Chemistry- Unit 5 A3: Calculating Empirical and Molecular Formulas Name:

1. Determine the Molar mass of the following compounds

a. P_2O_3 b. $BaSO_4$ c. $Mg(C_2H_3O_2)_2$ d. lithium carbonate

2. Calculate the Percent Composition of oxygen in the following compounds

a. SO_3 b. CH_3COOH c. $Ca(NO_3)_2$ d. Ammonium Sulfate

3. Calculate the empirical formula for the following compounds from percent composition

a. 0.0130 mol C, 0.0390 mol H, 0.0065 mol O

b. 11.66 g iron, 5.01 g oxygen

c. 40.0 percent C, 6.7 percent H, and 53.3 percent O by mass

4. Calculate the empirical formula for the following

a. 15.8% carbon and 84.2% sulfur

b. 43.6% phosphorus and 56.4% oxygen

c. 28.7% K, 1.5% H, 22.8% P and 47.0% O

5. Calculate the molecular formula for the following

a. empirical formula CH, molar mass = 78 g/mol

b. empirical formula NO_2, molar mass = 92.02 g/mol

c. caffeine, 49.5% C, 5.15% H, 28.9% N, 16.5% O by mass, molar mass = 195 g.

Answers.

1. a. 109.05 g/mol	b. 233.29 g/mol	c. 142.39 g/mol	d. 73.89 g/mol
2. a. 60.00%	b. 53.29%	c. 58.50%	d. 48.43%
3. a. C_2H_6O	b. Fe_2O_3	c. CH_2O	
4. a. CS_2	b. P_2O_5	c. KH_2PO_4	
5. a. C_6H_6	b. N_2O_4	c. $C_8H_{10}N_4O_2$	