
Sol. $\text{SO}_3^{2-} \Rightarrow 1(x) + 3(-2) = -2 \therefore x = +4$
 $\text{S}_2\text{O}_4^{2-} \Rightarrow 2(x) + 4(-2) = -2 \therefore x = +3$
 $\text{S}_2\text{O}_6^{2-} \Rightarrow 2(x) + 6(-2) = -2 \therefore x = +5$
29. (A)
Sol. $\text{NaN}_3 \Rightarrow 1(+1) + 3(x) = 0 \therefore x = -1/3$
 $\text{N}_2\text{H}_2 \Rightarrow 2(x) + 2(+1) = 0 \therefore x = -1$
 $\text{NO} \Rightarrow 1(x) + 1(-2) = 0 \therefore x = +2$
 $\text{N}_2\text{O}_5 \Rightarrow 2(x) + 5(-2) = 0 \therefore x = +5$
30. (A)
Sol. 10 mole NH_3 have mole of 'H' atom $= 10 \times 3$
5 mole of H_2SO_4 have mole of 'H' atom $= 10$
Total mole of 'H' atom $= 40$
mole of $\text{H}_2 = 20$
Hence : number of H_2 molecules $= 20N_A$
31. (A)
Sol. 1 litre Hg metal
volume $= 1000$
 $d = \frac{m}{v}$ mass $= d \times V = 13.6 \times 1000$
No of mole of Hg metal $= \frac{13.6 \times 1000}{200} = 68 \text{ mole}$



SECTION-B

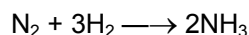


Element	Abundance	Atomic Mass
X^{200}	90%	200
X^{199}	8.0%	199
X^{202}	2.0%	202



44. (D)

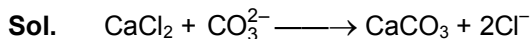
Sol. Formation of ammonia



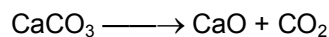
2 mole of NH_3 is formed by 3 mole of H_2

20 mole of NH_3 is formed by 30 mole of H_2

45. (C)



$$111 \text{ g} \qquad \qquad \qquad 100 \text{ g}$$



$$100 \text{ g} \qquad \qquad \qquad 56 \text{ g}$$

\therefore 56 g CaO is obtained by the decomposition of CaCO_3

$$= 100 \text{ g}$$

\therefore 0.959 g CaO will be obtained by the decomposition of CaCO_3

$$= \frac{100 \times 0.959}{56} = 1.71 \text{ g}$$

Further, 100 g $\text{CaCO}_3 = 111 \text{ g CaCO}_2$

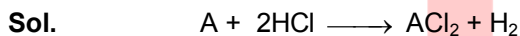
$$171 \text{ g CaCO}_3 = \frac{111 \times 171}{100} = 189 \text{ g CaCl}_2$$

Percentage of CaCl_2 in the mixture

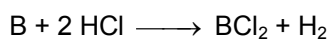
$$= \frac{189}{4.22} \times 100$$

$$= 44.78 = 45\%$$

46. (A)



$$\text{mole} = \frac{x}{15} \qquad \qquad \qquad \frac{x}{15}$$



$$\text{mole} = \frac{2-x}{30} \qquad \qquad \qquad \frac{2-x}{30}$$

$$\text{Mole of H}_2 = \frac{x}{15} + \frac{2-x}{30} = \frac{2.24}{22.4} = \frac{1}{10}$$

$$\frac{x}{15} - \frac{x}{30} = \frac{1}{10} - \frac{1}{15}$$

$$x = 1 \text{ gm}$$

47. (C)

Sol. $X_{\text{ethyl alcohol}} = \frac{5.2}{5.2 + \frac{1000}{18}} = 0.086$

48. (B)

Sol. $\frac{n_{\text{O}_2}}{n_{\text{N}_2}} = \frac{\left(\frac{m_{\text{O}_2}}{M_{\text{O}_2}}\right)}{\left(\frac{m_{\text{N}_2}}{M_{\text{N}_2}}\right)} = \left(\frac{m_{\text{O}_2}}{m_{\text{N}_2}}\right) \frac{28}{32} = \frac{1}{4} \times \frac{28}{32} = \frac{7}{32}$

49. (A)

Sol. Theory based

50. (A)

Sol. One mole is the amount of a substance that contains as many particles as there are atoms in exactly 12 g of the carbon atom. So S.I. the system took mole as the seventh base fundamental quantity (symbol = mol)