

1) What is the empirical formula for each of the following compounds?

- a) $C_6H_8O_6$ b) P_4O_{10} c) $HC_2H_3O_2$ d) C_2H_2 e) $C_6H_{12}O_6$ f) C_6H_6

2) Determine the molecular formulas to which the following empirical formulas and molecular weights pertain:

- a) SNH , 188.32 b) $NPCl_2$, 347.66 c) CoC_4O_4 , 341.94 d) SN , 184.27

3) A sample of urea contains 1.121 g N, 0.161 g H, 0.480g C, and 0.640 g O. What is the empirical formula of Urea

4) a) Mandelic acid is an organic acid composed of 63.15% C, 5.30% H, 31.55% O. Determine the empirical formula of the compound.

b) The molecular mass of Mandelic acid in part a is 152.14 g/mol. Find the molecular formula.

5) The action of bacteria on meat and fish produces a compound called cadaverine. As its name and origin imply, it STINKS. (Its also present in bad breath) It is 58.78% C, 13.81% H, and 27.41% N. Its molecular mass is 102.2 g/mol. Determine the empirical and molecular formulas of the compound.

6) Arrange the following substances in order of the increasing percent of phosphorus.(by mass)

- a) Na_3PO_4 b) PH_3 c) P_4H_{10} d) $(NPCl_2)_3$