Question 1

Given the reaction:

$3O_2 + 4NH_3 \rightarrow 2N_2 + 6H_2O$
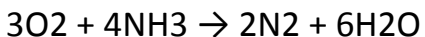
If 20.58 g of O2 combines with 26 g NH3 …

a) What is the limiting reagent?
b) b) What mass of water can theoretically form?
c) c) If 15 g of water is the actual yield, what is the percentage yield?

Question 2

In a reaction, copper is heated with sulphur, forming cuprous sulphide. What is the % yield if 97 g of cuprous sulphide forms from the combination of 100 g of Cu with 50 g of sulphur?

Question 3

1) Write the balanced equation when silver reacts with chlorine.

a. Calculate the mass of silver needed to produce 84.0 g of silver chloride.

b. Calculate the mass of chlorine needed to react to produce 84.0g of silver chloride.

c. Add the answers from (a) and (b) together and compare them to the mass of silver chloride produced. What does this prove?

Question 4 and 5

How many moles of carbon monoxide are needed to react with 4.80g of oxygen to produce carbon dioxide?

How many molecules of chlorine are needed to react with 5.6 g of iron to form iron (III) chloride?

Question 6

What mass of ammonia, NH_3, is necessary to react with 2.1×10^{24} molecules of oxygen in the following chemical reaction? (Balance the equation first)

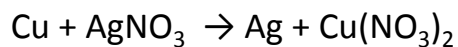_____ NH_3 + _____ O_2 → _____ H_2O + _____ NO_2
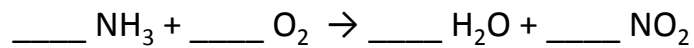
Question 7

Calculate the molecules of carbon dioxide produced when 250. g of pentane, C_5H_{12}, burns.

Question 8

How many moles of silver can be produced from 3.00 moles of copper according to the following reaction? Be sure to balance the equation.

$$Cu + AgNO_3 \rightarrow Ag + Cu(NO_3)_2$$

Calculate the mass of hydrogen need when 3.50 moles of oxygen react to produce water?

How many moles of butane, C_4H_{10} are needed to completely react 3.01×10^3 molecules of oxygen?