CHEM 1210
Optional Quiz version 1
Redox, equivalents and electrochemistry Name: _____

1) Given the following balanced redox reaction:

$$14MnO_4^{1-} + 32H^+ + 5Cl_2 \rightarrow 14Mn^{2+} + 10ClO_4^{1-} + 16H_2O$$

a) How many electrons are transferred in the reaction? _____

b) What is the reduction agent? _____

c) 100.0 mg of Cl_2 reacts with 25.8 mL of $KMnO_4$ solution, what is the normality of the $KMnO_4$ solution.

2) An electrochemical cell is made by immersing a piece of Cd metal into a solution of 0.100 *M* $CdSO_4$ and a Zn electrode into a solution of 1.00 *M* $ZnSO_4$ and placing a salt bridge to allow ion flow between the two solutions.

The reduction potential for Cd is -0.403 V and for Zn is -0.762 V

a) Write the standard cell notation for the functional galvanic cell.

b) Determine the cell voltage for the given conditions.

c) Determine the equilibrium constant for the reaction.

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3) a) How much time is required to plate 1.00 g of silver metal from a 1.00 M solution of $AgNO_3$ using a current of 2.50 A?

b) How does the amount of time required change is the $AgNO_3$ solution is 2.00 M?

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