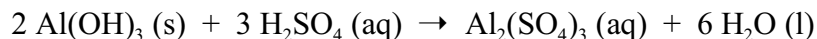


Worksheet 7

- On the back of the worksheet, write a molecular orbital diagram for N_2^+ and determine its bond order. Use an energy level diagram from the book.
- Name the following compounds: a) $\text{Cu}(\text{NO}_3)_2$, b) H_3ClO_3 , c) N_2O , d) $\text{C}_4\text{H}_7\text{OH}$, e) KMnO_4 , f) HF (g)
- Balance the following equations:
 - _____ CO (g) + _____ O_2 (g) \rightarrow _____ CO_2 (g)
 - _____ C_2H_4 (g) + _____ O_2 (g) \rightarrow _____ CO_2 (g) + _____ H_2O (g)
 - _____ Mg_3N_2 (s) + _____ H_2SO_4 (aq) \rightarrow _____ MgSO_4 (aq) + _____ $(\text{NH}_4)_2\text{SO}_4$ (g)
 - _____ N_2O_5 (g) + _____ H_2O (l) \rightarrow _____ HNO_3 (aq)
- Determine the formula weight of **a)** N_2O_5 , **b)** $(\text{NH}_2)_2\text{CO}$, and **c)** $\text{Mg}(\text{OH})_2$.
- Calculate the percentage mass of oxygen in the following compounds: a) SO_3 , and b) $\text{CH}_3\text{COOCH}_3$.

- Aluminum hydroxide reacts with sulfuric acid as follows:



Which reactant is the limiting reagent when 0.500 mol $\text{Al}(\text{OH})_3$ and 0.500 mol of H_2SO_4 are allowed to react? How many grams of $\text{Al}_2(\text{SO}_4)_3$ can form under these conditions? How many moles of excess of the excess reactant remain after the completion of the reaction?