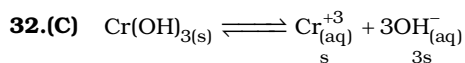
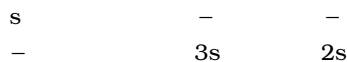


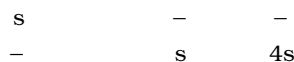
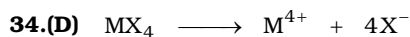
31.(B) $K_{sp} = 4s^3$



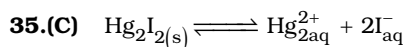
$$K_{sp} = 27s^4 \Rightarrow s = \left(\frac{K_{sp}}{27} \right)^{1/4}$$



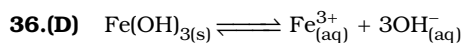
$$K_{sp} = (3s)^3 (2s)^2 = 108s^5$$



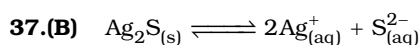
$$K_{sp} = (s)(4s)^4 = 256s^5 \Rightarrow s = \left(\frac{K_{sp}}{256} \right)^{1/5}$$



$$K_{sp} = [\text{Hg}_2^{2+}] [\text{I}^{-}]^2$$

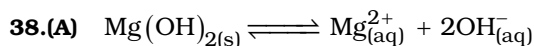


$$K_{sp} = [\text{Fe}^{3+}] [\text{OH}^{-}]^3 = 27 X^4$$



$$K_{sp} = [\text{Ag}^{+}]^2 [\text{S}^{2-}] \quad (\text{S}^{2-} \text{ will come predominantly from } \text{Na}_2\text{S} = 0.1 \text{ M})$$

$$10^{-17} = [\text{Ag}^{+}]^2 \times 10^{-1} \Rightarrow [\text{Ag}^{+}] = 10^{-8} = 2s \Rightarrow s = 5 \times 10^{-9}$$



$$K_{sp} = 1.96 \times 10^{-11} = 4S^3 \Rightarrow S = \left(\frac{1.96}{4} \times 10^{-11} \right)^{1/3}$$

$$\text{Now } \text{pH} = 14 + \log [\text{OH}^{-}] = 14 + \log (2S)$$

39.(C) For precipitation I.P. > K_{sp}

40.(B) $S^2 = K_{sp}$

$$\left(\frac{x}{0.1 \times 283} \right)^2 = 1 \times 10^{-8} \Rightarrow x = 2.83 \times 10^{-3} \text{ g}$$

41.(C) $\text{pH} = \text{pK}_a + \log \frac{[\text{salt}]}{[\text{acid}]}$ Since $[\text{salt}] = [\text{acid}]$

$$\text{Hence } \text{pH} = \text{pK}_a \quad \text{pOH} = 14 - \text{pK}_a = 9.5$$

42.(D) Solutions of salts of strong acid and weak basic are acidic.

43.(A) $\text{pH} = \text{pK}_a$; $K_a = \frac{K_w}{K_b}$

44.(C) $K_h = Ch^2 \Rightarrow h = \sqrt{\frac{K_h}{C}}$

