Red-Ox Reaction Assignment
CHM 1046 Professor Fowler

1. Balance the following reaction in ***acidic*** solution using half-cells.
   Use H^{+1} and not OH^{-1}. $Zn_{(s)} + H_2SO_{4(aq)} \rightarrow Zn^{+2}{}_{(aq)} + H_2S_{(g)}$

   Balanced Ox Half-Cell:

   Balanced Red Half-Cell:

   Balanced Overall Cell:

2. Balance the following reaction in ***acidic*** solution using half-cells.
   Then, determine the cell potential using Appendix L or Table 17.1.
   $I^{-1}{}_{(aq)} + Cr_2O_7{}^{-2}{}_{(aq)} \rightarrow Cr^{+3}{}_{(aq)} + I_{2(s)}$

   Balanced Ox Half-Cell:

   Balanced Red Half-Cell:

   Balanced Overall Cell:

   Cell Potential Equation:

3. Balance the following reaction in ***acidic*** solution using half-cells.
   $Fe^{+3}_{(aq)} + H_2S_{(g)} \rightarrow Fe^{+2}_{(aq)} + S_{(s)}$

   Balanced Ox Half-Cell:

   Balanced Red Half-Cell:

   Balanced Overall Cell:

4. Balance the following reaction in ***basic*** solution using half-cells.
   Use OH^{-1} and not H^{+1} in half-cells.
   $Cr^{+3}_{(aq)} + MnO_{2(s)} \rightarrow Mn^{2+}_{(aq)} + CrO_4{}^{-2}_{(aq)}$

   Balanced Ox Half-Cell:

   Balanced Red Half-Cell:

   Balanced Overall Cell:

5. Balance the following reaction in ***basic*** solution.
   Use OH^{-1} and not H^{+1} in half-cells.
   Then, determine the cell potential using Appendix L or Table 17.1.
   $Fe^{+2}_{(aq)} + ClO^{-1}_{(aq)} \rightarrow Fe^{+3}_{(aq)} + Cl^{-1}_{(aq)}$

   Balanced Ox Half-Cell:

   Balanced Red Half-Cell:

   Balanced Overall Cell:

   Cell Potential Equation:

6. Balance the following reaction in ***basic*** solution.
   Use OH^{-1} and not H^{+1} in half-cells.
   (Note: BrO^{-1} half-cell is similar to reverse of ClO^{-1} half-cell above.)
   $O_{3(g)} + Br^{-1}_{(aq)} \rightarrow O_{2(g)} + BrO^{-1}_{(aq)}$

   Balanced Ox Half-Cell:

   Balanced Red Half-Cell:

   Balanced Overall Cell: