Chemistry – Chapter 10 Book assignment #5: Empirical & molecular formulas

1. What is the molecular formula of a compound with the empirical formula CClN and a molar mass of 184.5 g/mol?

2. Find the molecular formula of ethylene glycol, which is used as antifreeze. The molar mass is 62.0 g/mol, and the empirical formula is CH_3O.

3. The compound methyl butanoate smells like apples. Its percent composition is 58.8% C, 9.8% H, and 31.4% O, and its molar mas is 102 g/mol. What is its empirical formula? What is its molecular formula?

4. What is the molecular formula for each compound? Each compound's empirical formula and molar mass are given.

   a. CH_2O, 90 g/mol

   b. HgCl, 472.2 g/mol

5. Determine the empirical formulas of compounds with the following percent composition:

   a. 42.9% C and 57.1% O

   b. 32.00% C, 42.66% O, 18.67% N, and 6.67% H

   c. 71.72% Cl, 16.16% O, and 12.12% C

6. Determine the molecular formula for each compound.

   a. 94.1% O and 5.9% H; molar mass = 34 g/mol

   b. 50.7% C, 4.2% H, and 45.1% O; molar mass = 142 g/mol

   c. 56.6% K, 8.7% C, and 34.7% O; molar mass = 138.2 g/mol