

Spring 2006 CH302, Practice Exam 6

(the correct answer is included below. A solution key will be posted on Monday.)

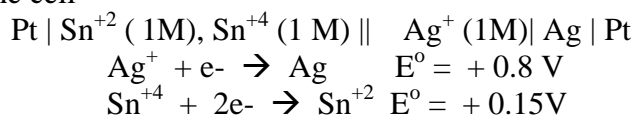
1. Using the half reactions in the table of standard reduction potentials in Worksheet 11b, what is the standard emf (cell potential in V) for $\text{Pt} | \text{Li} | \text{Li}^+(1\text{M}) || \text{F}_2 (1 \text{ atm}) | \text{F}^-(1\text{M}) | \text{Pt}$

1. +5.91 V **correct**
2. -5.91 V
3. -0.17 V
4. 0.17 V

2. Consider the half-reactions in the table of standard reduction potentials in Worksheet 11b. Of the species listed, the strongest reducing agent is ? and the weakest oxidizing agent is ?

1. Li, Li^+ **correct**
2. Li, F_2
3. Li^+ , F_2
4. F, F_2

3. Consider the cell



at standard conditions. Calculate the value of ΔG for the reaction that occurs when current is drawn from this cell.

1. 125 kJ/mol **correct**
2. -125 kJ/mol
3. 62 kJ/mol
4. -62 kJ/mol

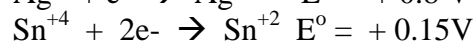
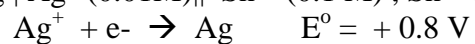
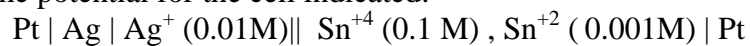
4. An electrochemical process with a positive delta G value has two terminals labeled positive and negative. In this cell, electrons would flow from the ? terminal to the ? terminal through the external circuit and ? reaction occurs at the positive terminal.

1. positive; negative; a reduction
2. positive; negative; an oxidation **correct**
3. negative; positive; a reduction
4. negative; positive; an oxidation
5. positive; negative; an acid/base

5. Which of the following batteries is rechargeable?

1. dry cell
2. copper/zinc
3. nickel-cadmium battery **correct**
4. copper/carrot top

6. Calculate the potential for the cell indicated:



1. -0.65V **correct**

2. +0.65 V

3. -0.47 V

4. -0.53 V

5. -0.29 V

7. What weight of Au is deposited on a piece of cheap zinc chain during the electrolysis of a Au^{+3} solution when a current of 1.3 mA flows for 1.2 hours? (Au = 197 g/mol)

1. 3.82 mg **correct**

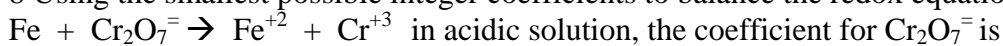
2. 1.27 mg

3. 11.46 mg

4. 1.44 g

5. 43.2 g

8 Using the smallest possible integer coefficients to balance the redox equation



1. 1 **correct**

2. 2

3. 3

4. 4

5. The correct coefficient is not given.