ELECTROCHEMISTRY

HW-chapter 19

№	Questions
1	For the following reaction, what is the oxidizing agent? $2Cl_2(g) + C(s) + 2H_2O(l) \rightarrow CO_2(g) + 4HCl(aq)$ a) Cl_2 b) C c) H_2O d) CO_2
2	Some metallic elements are arranged at the right in an activity series. Select a substance that will reduce Ag^+ to Ag, but will not reduce Zn^{2+} to Zn. a) Na b) Mg c) Fe d) Al
3	Consider the following reduction potentials: $Mg^{2+} + 2e- \rightarrow Mg$ $E° = -2.37$ V $V^{2+} + 2e- \rightarrow V$ $E° = -1.18$ V $Cu^{2+} + e- \rightarrow Cu^+$ $E° = +0.15$ V Which one of the following reactions will proceed spontaneously? a) $Mg^{2+} + V \rightarrow V^{2+} + Mg$ b) $Mg^{2+} + 2Cu^+ \rightarrow 2Cu^{2+} + Mg$ c) $V^{2+} + 2Cu^+ \rightarrow V + 2Cu^{2+}$ d) $V + 2Cu^{2+} \rightarrow V^{2+} + 2Cu+$
4	Given the following reaction in a voltaic cell: Which of the following statements is correct? $Cu(s) + 2Ag^+(aq) \rightarrow 2Ag(s) + Cu^{2+(}aq)$ a) Cu(s) is the anode. b) Oxidation occurs at the silver electrode. c) There is no cathode for this cell. d) Ag(s) is the anode.
5	A cell is constructed based on the following reaction: $AgCl(s) + Fe^{2+}(aq) <==> Fe^{3+}(aq) + Ag(s) + Cl^-(aq)$ $E^o = -0.55$ V Calculate the $[Cl^-]$ concentration in the cathode compartment if the cell potential is measured to be-0.52 V when $[Fe^{2+}] = 0.70$ M and $[Fe^{3+}] = 0.35$ M at this unknown $[Cl^-]$. a) 1.5 M b) 0.38 M c) 2.3 M d) 0.60 M