Electrochemistry Part IV

1. When the following equation is correctly balanced in acidic solution, how many electrons are transferred?  
     
   http://latex.codecogs.com/gif.latex?BiO%5E+%20%28aq%29%20+%20Cu%28s%29%20%5Crightarrow%20Bi%20%28s%29%20+%20Cu%5E2%5E+%20%28aq%29
2. What is the oxidation state of C in the CF4 molecule?
3. Which species is being reduced in the following reaction:  
     
   http://latex.codecogs.com/gif.latex?Cd%28s%29%20+%20Pb%5E2%5E+%28aq%29%5Crightarrow%20Cd%5E2%5E+%28aq%29%20+%20Pb%28s%29
4. Calculate E°cell for the following redox reaction. Zn2+ (aq) + Sn2+ (aq) → Zn (s) + Sn4+ (aq)
5. A student provides a current of 2.50 amps through a solution of CaCl2 (aq) for 4.50 hours. The voltage is such that calcium metal is deposited at the cathode. What is the mass of calcium deposited?
6. What is the cell potential for the reaction Mg(s)+Fe 2+ (aq)→Mg 2+ (aq)+Fe(s) at 67 ∘ C when [Fe 2+ ]= 3.80M and [Mg 2+ ]= 0.310M.Express your answer to three significant figures and include the appropriate units.