**Mini-quiz #15 Chemistry 1114 Wednesday 10 October 2012 A**

**6 pts**

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

The molecular weight of car battery acid, H2SO4 (sulfuric acid) is 98.0 grams/mole.

One mole of particles = 6.02\*1023

1. How many moles of H2SO4 are in 294 grams of H2SO4 ? \_\_\_\_\_\_\_\_\_3\_\_\_\_\_\_\_\_\_\_\_ moles

294g /98 g mol-1= 3 mol

1. How many grams of H2SO4 are in 6.1428\*1021 molecules of H2SO4 ? \_\_\_\_\_1\_\_\_\_\_\_ grams

6.1428\*1021/6.02\*1023= mol H2SO4=0.0102 mol => 0.0102 g \* 98 g/mol=0.999999~1 g

1. How many molecules of H2SO4 are in 1.6279 grams of H2SO4 ? \_\_\_\_1.0\*1022\_\_\_\_\_\_\_\_\_\_\_ molecules

1.62798/98 g mol-1= 0.01661 mol => 0.01661 mol\*6.02\*1023 molecules/mol= 1.0\*1022

**Mini-quiz #15 Chemistry 1114 Wednesday 10 October 2012 B**

**6 pts**

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

The molecular weight of Drano, NaOH (sodium hydroxide) is 40.0 grams/mole.

One mole of particles = 6.02\*1023

1. How many grams of NaOH are in 0.25 moles of NaOH ? \_\_\_\_\_\_10\_\_\_\_\_\_\_\_\_\_\_\_ grams

0.25 mol \*40 g/mol = 10 g

1. How many grams of NaOH are in 3.01\*1022 molecules of NaOH ? \_\_2\_\_\_\_\_\_\_\_\_ grams

3.01\*1022/6.02\*1023 mol = 0.05 mol => 0.05\*40 g/mol = 2 g

1. How many molecules of NaOH are in 1.3289 grams NaOH ? \_\_\_\_\_\_2\*1022\_\_\_\_\_\_\_\_\_\_\_\_ molecules

1.3289 g/40 g mol-1 = 0.033222 mol => 0.033222\*6.02\*1023 molecules/mol=2\*1022

**Mini-quiz #15 Chemistry 1114 Wednesday 10 October 2012 C**

**6 pts**

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

The molecular weight of crystal meth (*N*-methyl-1-phenylpropan-2-amine) is 147.0 grams/mole.

One mole of particles = 6.02\*1023

1. How many grams of crystal meth are in 0.020408 moles of it ? \_\_\_\_\_\_\_\_3\_\_\_\_\_\_\_\_\_\_\_\_ grams

0.020408 mol\*147 g/mol=3 g

1. How many grams of crystal meth are in 4.0952\*1021 molecules of it ? \_\_\_1\_\_\_\_\_\_\_\_ grams

4.0952\*1021/6.02\*1023 = mol meth =0.006802 mol=> 0.006802 mol \*147 g/mol= 1 g

1. How many molecules of crytal meth are in 7.32558 grams of it ? \_\_\_3.0\*1022\_\_\_\_\_\_\_\_\_ molecules

7.32558 g/147 g mol-1 = 0.049833 mol => 0.049833 mol \*6.02\*1023 molecules/mol=3.0\*1022