***WS 7.2** Percent Composition* *Name:_____p._____*

1. $Fe_{(s)}$ + $CuSO_{4(aq)}$ --------> $FeSO_{4(aq)}$ + $Cu_{(s)}$

a. The above reaction is used to chemically extract copper from copper (II) sulfate. 2.234 grams of $CuSO_4$ are dissolved into water. After the reaction with iron is complete, 0.872 grams of copper have formed. Determine the percent copper (by mass)in the copper (II) sulfate, according to this lab data.

b. Determine the percent (by mass) of each element in $CuSO_4$, according to the periodic table masses.

c. Determine the percent error for the experiment in (a).

2. Explain what is meant by the "Law of Constant Composition," aka the "Law the Definite Proportions."

3a. Sodium chlorate, $NaClO_3$, is heated until it decomposes into NaCl and oxygen gas. When 8.45 grams of sodium chlorate are heated, the reaction produces 3.71grams of oxygen gas. Determine the percent oxygen (by mass) in sodium chlorate, according to this data.

b. Use the periodic table to determine the percent oxygen in $NaClO_3$, by mass.

c. Determine the percent error for the experiment in (a).

4. The first compounds containing noble gases were synthesized in the early 1960's. These included $XeFPtF_5$, $XeFPt_2F_{11}$, XeF_4, and XeF_2.

a. What is the chemical name for XeF_4?_____

b. What is the percent fluorine (by mass) in XeF_4? (according to the periodic table masses.)

5. The process of gold-plating involves applying an electrical voltage to a solution of potassium gold I cyanide. Potassium gold I cyanide has the formula $KAu(CN)_2$.

a. Calculate the molar mass of $KAu(CN)_2$.

b. Calculate the percent nitrogen (by mass) in this compound.