**Mini-quiz #18 Chemistry 1114 Friday 19 October 2012**

Your name\_\_\_\_\_\_\_\_\_\_\_\_\_Answers\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. A compound containing C,H and O is decomposed and found to contain the following weight percents as tabulated below: What is the empiric formula for the compound ?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Element | Wt % | Atomic wt, g/mol | **Wt/Atomic wt = moles (n)** | **n/nmin** |
| C | 62.07 | 12 | **62.02/12=5.168** | **6.168/1.724=3** |
| H | 10.34 | 1 | **10.34/1=10.34** | **10.34/1.724=6** |
| O | 27.59 | 16 | **27.59/16=1.724 = nmin** | **1.724/1.724=1** |

Empiric formula: \_\_\_**C3H6O\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** 3 pt

1. A 1.0000 gram sample of iron, Fe, is burned in oxygen. The resulting iron oxide sample weighs 1.2865 g.
2. How much oxygen (in grams) has combined with 1.000 grams of Fe in the oxide?

\_**0.2865**\_\_\_\_ g O in oxide sample (1 pt) 1.2865-1.000 = g O =0.2865

1. Given that Fe has an atomic mass of 55.847 g/mol and O has a atomic mass of 16.0 g/mol, what is the empiric formula for the iron oxide sample?

Empiric formula\_\_\_\_**FeO**\_\_\_\_\_\_\_\_ (2 pts)

 **mol O = 0.2865/16 = 0.0179 mol Fe =1/55.847=0.0179 mol O/mol Fe = 1**

1. Balance us: (1 pt each/3 pts total)

\_**2\_**\_H2 + \_**1**\_\_O2 🡪 \_**2**\_\_H2O

\_\_**4**\_Fe + \_**3**\_S2 🡪 \_\_**2**\_Fe2S3

\_\_**1**\_CH4 + \_**2**\_\_O2 🡪 \_\_**1**\_\_CO2 + \_2\_H2O