CH1020 Exercises (Worksheet 12)

1. Balance each redox reaction occurring in acidic aqueous solution:

   a. $PbO_2(s) + I^-(aq) \rightarrow Pb^{2+}(aq) + I_2(s)$

   b. $SO_3^{2-}(aq) + MnO_4^-(aq) \rightarrow SO_4^{2-}(aq) + Mn^{2+}(aq)$

   c. $S_2O_3^{2-}(aq) + Cl_2(g) \rightarrow SO_4^{2-}(aq) + Cl^-(aq)$

   d. $I^-(aq) + NO_2^-(aq) \rightarrow I_2(s) + NO(g)$

   e. $ClO_4^-(aq) + Cl^-(aq) \rightarrow ClO_3^-(aq) + Cl_2(g)$

   f. $NO_3^-(aq) + Sn^{2+}(aq) \rightarrow Sn^{4+}(aq) + NO(g)$

2. Balance each redox reaction occurring in basic aqueous solution:

   a. $H_2O_2(aq) + ClO_2(aq) \rightarrow ClO_2^-(aq) + O_2(g)$

   b. $Al(s) + MnO_4^-(aq) \rightarrow MnO_2(s) + Al(OH)_4^-(aq)$

   c. $Cl_2(g) \rightarrow Cl^-(aq) + ClO^-(aq)$

   d. $MnO_4^-(aq) + Br^-(aq) \rightarrow MnO_2(g) + BrO_3^-(aq)$

   e. $Ag(s) + CN^-(aq) + O_2(g) \rightarrow Ag(CN)_2^-(aq)$

   f. $NO_2^-(aq) + Al(s) \rightarrow NH_3(g) + AlO_2^-(aq)$