General Chemistry Chapter 3 Pre-Test

1.) (10 pts) What is the molar mass of tryptophan, $C_{11}H_{12}N_2O_2$?

2.) (10 pts) How many moles are in 320 g of $(NH_4)_2SO_4$?

3.) (10 pts) How many water molecules are in 4.76 moles of H_2O?

4.) (10 pts) How many molecules of CO_2 are there in 68 g of carbon dioxide?

5.) (18 pts) Find the percent composition of each atom in $NaHCO_3$.

6.) (20 pts) The compound glutamine has the following percent composition. What is the empirical formula?

C = 44.9 % H= 6.4 % O = 30.8 % N= 17.9 %

7.) (10 pts) The empirical formula for a substance is CH_2O. What is its molecular formula if its molar mass is 210 g/mol?

8.) (12 pts total, 4 pts each) Complete each of the following stoichiometry reactions.

a) Al_2O_3 $\rightarrow$ Al + O_2

b) C_2H_6 + O_2 $\rightarrow$ CO_2 + H_2O

c) HNO_3 + $NaHCO_3$ $\rightarrow$ $NaNO_3$ + H_2O + CO_2