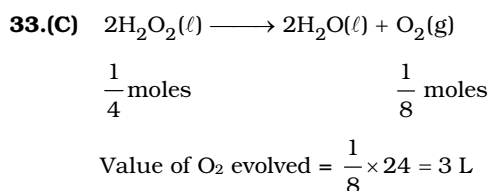
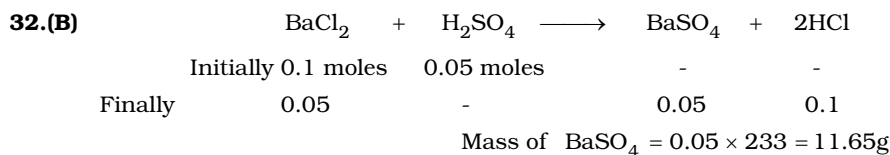


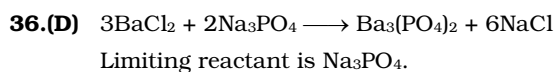
31.(C) $3 \times 10^{-29} = \frac{M_H}{Vol_H \times N_A}$



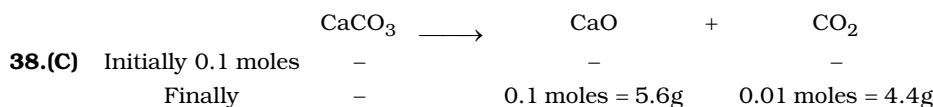
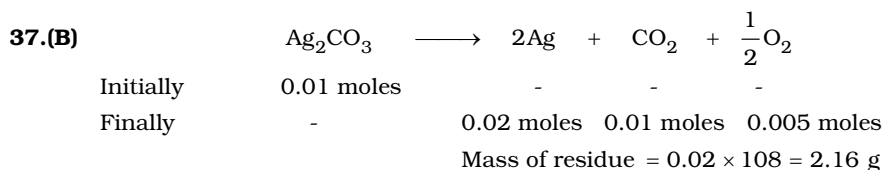
34.(D) $\left(\frac{2M}{2M+48} \right) \times 100 = 57$

$M = 27$

35.(B) gram equivalent of A = 8.



0.2 mol of Na_3PO_4 will give $Ba_3(PO_4)_2 = \frac{1}{2} \times 0.2 = 0.1$ mol of $Ba_3(PO_4)_2$



39.(A) Eq. of $H_2SO_4 = 0.5 \times 2 = 1.0$
 Eq. of $Ca(OH)_2 = 0.2 \times 2 = 0.4$
 Equal equivalents reacts, thus $CaSO_4$ formed = 0.4
 $\therefore$ Mole of $CaSO_4$ formed = $\frac{0.4}{2} = 0.2$

40.(D) $\frac{22.7}{1000} \frac{1}{10} = \frac{10.2 \times N}{1000} \therefore \text{Normality of } H_2SO_4 \text{ solution} = \frac{22.7}{10 \times 10.2} = \frac{22.7}{102}$

Let, V ml of water be added to 400 ml of $\frac{22.7}{102}$ N H_2SO_4 to make it $\frac{N}{10}$ then,

$$\frac{(V + 400)}{1000} \times \frac{1}{10} = \frac{400 \times 22.7}{1000 \times 102}$$

$$V + 400 = \frac{4000 \times 22.7}{102} = 890.2 \text{ ml}$$

$$V = 490.2 \text{ ml}$$

41.(A) Normality of oxalic acid solution = $\frac{6.3}{250} \times \frac{1000}{63} = 0.4 \text{ N}$

$$N_1V_1 = N_2V_2 \Rightarrow 10 \times 0.4 = V \times 0.1$$

$$\therefore V = 40 \text{ ml}$$

42.(B) Moles of H_2SO_4 used = $\frac{10}{1000} \times 0.5 = 0.005$

$$\Rightarrow \text{Moles of } \text{H}^+ \text{ ions used} = 2 \times 0.005 = 0.01$$

$$\Rightarrow \text{Moles of NaOH used} = 0.01 \text{ (As Na}_2\text{SO}_4 \text{ is neutral being a salt of strong acid and strong base)}$$

$$\text{Mass of NaOH used} = 0.01 \times 40 = 0.4 \text{ g}$$

43.(D) I. $\frac{11}{44} = 0.25 \text{ moles of CO}_2$

II. $\frac{3.01 \times 10^{22}}{N_A} = \frac{1}{20} \text{ moles of CO}_2 = 0.05 \text{ moles of CO}_2$

III. $\frac{1.12}{22.4} = 0.05 \text{ moles of CO}_2$

44.(D) Number of atoms = moles $\times N_A$

45.(B) Moles of $\text{H}_3\text{PO}_4 = \frac{4.9}{98} = \frac{1}{20} = 0.05$

$$\text{Moles of O} = 4 \times 0.05 = 0.2$$