**Homework #6 Chemistry 1013 due Friday 27 Oct 2017 8 pts (in class)**

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

**The molecular mass of crystal meth (C10H13N) is 149 g/mol.**

**Assuming the atomic weights of C=12 g/mol; H=1 g/mol and N=14 g/mol**

**and 1 mole count=6\*1023. SHOW WORK OR NO CREDIT**

**3.1. How many grams of crystal meth are formed from 0.4362 g H?**

**step 1: 0.4362 g H/1 g mol-1 H = 0.4324 mol H**

**step 2: mol meth/mol H= 1/13= x/0.4362 x= 0.4362/13**

**=0.03356 mol meth**

**step 3: 0.03356 mol\*149 g/mol= 5 g meth**

**\_\_\_5\_\_\_\_\_ g meth**

**3.2 How many grams of C are found in 1.6666 mol crystal meth?**

**Step 1: no need…data starts with moles**

**Step 2: Mol C/mol meth=10/1= x/ 1.66666**

**1.66666\*10=16.666=x=mol C**

**Step 3: 16.666 mol C \*12 g C/mol C=200 g**

**\_200\_\_\_\_\_\_ g C**

**3.3. How many atoms of N are present if the meth sample contains 20 g of C ?**

**Step 1: 20 g C/12 g mol-1 =1.666 mol C**

**Step 2: Mole N/Mole C= 1/10=x/1.666**

**x=mol N= 1.666/10=0.1666 mol N**

**Step 3: 0.1666 mol N \*6\*1023 atoms/mol N=1\*1023**

**\_\_1\*1023\_\_\_\_\_\_ atoms of N**

**3.4. How many grams of C are in a sample of meth which contains 1.3\*1023 atoms of H ?**

**Step 1: 1.3\*1023 atoms H/6\*1023 atoms mol-1 =0.2166 mol H**

**Step 2: mol C/mol H=10/13=x/0.21666**

**10\*0.2166/13=X=0.1666 mol C**

**Step 3: grams C=0.1666 mol C \*12 g C/mol= 2.0 g C**

**\_\_\_\_2\_\_\_\_\_\_\_ grams C**