

76.(B) Dolomite : $\text{CaCO}_3 \cdot \text{MgCO}_3$ (wt. of 1 mole = 184 g)

So, 10 g of dolomite contains : $\text{CaCO}_3 \Rightarrow \frac{10}{184} \text{ mole} = 0.054 \text{ mole}$

$\text{MgCO}_3 \Rightarrow \frac{10}{184} \text{ mole} = 0.054 \text{ mole}$

$\therefore \text{Ca} \Rightarrow 0.054 \text{ mole or } 0.108 \text{ g eq.}$

$\text{C} \Rightarrow 0.054 \text{ mole} \times 2 = 0.108 \text{ mole}$

77.(B) $P_{\text{O}_2} = P_{\text{Total}} \times \chi_{\text{O}_2}$ (mole fraction of O_2)

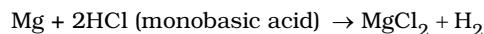
$$\chi_{\text{O}_2} = \frac{n_{\text{O}_2}}{n_{\text{O}_2} + n_{\text{N}_2} + n_{\text{CO}_2}}$$

$$\chi_{\text{O}_2} = \frac{0.76 \times 10^{20}}{(0.76 + 0.50 + 6.08) \times 10^{20}} = \frac{0.76}{7.34}$$

$$P_{\text{O}_2} = P_{\text{Total}} \times \chi_{\text{O}_2} = 734 \times \frac{0.76}{7.34} = 76.0 \text{ mm of Hg.}$$

78.(C) $2\text{KClO}_3 \longrightarrow 2\text{KCl} + 3\text{O}_2 \uparrow$

79.(B) $\frac{\text{Eq. wt. of acid}}{\text{Eq. wt. of salt of Mg}} = \frac{\text{Weight of acid}}{\text{Weight of salt}}$



Let Equivalent weight of acid = Equivalent weight of H + Equivalent weight of acid radical

\therefore Equivalent weight of salt of Mg = Equivalent of Mg + Equivalent weight of acid radical

$$\therefore \frac{\text{Equivalent weight}}{\text{Equivalent weight of Mg salt}} = \frac{\text{Weight of acid}}{\text{Weight of Mg acid}}$$

$$\Rightarrow \frac{\text{Equivalent weight of H + Equivalent weight of acid radical (E)}}{\text{Equivalent weight of Mg + Equivalent weight of acid radical (E)}} = \frac{1.0}{1.301}$$

$$\Rightarrow \frac{1 + E}{12 + E} = \frac{1.0}{1.301} \quad \therefore E = 35.54$$

\therefore Equivalent weight of acid = Equivalent weight of H + Equivalent weight of acid radical
= $1 + 35.54 = 36.54$

80.(A) 1 mol of $\text{O}_2 = 4 \text{ eq. of O}$

22400 mL of $\text{O}_2 = 4 \text{ eq. of O}$

$$46.6 \text{ mL of } \text{O}_2 = \frac{4}{22400} \times 46.6 = 0.00832 \text{ eq.}$$

Equivalent of metal = Equivalent of O

$$\frac{\text{Weight}}{\text{Equivalent weight}} = 0.00832$$

$$\frac{0.1}{E} = 0.00832 \quad \therefore E = \frac{0.1}{0.00832} = 12.0$$

81.(B) Density will be between 0.9 and 1.00 g/cm³

82.(A) K₂SO₄ and K₂SeO₄ are isomorphous. K₂SeO₄

$$\Rightarrow 39 \times 2 + x + 64 = 142 + x$$

$$(142 + x) \text{ g of K}_2\text{SeO}_4 \Rightarrow x \text{ g of Se}$$

$$100 \text{ g of K}_2\text{SeO}_4 \Rightarrow \frac{x}{142 + x} \times 100$$

$$\therefore \frac{x}{142 + x} \times 100 = 50 \quad \therefore x = 142$$

83.(D) K₂MSO₄ and K₂SO₄ are isomorphous.

Valency of S and M should be same = 6

$$\text{Atomic weight} = \text{Equivalent weight} \times \text{Valency} = 13.00 \times 6 = 78$$

84.(A) Volume of H₂ at STP = $24.62 \times \frac{273}{300} = 22.40 \text{ mL}$

22400 mL of H₂ at STP = 1 mole = 2 Equivalent of H₂

$$22.4 \text{ mL of H}_2 = \frac{2}{22400} \times 22.4 = 0.002 \text{ equivalent of H}_2 = 0.002 \text{ equivalent of metal}$$

$$\therefore \frac{\text{Weight}}{\text{Equivalent weight}} = 0.002 \quad \Rightarrow \quad \frac{0.05}{0.002} = \text{Equivalent weight} = 25$$

85.(A) $\text{Zn} + 2\text{HCl} \longrightarrow \text{ZnCl}_2 + \text{H}_2$;

Moles of H₂ evolved = 2

\therefore moles of HCl required = 4

$$\therefore \frac{V \times 1.2 \times 0.365}{36.5} = 4 \quad ; \quad V = 333.33 \text{ mL}$$