**QUESTIONS:-**

**Q1/ Find the oxidation number of each atom in the following compounds: (answer 5 only)**

KMnO4, K2Cr2O7, H2O2, HNO3, H2SO4, KIO3, CdCl2

**KMnO4 (K = +1, Mn = +7, O = -2)**

**K2Cr2O7 ( K = +1, Cr = +6, O = -2)**

**H2O2 (H = +1, O = -1)**

**HNO3 (H = +1, N = +5, O = -2)**

**H2SO4 (H = +1, S = +6, O = -2)**

**KIO3 (K = +1, I = +5, O = -2)**

**CdCl2 (Cd = +2, Cl = -1)**

**Q2/ Which of the following is a redox reaction and why?**

NaCl + KNO3 → NaNO3

CaC2O4 + 2HCl → CaCl2 + H2C2O4

Mg(OH)2 + 2NH4Cl → MgCl2 + 2NH4OH

**Zn + 2AgCN → 2Ag + Zn(CN)2  (in this reaction, Ag is undergoing Reduction and Zn is undergoing Oxidation, that is a RedOx reaction)**

**Q3/ Consider the following redox reaction:**

5Fe2+ (aq) + MnO4-(aq) + 8H+ (aq) → 5Fe3+ (aq) + Mn2+ (aq) + 4H2O(l)

Which is the oxidizing agent, reducing agent, ions are oxidized, ions are reduced?

**Sol.**

**MnO4-  is the oxidizing agent**

**Fe2+  is the reducing agent**

**Fe2+ is being oxidized**

**Mn+7  = (MnO4-) is being reduced**

**Q4/ Balance the oxidation half-reaction of the following redox reaction:**

MnO4- + NO2- → Mn2+ + NO3-

**The oxidation half reaction is: NO2- → NO3-**

**1) addition of H2O to the left side of the equation (to balance O atom)**

**NO2- + H2O→ NO3-**

**2) addition of H+ to the right side of the equation (to balance H atom)**

**NO2- + H2O→ NO3- + 2H+**

**3) addition of electrons to the right side (oxidation is the loss of electrons)**

**NO2- + H2O→ NO3- + 2H+ + 2e-**