Daily Tutorial Sheet-8	Level-2

96.(A) $CrO_2Cl_2 \rightarrow x + 2(-2) + 2(-1) = 0$

$\Rightarrow \quad x = +6$

$MnO_4^- \longrightarrow x - 8 = -1$

$x = +7$

97.(C) Mn is in maximum O.S. of $+7$ in $KMnO_4$.

$\therefore$ It cannot be oxidised further

98.(A) O.S. of both Fe & Co is + 3.

99.(D) $\underset{n_f = 6}{K_2Cr_2O_7} + \underset{n_f = 3}{FeC_2O_4} + H^+ \longrightarrow Cr^{+3} + Fe^{+3} + CO_2$

The number of moles of ferrous oxalate required per mole of dichromate will be 2.

100.(ABD) $I^- \longrightarrow I_2$ (oxidation) ; $ClO_3^- \longrightarrow Cl^-$ (reduction)

Balanced equation is, $6I^- + ClO_3^- + 6H_2SO_4 \longrightarrow Cl^- + 3I_2 + 6HSO_4^- + 3H_2O$

101.(B) Meq. of $NaBrO_3$ = 85.5 × 0.672 = 57.456

Let weight of $NaBrO_3$ = W

$\therefore \quad \dfrac{W}{M_{NaBrO_3}} \times 6 \times 1000$ = 57.456 (equivalent weight = M/6) of n-factor = 6

$\therefore \quad \dfrac{M}{151} \times 6 \times 1000 = 57.456 \qquad \therefore \quad W = 1.45$ gm

Hence, **(B)** is the correct answer.

102.(D) Eq. of $NaHSO_3$ = Eq. of $NaIO_3$

$\therefore \quad \dfrac{W_{NaHSO_3}}{M_{NaHSO_3}} \times 2 = \dfrac{0.58}{198} \times 6$ (n-factor of $NaHSO_3 = 2$; $NaIO_3 = 6$)

$\Rightarrow \quad W_{NaHSO_3} = 0.91g$

103.(D) Let us first solve this Problem by writing the complete balanced reaction.

$3BaCl_2 + 2\,Na_3PO_4 \longrightarrow Ba_3(PO_4)_2 \downarrow + 6NaCl$

We can see that the moles of $BaCl_2$ used are $\frac{3}{2}$ times the moles of Na_3PO_4. Therefore, to react with 0.2 mol of Na_3PO_4, the moles of $BaCl_2$ required would be $0.2 \times \frac{3}{2} = 0.3$. Since $BaCl_2$ is 0.5 mol, we can conclude that Na_3PO_4 is the limiting reagent. Therefore, moles of $Ba_3(PO_4)_2$ formed is $0.2 \times \frac{1}{2} = 0.1$ mol.

104.(B) Meq. of Acid = Meq. of NaOH

$\dfrac{0.52}{E} \times 1000 = 100 \times 0.1 \qquad \therefore \quad E = 52$

105.(A) 34 g H_2O_2 in 1.12 L solution

$\Rightarrow$ 1 mole H_2O_2 in 1.12 L solution $\Rightarrow \dfrac{1}{1.2}$ mole in 1 L solution

$n_{O_2} = \dfrac{1}{2.24}$ mole $= \dfrac{V_{O_2}}{22.4} \quad \Rightarrow \quad V_{O_2} = 10$