Chapter 10 Mock Test

- Part 1: Molar Mass Determine the molar mass for the following compounds. Round to the nearest hundredths and remember your units!
 - a) $ZnCl_2$

b) Fe(NO₃)₃

Part 2: Conversions between Mass, Volume, & Representative Particles - Complete the following questions/conversions. SHOW ALL WORK. Do you forget correct units. Round to the nearest hundredths.

- 1. One mole of any element/compound/ion always equals ______ representative units.
- 2. One mole of any gas at STP is equal to ______ liters.
- **3.** How many molecules are in 8.17 L of HCl at STP?

4. How many formula units are in 94 g of NaCl?

- 5. What is the volume of 325 grams of Krypton at STP?
- 6. How many atoms are in 5.48 L of CO₂ at STP?

7. How many sulfur atoms are in 645 grams of S_4N_2 ?

Part 3: Percent Composition – Determine the percent composition of each element in the following compounds. Round your answer to the nearest tenth of a decimal place. SHOW ALL WORK.

1. Determine the percent composition of lead (Pb) in PbSO₄.

2. Find the percent composition of each element in the compound containing 13.13 grams potassium, 8.73 grams chromium, and 10.72 grams oxygen.

3. Calculate the mass of hydrogen in 112.4 g of propane (C_3H_8). (HINT: Using percent composition as a conversion factor).

Part 4: Empirical vs Molecular Formula

1. Butane is a hydrocarbon that is a good source of energy. The formula can be written as C_4H_{10} or C_2H_5 . Which formula is the empirical formula? Which is the molecular formula?

- 2. A compound contains 75.46% carbon, 4.43% hydrogen, and 20.11% oxygen by mass. It has a molar weight of 318.31 g/mol.
 - The empirical formula of the compound is ______.

• The molecular formula of this compound is ______.