**Quiz 4 Chemical Principles I Chem 1984 Fall 2013**

**Your name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 30 pts**

**Show work or you receive no credit**

1. A compound contains 1.020 g H, 16.325 g S and 32.655 g O. Given that the atomic masses H=1 g/mol, S=32 g/mol and O =16 g/mol, what is the **empiric formula** of the compound ? 5 pts

Empiric formula=\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. A compound containing 26.08% C, 4.35 % H and 69.56% O has a molecular weight of 368 g/mol. What is the **molecular formula** of the compound given the atomic masses: C=12 g/mol, H=1 g/mol and O=16 g/mol. 5 pts
2. An unknown hydrocarbon Cx Hy is burned in oxygen to make 5.866 g CO2 and 3.600 g H2O. Given that the molecular weight of CO2=44 g/mol and the molecular weight of H2O=18 g/mol, what is the empiric formula of the hydrocarbon ? 5 pts
3. A 1.0 g sample of MO is reacted with H2 gas to make 5.1426 g H2O (Molecular weight of H2O=18 g/mol ) . Assuming all the O in the H2O comes from O in MO:
4. How many moles of O are in the 1.0 gram sample of MO ? 4 pts

Mol O in 1 gram of MO= \_\_\_\_\_\_\_\_\_\_\_\_

1. How many grams of M are in the 1.0 gram sample of MO? (1 mol O = 16 g/mol)

Grams M in 1.0 g MO sample\_= \_\_\_\_\_\_\_\_\_\_ 4 pts

1. What element is M ? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (use Periodic Table on back of this quiz) 5 pts

4) Balance the reactions below: 7 pts total/1 pt per correct coefficient

\_\_\_\_C9H20 + \_\_\_\_O2 🡪 \_\_\_\_\_\_CO2 + \_\_\_\_H2O

\_\_\_\_ Ca3(PO4)2 + \_\_\_\_H3PO4 🡪 \_\_\_\_Ca(H2PO4)2