Day 62 Warm Up

Cl_2 (g) + $2I^-$ (aq) → $2Cl^-$ (aq) + I_2 (aq)

1. Which of the following best accounts for the fact that a galvanic cell based on the reaction represented above will generate electricity?
   A) Cl_2 can easily lose two electrons
   B) Cl_2 is a stronger oxidizing agent than I_2.
   C) I atoms have more electrons that do atoms of Cl.
   D) I^- is a more stable species than I_2
   E) I_2 is more soluble than Cl_2

2. An electric current of 1.00 ampere is passed through an aqueous solution of $Ni(NO_3)_2$. How long will it take to plate out exactly 1.00 mol of nickel metal, assuming 100 percent current efficiency?

   A) 386000 sec
   B) 193000 sec
   C) 96500 sec
   D) 48200 sec
   E) 24100 sec

3. When solid ammonium chloride, NH_4Cl is added to water at 25°C, it dissolves and the temperature of the solution decreases. Which of the following is true for the values of **ΔH** and **ΔS** for the dissolving process?

	ΔH	**ΔS**
A)	Positive	Positive
B)	Positive	Negative
C)	Positive	Equal to zero
D)	Negative	Positive
E)	Negative	Negative

4. A steady current of 10 amperes is passed through an aluminum production cell for 15 minutes. Which of the following is the correct expression for calculating the number of grams of aluminum produced?

A) $\frac{(10)\,(15)\,(96500)}{(27)\,(60)}$ g

B) $\frac{(10)\,(15)\,(27)}{(60)\,(96500)}$ g

C) $\frac{(10)\,(15)\,(60)\,(27)}{(96500)\,(3)}$ g

D) $\frac{(96500)\,(27)}{(10)\,(15)\,(60)\,(3)}$ g

E) $\frac{(3)\,(27)}{(96500)\,(10)\,(15)\,(60)}$ g

5. Gaseous cyclobutene undergoes a first order reaction to form gaseous butadiene. At a particular temperature, the partial pressure of cyclobutene in the reaction vessel drops to one eighth its original value in 124 seconds. What is the half-life for this reaction at this temperature?

A) 15.5 sec
B) 31.0 sec
C) 41.3 sec
D) 62.0 sec
E) 124 sec