

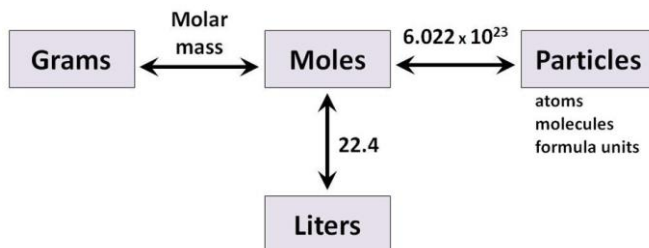
Chapter 10 Packet – GEN CHEM

Name: _____

Chemistry, Mrs. Cook

Assignment 1 – Single Step Conversions

Due Date: _____

Draw the conversions chart in this space:1) Convert 0.89 mol of CaCl₂ to grams.**98.77 g**2) How many moles are in 158.1 grams of PbSO₄?**0.52 mol**3) Find the mass of 1.112 mol of HF. **Hint:** What unit is "mass" measured in? grams!**22.25 g**

4) What are the three types of "particles" in chemistry?

atoms, molecules, formula units

5) Determine the number of atoms that are in 0.58 mol of Se.

3.49 x 10²³ atoms6) How many moles of barium nitride (Ba₃N₂) are there in 4.7 x 10²⁴ formula units?**7.80 mol**

7) Determine the number of molecules that are in 1.25 mol of O₂.

7.53 x 10²³ molecules

8) What does "STP" stand for? standard temperature & pressure

9) What volume will 0.37 mol of N₂ gas occupy at STP?

8.29 L

10) A canister with a volume of 69.4 L contains how many moles of oxygen at STP?

3.10 mol

Assignment 2 – Multi-Step Conversions

Due Date: _____

Refer to the chart in your notes to solve these problems.

11) What mass of C₂H₆ is in 6.45 x 10²⁴ molecules?

322.18 g

12) How many formula units are in 5.1 g of TiO₂?

3.85 x 10²² formula units

13) What mass of helium will occupy 5.6 L at STP?

1.0 g

14) What volume would 46.8 grams of Cl_2 occupy at STP?

14.79 L

15) What volume would 3.33×10^{25} atoms of krypton occupy at STP?

1238.66 L

16) How many molecules are there in 12 L of carbon dioxide at STP?

3.23×10^{23} molecules

17) What is the mass of 3.62×10^{24} molecules of methanol (CH_3OH)?

192.36 g

Review Questions for Assignment 2

18) How many particles are in a mole? 6.022×10^{23}

19) How many liters are in one mole of a gas? 22.4

20) What are the three types of “particles” in chemistry?
atoms, molecules, formula units

21) What are the units for molar mass?
grams or $\frac{\text{g}}{\text{mol}}$

Assignment 3 – Percent Composition

Due Date: _____

22) What is the percent composition of each element in GaBr_3 ?

$$\% \text{ Ga} = 22.53 \%$$

$$\% \text{ Br} = 77.47 \%$$

23) What is the percent composition of each element in $\text{Al}_2(\text{CO}_3)_3$?

$$\% \text{ Al} = 23.06 \%$$

$$\% \text{ C} = 15.40 \%$$

$$\% \text{ O} = 61.54 \%$$

24) What is the percent composition of phosphorus in $\text{Mg}_3(\text{PO}_4)_2$?

$$\% \text{ P} = 23.56 \%$$

Relationships between Empirical and Molecular Formulas

25) What is the molecular formula of a compound that has a molar mass of 132.24 g/mol and an empirical formula of C_3H_8 ?



26) A molecular compound has a molar mass of 128.14 g/mol and the empirical formula SO_2 . What is the molecular formula?



27) A compound has a molar mass of 283.6 g/mol and its empirical formula is P_2O_5 . What is its molecular formula?



28) What is the molecular formula of a substance that has an empirical formula of NO_2 and a molecular mass of 138 g/mol?

