CHEM 201 Self Quiz - 5 (Complexometry / Electrochemistry)

1. (a) Find the conditional formation constant for $Mg(EDTA)^{2-}$ at pH 9.00.
   (b) Find the concentration of free Mg^{2+} in 0.050M $Na_2[Mg(EDTA)]$ at pH 9.00

2. Calculate pCo^{2+} at each of the following points in the titration of 25 mL of 0.02026 M Co^{2+} by 0.03855 M EDTA at pH 6.00:

   (a) 12 mL
   (b) Ve
   (c) 14 mL

3. How many milliliters of 0.050 M EDTA are required to react with 50 mL of 0.010 M Ca^{2+}? With 50 mL of 0.010 M Al^{3+}?

4. Th free energy change for the reaction $CO + ½\ O_2$ ----> CO_2 is $\Delta G^0 = -257$ kJ per mole of CO at 298K.

   (a) Find E^0 for the reaction
   (b) Find the equilibrium constant for the reaction

5. A 50 ml sample containing La^{3+} was treated with sodium oxalate to precipitate $La_2(C_2O_4)_3$, which was washed , dissolved in acid, and titrated with 18.04 mL of 0.006363M $KMnO_4$. Calculate the molarity of La^{3+} in the unknown.