

2. Calculate the percent composition of **each element** in the above molecules:

a.  $\text{Cu}(\text{NO}_3)_2$

b.  $(\text{NH}_4)_3\text{PO}_4$

3. What is the percent composition of **water** in  $\text{KAl}(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}$  ?

### Part III: EMPIRICAL FORMULA AND MOLECULAR FORMULA

1. Find the Empirical Formula for the following compounds:

a. 70.0% Fe and 30.0 % O

b. 91.2% P and 8.82% H

c. 26.6% K, 35.4% Cr and 38.0% O

2. A gas has the percent composition: 30.4% N and 69.6% O. If the density of the gas is 4.11 g/L at STP, what is the molecular formula of the compound?

3. A gas has an empirical formula  $\text{CH}_2$ . If 500.0 mL of the gas at STP has a mass of 0.983 grams, what is the molecular formula of the compound?

### Part V: MOLARITY

1. What is the molarity of the solution when 3.25 grams of NaCl is dissolved in 500.0 mL?

2. How many moles of  $\text{K}_2\text{SO}_4$  are needed to make a 0.300 M solution with a volume of 100.0 mL?

3. How many grams are needed to prepare a 11.0 mL solution of 0.0200 M  $\text{MgCr}_2\text{O}_7$  ?

4. What is the molar concentration when 24.2 g of  $\text{Fe}_2(\text{SO}_4)_3$  is dissolved in 250. mL of water?

5. What is the volume required to make a 6.0 M NaOH solution from 120.5 grams NaOH?