**Mole, Bonding, & Naming Practice**  Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Block:\_\_\_\_\_

**Part I:** Solve each problem. Clearly show all your work. Round answers to the correct number of significant figures and include appropriate units.

1. How many moles of SO2 are in 2.12 grams of SO2?

2. How many grams of C2H6 are in 5.02 moles of C2H6?

3. How many particles of NO2 gas are in 41.9 grams of NO2 gas?

4. How many particles of potassium oxide are in 2.0 moles of K2O?

5. How many grams of lithium bromide are in 8.04 x 1024 particles of LiBr2?

6. How many grams of dinitrogen tetroxide gas are in 4.3 x 1026 molecules of dinitrogen tetroxide gas?

7. How many particles of calcium hydroxide are in 3.99 grams of calcium hydroxide?

**Part II:** Draw the Lewis Dot Structure & Shape of each molecule below. (See notes for help).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Lewis Structure | # boding e- conc. | # lone e- pairs | Total e- conc. | Picture of Shape (molecular geometry) | Shape Name |
| 1. | O2 |  |  |  |  |  |
| 2. | N2 |  |  |  |  |  |
| 4. | SiS2 |  |  |  |  |  |
| 5. | CClBr3 |  |  |  |  |  |
| 6. | OI2 |  |  |  |  |  |
| 7.  | BI3 (boron is an exception: only needs 6 valence e-) |  |  |  |  |  |
| 8. | NI3 |  |  |  |  |  |

**Part III:** Determine the electronegativity difference (ΔEN) (use your yellow tables) between the two atoms and predict the type of bond that will form (ionic, polar covalent, or nonpolar covalent).

1. N H

2. Si O

3. S Cl

4. Na Cl

**Part IV:** *First determine the type of bond, then write the names of the following chemical compounds:*

1)P2O5 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2) CaSO4 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3) C2Br6 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4) Cr(CO3)3 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5) Ag3P \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6) IO2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7) VO2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8) PbS \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Part V:** *Determine the type of bond, then write the formulas of the following chemical compounds:*

1)tetraphosphorus triselenide\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2) potassium acetate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3) iron (II) phosphide \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4) disilicon hexabromide \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5) titanium (IV) nitrate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6) copper (I) phosphate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7) gallium oxide \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8) tetrasulfur dinitride \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_