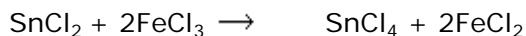**Time: 30 min**   **Ch#1 : Redox Reactions -01**   **Full Marks: 20**

Instructions:
1. **All questions are compulsory.**
2. **Please give the explanation for the answer where applicable.**

Q1 - Name the oxidiser and reducer in the following reaction:-

$SnCl_2 + 2FeCl_3 \longrightarrow SnCl_4 + 2FeCl_2$

(1 Mark)

Q2 - Define oxidation number and calculate the oxidation number of Cr in $K_2Cr_2O_7$.
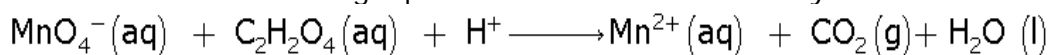
(2 Marks)

Q3 - What is the usual oxidation state of oxygen? In which type of compounds oxygen shows an oxidation no. of -1 and +2?

(1 Mark)

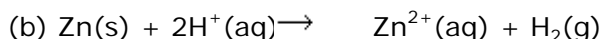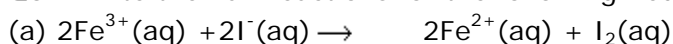Q4 - What is meant by half reaction?

(1 Mark)

Q5 - Balance the following equation in the acidic medium by oxidation number method.

$$MnO_4^-(aq) + C_2H_2O_4(aq) + H^+ \longrightarrow Mn^{2+}(aq) + CO_2(g) + H_2O(l)$$

(5 Marks)

Q6 - Write the half reactions for the following Redox reaction;-

(a) $2Fe^{3+}(aq) + 2I^-(aq) \longrightarrow 2Fe^{2+}(aq) + I_2(aq)$

(b) $Zn(s) + 2H^+(aq) \longrightarrow Zn^{2+}(aq) + H_2(g)$

(2 Marks)

Q7 - Identify the strongest and the weakest reducing agents from the following metals:-
Zn, Cu, Ag, Na

(2 Marks)

Q8 - The standard reduction potential for Cu^{2+}/Cu is +0.34 V. Calculate the standard reduction potential at pH =14 for the above couple Ksp of $Cu(OH)_2$ is 1.0×10^{-19}.

(3 Marks)

Q9 - Calculate pH of the following half cell Pt, H_2/H_2SO_4. The oxidation potential is +0.3 V.

(3 Marks)