In-class exercise #5a: chem 1114 *Mole* **Calculations: part 1**

**moles (m)**

**N** = w = **n**

6.02\*1023  MW moles

**w** = **m**\****MW*** **N**= **m**\**6.02\*1023*

**m**= **w**/***MW*** **m**=**N**/6.02\*1023

**weights (w) molecule (atom) count (N)**

MW = mass of species/mol = **M**olecular **W**eight

**1. basic conversions**

a) weight per mole (MW) what does a mole of C6H12O6 weigh ? (C=12; H=1; O=16) =\_\_\_\_\_\_\_ g/mol

**1.1) mole to mass**  how many g C6H12O6 of are present in 0.00555 mole of C6 H12O6?

1.2) mass to mole how many moles of C6H12O6 are in 360 g of C6 H12O6?

1.3) mole to # molecule how many molecules of C6H12O6 are in 0.5 mol of C6 H12O6 ?

**1.4) mass to # molecules** how many molecules of C6 H12O6 are in 120 g of C6 H12O6 ?

**1.5) # molecules to moles** how many moles in 3\*1024 molecules of C6H12O6?

**1.6) # molecules to mass** How many grams of C6 H12O6 are in 2.0 \*1022 molecules of C6H12O6?

In-class exercise #5b: chem 1114 *Mole* **Calculations: part 2**

2) body parts conversions

**2.1)mole to mole**  how many moles of O are present in 0.1666 mole of C6 H12O6?

2.2) mole to mole how many moles of C6H12O6 can be made with 12 mole of O ?

2.3) weight to moles how many moles of C6H12O6 in a sample containing 216 g C ?

2.4) moles to weight how many grams of C6H12O6are formed with 0.2666 mol H?

**2.5) moles to molecules** how many molecules of O are present in 0.13888 mol of C6 H12O6?

2.6) molecules to moles how many moles of C6 H12O6 are formed from 4.32\*1025 atoms of H ?

2.7) mass to molecules how many molecules of C6 H12O6 form from 84 g of C ?

2.8) atoms to mass how many grams of H are combined with 2.7\*1024 atoms of O in C6H12O6?