Unit 3 – Chapter 3: Stoichiometry **Name _____**

Pre-Lab: Chemical formula of copper and iodide **Period _____**

A student performed the following experiment in the laboratory: She suspended a clean piece of silver metal in an evacuated test tube. The empty test tube had a mass of 42.8973 grams. The silver had a mass of 1.7838 grams. Next, she introduced a stream of chlorine gas into the test tube and allowed it to react with the silver. After a few minutes, a white compound was found to have formed on the silver strip, coating it uniformly. She then opened the apparatus, massed the coated strip, and found it have a mass of 1.9342 grams. Finally, she washed the coated strip with distilled water, removing all of the white compound from the silver strip and then dried the compound and the strip and re-massed. She discovered that the strip had a mass of 1.3258 grams.

A) Show how she would determine

1) the number of moles of chlorine atoms that reacted.

2) the number of moles of silver atoms that reacted.

B) Show how she could determine the empirical formula for the silver chloride.

C) Show how her results would have been affected if

1) some of the white compound had been washed down the sink prior to being dried and re-massed.

2) the silver strip was not completely dry prior to being re-massed.

NOTES QUIZ

Combustion of 8.652 grams of a compound containing C, H, O and N yields 11.088 g of CO_2, 3.780 g of H_2O, and 3.864 g of NO_2.

A) How many moles of C, H and N are contained in the sample?

B) How many grams of oxygen are contained in the sample?

C) What is the simplest (empirical) formula of the compound?

D) If the molar mass of the compound lies between 200 and 250, what is the molecular formula?

E) Write and balance the chemical equation for the combustion of the compound.