Name_____

Percent Composition & Empirical/Molecular Formula Practice

Find the percent compositions of all of the elements in the following compounds:

1) $CuBr_2$

Cu: _____

Br: _____

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2) $NaOH$

Na: _____

O: _____

H: _____

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3) $(NH_4)_2S$

N: _____

H: _____

S: _____

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4) N_2S_2

N: _____

S: _____

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5. What's the empirical formula of a molecule containing 65.5% carbon, 5.5% hydrogen, and 29.0% oxygen?

6. If the molar mass of the compound in problem 1 is 110 grams/mole, what's the molecular formula?

7. What's the empirical formula of a molecule containing 18.7% lithium, 16.3% carbon, and 65.0% oxygen?

8. If the molar mass of the compound in problem 3 is 73.8 grams/mole, what's the molecular formula?

Write the molecular formulas of the following compounds:

9. A compound with an empirical formula of C_2OH_4 and a molar mass of 88 grams per mole.

10. A compound with an empirical formula of C_4H_4O and a molar mass of 136 grams per mole.

Answer the following questions:

11. The percentage composition of acetic acid is found to be 39.9% C, 6.7% H, and 53.4% O. Determine the empirical formula of acetic acid.

12. The molar mass for question #9 was determined by experiment to be 60.0 g/mol. What is the molecular formula?

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13. Calculate the mass percent of carbon, nitrogen and oxygen in acetamide, C_2H_5NO.

14. The compound benzamide has the following percent composition. What is the empirical formula?

C = 69.40 % H= 5.825 % O = 13.21 % N= 11.57 %

15. A component of protein called serine has an approximate molar mass of 100 g/mole. If the percent composition is as follows, what is the empirical and molecular formula of serine?

C = 34.95 % H= 6.844 % O = 46.56 % N= 13.59 %

16. A 15.67 g sample of a hydrate of magnesium carbonate was heated, without decomposing the carbonate, to drive off the water. The mass was reduced to 7.58 g. What is the formula of the hydrate?

17. A hydrate of Na_2CO_3 has a mass of 4.31 g before heating. After heating, the mass of the anhydrous compound is found to be 3.22 g. Determine the formula of the hydrate and then write out the name of the hydrate.

18. Given that the molar mass of $Na_2SO_4 \cdot nH_2O$ is 322.1 g/mol, calculate the value of n.