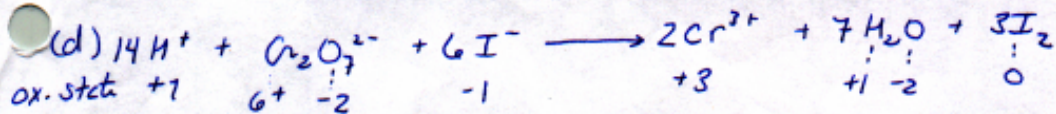
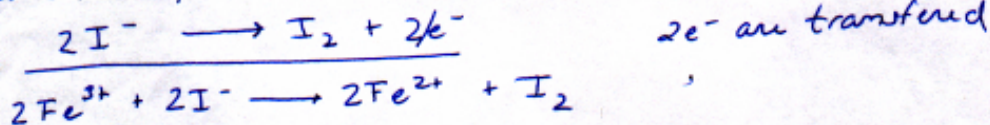
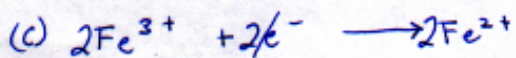
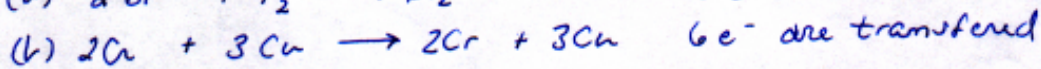
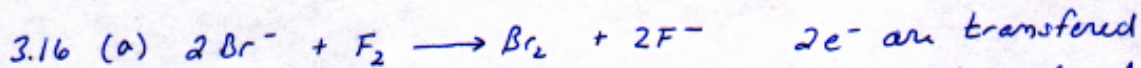
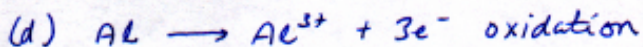
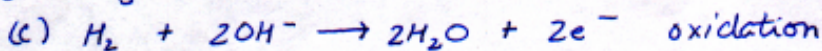
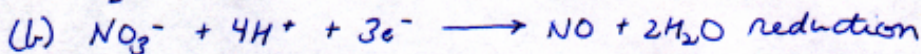
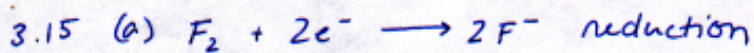


reducing agent is Zn & oxidizing agent is Cu^{2+}



reducing agent is I^- & oxidizing agent is Cr^{6+}



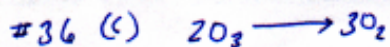
chapter 14.



$$\Delta H^\circ = \left(-84.7 \frac{\text{kJ}}{\text{mole}} \right) - \left(52.3 \frac{\text{kJ}}{\text{mole}} + 0 \right) = -137.0 \text{ kJ/mole}$$

$$\Delta S^\circ = \left(229.5 \frac{\text{J}}{\text{mol K}} \right) - \left(219.5 \frac{\text{J}}{\text{mol K}} + \frac{130.6 \text{ J}}{\text{mol K}} \right) = -120.6 \text{ J/mol K}$$

$$\Delta G^\circ = \left(-32.9 \frac{\text{kJ}}{\text{mole}} \right) - \left(68.1 \frac{\text{kJ}}{\text{mol}} + 0 \right) = -101.0 \text{ kJ/mole}$$



$$\Delta H^\circ = \left(0 \frac{\text{kJ}}{\text{mol}} \times 3\text{mol} \right) - \left(142.7 \frac{\text{kJ}}{\text{mole}} \times 2\text{mol} \right) = -285.4 \text{ kJ}$$

$$\Delta S^\circ = \left(\frac{205 \text{ J}}{\text{mole K}} \times 3\text{mol} \right) - \left(\frac{238.8 \text{ J}}{\text{mole K}} \times 2\text{mol} \right) = 137.4 \text{ J K}^{-1}$$

both ΔH° & ΔS° are favorable so, by $\Delta G^\circ = \Delta H^\circ - T\Delta S^\circ$
 $\Delta G^\circ < 0$ at all temperatures