**Homework #5 Chemistry 1013 (Fong) due Friday 20 Oct 2017 12 pts (in class)**

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

2 pts per problem (except for 1 and 2)

Assume: 1 mol count ~ 6\*1023

Show work for all mole-mass-count problems or no credit will be given !!

1) How many moles of X with a molecular mass=A are present in B grams of X ? 1pt

Moles X= B/A (moles = grams of sample/Molecular mass of sample)

2) What is the molecular mass of CaCO3 to the nearest gram ? \_\_\_\_\_100\_\_\_\_\_ g/mol

Ca=40, C=12 3 O=3\*16 => 40+12+48=100 g/mol 1 pt

3) How many grams of CaCO3 are present in 2.4\*1024 molecules of CaCO3 ?

2.4\*1024 molecules/6\*1023 molecules mol-1 =4 mol CaCO3

4 mol CaCO3\*100 g/mol CaCO3 = 400 g

\_\_\_400\_\_\_\_ g CaCO3

4) How many moles of CaCO3 are present in 25 grams of CaCO3 ?

25 g CaCO3 \* 1 mol CaCO3/100 g CaCO3 =0.25 mol CaCO3

\_\_\_0.25\_\_\_\_\_ mol CaCO3

5) How many molecules are present in 0.15 mol of CaCO3 ?

0.15 mol \*6\*1023 molecules/mol = 9\*1022 molecules

\_9\*1022\_\_\_\_\_ molecules CaCO3

6) How many molecules of CaCO3 are present in 500 grams of CaCO3 ?

500 g CaCO3/100 g CaCO3 mol\_1 = 5 moles CaCO3

5 mol CaCO3\*6 \*1023 molecules CaCO3/mol CaCO3 =3\*1024

\_3\*1024\_\_\_\_\_\_ molecules of CaCO3