

CHEMISTRY

11. (1)

(1) 34 gm of water

$$\therefore 18 \text{ gm H}_2\text{O} = 6.023 \times 10^{23} \text{ molecule}$$

$$\therefore 34 \text{ gm H}_2\text{O} = \frac{6.023 \times 10^{23}}{18} \times 34$$

$$= 11.37 \times 10^{23} \text{ molecules}$$

(2) 28 gm of CO₂

$$\therefore 44 \text{ gm CO}_2 = 6 \times 10^{23} \text{ molecules}$$

$$\therefore 28 \text{ gm CO}_2$$

$$= \frac{6 \times 10^{23}}{44} \times 28 = 3.8 \times 10^{23}$$

(3) 46 gm of CH₃OH

$$\therefore 32 \text{ gm CH}_3\text{OH} = 6 \times 10^{23} \text{ molecules}$$

$$\therefore 46 \text{ gm}$$

$$\text{CH}_3\text{OH} = \frac{6 \times 10^{23}}{32} \times 46 = 8.625 \times 10^{23}$$

(4) \therefore 108 gm of N₂O₅ = 6 × 10²³ molecules

$$\therefore 54 \text{ gm of N}_2\text{O}_5 = \frac{6 \times 10^{23}}{108} \times 54$$

$$= 3 \times 10^{23} \text{ molecules.}$$

12. (1)

Urea- NH₂ - CO - NH₂

$$\therefore 60 \text{ gm of urea contains 28 gm of nitrogen}$$

$$\therefore 100 \text{ gm of urea contains } \frac{28}{60} \times 100 = 46.66.$$

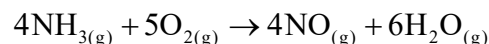
13. (3)

$$N_1 V_1 = N_2 V_2; \frac{1}{2} \times 200 = \frac{1}{10} \times V_2; V_2 = 1000 \text{ ml}$$

Volume of water added

$$= 1000 - 200 = 800 \text{ ml}$$

14. (3)



$$t = 0 \quad 1 \quad 1 \quad 0 \quad 0$$

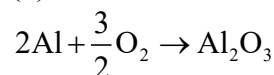
$$t = t \quad 1 - 4x \quad 1 - 5x \quad 4x \quad 6x$$

Oxygen is limiting reagent

$$\text{So, } X = \frac{1}{5} = 0.2 \text{ all oxygen consumed}$$

$$\text{Left NH}_3 = 1 - 4 \times 0.2 = 0.2.$$

15. (2)

According to equation $\frac{3}{2}$ mole of O₂

combines with 2 mole Al.

$$2 \text{ mole Al} = 54 \text{ gm}$$

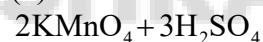
16. (4)

H₃PO₄ is tribasic so N = 3M = 3 × 1 = 3.

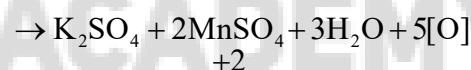
17. (3)

$$\text{MW} = 2 \times \text{V.D.} = 2 \times 22 = 44.$$

18. (4)



+7



+2

$$\text{Eq. wt.} = \frac{\text{Mol. wt.}}{5}$$

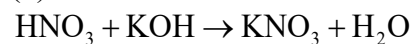
19. (2)

KMnO₄ Oxalic acid

$$\frac{M_1 V_1}{n_1} = \frac{M_2 V_2}{n_2}; \frac{20 \times 0.1}{2} = \frac{M_2 V_2}{5};$$

$$M_2 V_2 = 5$$

20. (4)



$$\frac{12.6}{63} = 0.2 \text{ mole; HNO}_3 \equiv \text{KOH}$$

$$0.2 \text{ mole} \equiv 0.2 \text{ mole}$$

$$\Rightarrow 0.2 \times 56 = 11.2 \text{ gm}$$