U5LM3B-WS Limiting Reagent & Percent Yield Name: _____

I. Methanol, CH_3OH, is used as a fuel. Recall that combustion reactions produce carbon dioxide and water.

1. Write a balanced chemical equation for the combustion reaction.

2. How many moles of carbon dioxide are produced in each of the following cases? Include calculations quantifying the number of moles left over for any excess reactants.

   a. 2 mols of CH_3OH react with 3 mols of O_2.

   b. 2 mols of CH_3OH react with 2 mols of O_2

   c. 3 mols of CH_3OH react with 3 mols of O_2

   d. 88 g of CH_3OH react with 88 g of O_2

   e. 15 g of CH_3OH react with 12 g of O_2

   f. 25 g of CH_3OH react with 35 g of O_2

II. Propane is by-product of natural gas processing and petroleum refining. It is commonly used as a fuel for engines, oxy-gas torches, barbecues, portable stoves, and residential central heating.

a. What mass of CO_2 is produced when 6.5 g of propane is reacted with 14.2 g of O_2?

b. The actual yield of the reaction described above is 8.0 g of carbon dioxide. What is the percent yield?

III. Nitrogen dioxide reacts with hydrogen to produce nitrogen and water. When 125g of nitrogen dioxide are allowed to react with excess hydrogen, the percent yield is 35%. How many grams of each product are actually formed during this process?