**Homework #4: Chemistry 1013 Spring 2015**

**Due Wednesday 25 February 20 pts total**

**Your name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1 pt**

**4.1. Best Prefixes (3 pts/ 1 pt each)**

What is the best prefixed expression of 2.0\*107 m ? \_\_20 Mm\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What is the best prefixed expression for 0.000005 s \_\_\_\_\_**5 μs**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What is the better prefixed expression for 10000 μg \_\_\_\_**1 cg\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**4.2. metric-Metric conversions (6 pts/2 pts each)**

200 μs = \_\_\_**0.2**\_ ms

5000 kg = \_\_\_**1**\_\_\_\_ Mg

3\*10-9 mm = \_\_**\_3**\_\_\_\_\_ pm

**4.3 Beginning mole calculations (10 pts)**

1. What is the molecular weight of SiO2 to the nearest g/mol ? \_\_\_\_\_**60**\_\_\_\_\_\_\_\_\_ g/mol
2. What is the molecular weight of glucose, C6H12O6 to the nearest g/mol ? \_\_**180**\_\_\_\_\_ g/mol
3. The molecular weight of water is 18 g/mol. How many moles of water are in 3600 g?

3600 g H2O= \_\_**200**\_\_\_ mol H2O (2 pts)

1. The molecular weight of calcium carbonate (limestone) is 100 g/mol. How many grams are present in 25 moles of limestone ?

25 moles limestone= \_**2500**\_\_\_\_g limestone (2 pts)

1. A mole count is ~ 6\*1023 molecules or atoms. Given that a mole of sulfuric acid weighs 98 g/mol,

how many molecules are in 16.333 grams of sulfuric acid ?

16.333 g of sulfuric acid= \_\_**1\*1023**\_\_\_\_\_ sulfuric acid molecules (2 pts)

1. A mole count is ~ 6\*1023 molecules or atoms. Given that a mole of sucrose weighs 360 g/mol,

what does 1.6666\*1022 molecules of sucrose weigh?

1.6666\*1022 molecules sucrose = \_\_**\_10**\_\_\_\_\_\_\_ g sucrose (2 pts)