Name: _____   Date: _____

[5 pt]   1. For the following galvanic cell: $2Fe^{+2}(aq) + Cl_2(g) \longrightarrow 2Fe^{+3}(aq) + 2Cl^-(aq)$, calculate the cell potential at 25 °C, given: $[Fe^{+2}] = 1.0$ M, $[Cl_2] = 0.5$ atm, $[Fe^{+3}] = 1.0 \times 10^{-3}$ M, $[Cl^-] = 3.0 \times 10^{-3}$ M.

1. _____

[5 pt]   2. If a galvanic cell has an iron electrode in contact with 0.10 M $FeSO_4$ and a copper electrode in contact with a $CuSO_4$ solution. If the measured cell potential at 25 °C is 0.67 V, what is the concentration of Cu^{+2} in the $CuSO_4$ solution?
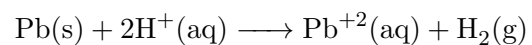
2. _____

[5 pt]   3. What is the pH of the solution in the cathode compartment: $Zn(s) \mid Zn^{+2}$ (1M) $\parallel H^+$ (? M) $\mid H_2$ (1 atm) $\mid Pt(s)$ if the measured cell potential at 25 °C is 0.58 V?

3. _____
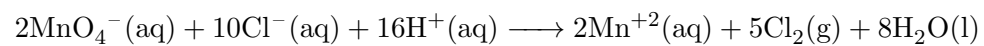
[5 pt] 4. From standard reduction potentials, calculate the equilibrium constant at 25 ℃ for the following reaction:

$Pb(s) + 2H^+(aq) \longrightarrow Pb^{+2}(aq) + H_2(g)$ 4. _____

[5 pt] 5. From standard reduction potentials, calculate the equilibrium constant at 25 ℃ for the following reaction:

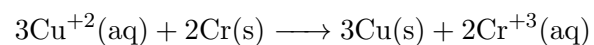$2MnO_4^-(aq) + 10Cl^-(aq) + 16H^+(aq) \longrightarrow 2Mn^{+2}(aq) + 5Cl_2(g) + 8H_2O(l)$ 5. _____

[5 pt] 6. From standard reduction potentials, calculate the equilibrium constant at 25 ℃ for the following reaction:

$3Cu^{+2}(aq) + 2Cr(s) \longrightarrow 3Cu(s) + 2Cr^{+3}(aq)$

6. _____