## **Honors Chemistry**

## **Chapter 7 Review**

Names
Solve each of the following problems. Box your final answer.  1. Calculate the percent composition of the elements in calcium phosphate. (3 points)
2. Calculate the mass of the each element in 60.5 grams of aluminum nitrate. (3 points)
3. A sample of a substance is found to contain 37.28 grams of gold and 6.72 grams of chloride. Determine the empirical formula of this compound and name it. (3 points)
4. A compound is found to have a percent composition of 36.5% sodium, 25.5% sulfur, and 38.1% oxygen. Determine the empirical formula of this compound and name it. (3 points)
5. A hydrate is found to be composed of 89.2% barium bromide and 10.8% water. Determine the empirical formula of the hydrate and name it. (3 points)
6. Determine the percent of water in copper(II) sulfate pentahydrate. (3 points)

7. Calculate the amount of sodium ions in 93.5 grams of sodium phosphide. (3 points)
8. Determine the mass(in grams) of 1.0 molecule of Tetrahydrocannabinol(THC), C <sub>21</sub> H <sub>30</sub> O <sub>2</sub> . (3 points)
9. Answer the following questions about a pure compound that contains only carbon, hydrogen, and nitrogen. A 0.8890 g sample of the compound burns in O <sub>2</sub> (g) to produce 2.4145 g of CO <sub>2</sub> (g) and 0.6912 g of H <sub>2</sub> O(g).  (i) Calculate the individual masses of C, H, and N in the 0.8890g sample. (6 points)  (ii) Determine the molecular formula for the compound if the molecular mass is 162.12 g/mol. (2 points)
<ul> <li>10. Answer the following questions that relate to the analysis of chemical compounds.</li> <li>(a) A compound containing the elements C, H, N, and O is analyzed. When a 1.0626 g sample is burned in excess oxygen, 2.895 g of CO<sub>2</sub>(g) is formed. The combustion analysis also showed that the sample contained 0.0822 g of H.</li> <li>(i) Determine the mass, in grams, of C in the 1.0626 g sample of the compound. (2 points)</li> <li>(ii) When the compound is analyzed for N content only, the mass percent of N is found to be 13.00 percent. Determine the mass, in grams, of N in the original 1.0626 g sample of the compound. (2 points)</li> <li>(iii) Determine the mass, in grams, of O in the original 1.0626 g sample of the compound. (2 points)</li> <li>(iv) The molecular mass of the compound is 323.48 g/mol. Determine the molecular formula of the compound. (2 points)</li> </ul>