**Chem 1013: mini-quiz # 15: molecular formula and % composition redux A 4 pts March 11**

Your name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 A compound containing 4.8 g C and 6.4 g O has a molecular weight of 84 g/mol. What is the molecular

 formula for the compound Cx Oy ?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| element | w=mass,g  | GAW (g/mol) | N=w/GAW | n/nmin |
| C | 4.8 | 12 | 0.4 | 1 |
| O | 6.4 | 16 | 0.4 | 1 |

CO weighs 28 g/mol 84/28=3

Molecular formula for CxOy: \_C3O3\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (2 pts)

2. A sample of CHx is burned to form 8.8 g CO2 and 1.8 g H2O. Given the molecular weights of CO2 and H2O are 44 g/mol and 18 g/mol, what is the empiric formula for CHx , e.g. what is x ?

Mol CO2=mol C= 8.8/44=0.2

Mol H2O =1/2 mol H=1.8/18=0.1=>0.2 mol H

=>C0.2 H0.2=CH

 Formula for CHx = \_\_\_\_CH\_\_\_\_\_\_\_\_\_\_\_ (2 pts)

**Chem 1013: mini-quiz # 15: molecular formula and % composition redux B 4 pts March 11**

Your name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 A compound containing 4.8 g C and 6.4 g S has a molecular weight of 112 g/mol. What is the

 molecular formula for the compound CxSy ?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| element | w=mass,g  | GAW (g/mol) | n=w/GAW | n/nmin |
| C | 4.8 | 12 | 0.4 | 2 |
| S | 6.4 | 32 | 0.2 | 1 |

C2S weighs 56 112/56=2

Molecular formula for CxSy: \_\_\_\_\_\_\_\_\_C4S2\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (2 pts)

2. A sample of CHx is burned to form 4.4 g CO2 and 3.6 g H2O. Given the molecular weights of CO2 and H2O are 44 g/mol and 18 g/mol, what is the empiric formula for CHx , e.g. what is x ?

Mol CO2=mol C= 4.4/44=0.1

Mol H2O=1/2 mol H = 3.6/18=0.2=> mol H=0.4

=>C0.1 H0.4=CH4

 Formula for CHx = \_\_\_\_CH4\_\_\_\_\_\_\_\_\_\_ (2 pts)