1. A compound contains 18.8% sodium, 29.0% chlorine, and 52.2% oxygen, by mass. If the molar mass of the compound is 122.44 g/mol, determine the empirical and molecular formulas.
2. A 4.99 gram sample of a compound contains 1.52 grams of nitrogen atoms and 3.47 grams of oxygen atoms. The molar mass of the compound is between 90.0 g and 95.0 g. Determine the empirical and molecular formulas. Also, calculate the actual molar mass of this compound.
3. Ascorbic acid is another name for Vitamin C. It is composed of 40.92% carbon, 4.58% hydrogen, and 54.50% oxygen, by mass. Determine the empirical formula for ascorbic acid.
4. H3PO4  Phosphoric acid, is used in detergents, fertilizers, toothpastes and flavoring in carbonated beverages. Calculate the percent composition by mass to two decimal places of H, P and O in this compound.
5. What is the percent composition by mass of aspartame (C14H18N2O5), the artificial sweetener in Sweet-n-Low?
6. Ascorbic acid (vitamin C) is 40.92% C, 4.58% H and 54.50% O by mass. What is the empirical formula of ascorbic acid?
7. What is the empirical formula of each of the following compounds?
   1. Talc by mass composition contains 19.2% Mg, 29.6% Si, 42.2% O and 9.0% H.
   2. Saccharin has by mass composition 45.89% C, 2.75% H, 7.65% N, 26.20% O and 17.50% S
   3. Salicylic Acid, the pain reliever used in aspirin, contains 60.87% C, 4.38% H, and 34.75% O by mass composition.
   4. L-Dopa, a drug used for the treatment of Parkinson’s disease, is 54.82% C, 5.62% H, 7.10% N, and 32.46% O by mass composition.
8. What is the molecular formula of benzoyl peroxide (the empirical formula is C7H5O2) if the molecular mass is 242 g/mol?