**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Naming and Formula Writing :** You must name the following. First you must determine whether the compound is ionic or covalent. Place an I or C in the first blank for each item, then name it correctly.

1. \_\_\_\_\_ Ca(CN)2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_ Mg3(PO4)2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. \_\_\_\_\_ N2O5 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. \_\_\_\_\_ H3PO4 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. \_\_\_\_\_ CBr4 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. \_\_\_\_\_ PCl6 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. \_\_\_\_\_ SiO2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. \_\_\_\_\_ N3O7 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. \_\_\_\_\_ AlBr3 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
10. \_\_\_\_ Nitrogen tetroxide \_\_\_\_\_\_\_\_\_\_\_\_
11. \_\_\_\_ Aluminum chloride \_\_\_\_\_\_\_\_\_\_\_
12. \_\_\_\_\_ Chromium (VI) carbonate\_\_\_\_\_\_
13. \_\_\_\_\_ Sulfur hexoxide \_\_\_\_\_\_\_\_\_\_\_\_\_\_
14. \_\_\_\_ Potassium phosphate \_\_\_\_\_\_\_\_\_

**For questions 15-21, circle the correct answer.**

1. In (ionic, metallic, covalent) bonds, electrons are transferred from the cation to the anion.
2. In (ionic, metallic, covalent) bonds, metallic cations are surrounded by a sea of electrons.
3. In (ionic, metallic, covalent) bonds, electrons are shared between two nonmetals.
4. Cations are atoms that have (gained, lost) electrons to achieve noble gas configuration.
5. Anions are atoms that have (gained, lost) electrons to achieve noble gas configuration.
6. Prefixes are used in naming(ionic, covalent) compounds.
7. Which type of covalent bond is the shortest and strongest?(single, double, triple)

**Fill in the Blank.**

1. An attraction between polar molecules creates a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (type of intermolecular bond).
2. When forming bonds, atoms obey the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ rule which says atoms prefer full outer *s* and *p* suborbitals – noble gas electron configuration.
3. Roman numerals are used in ionic compounds when a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ metal is the cation.
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ions are ions that contain more than one element.

**Draw the Lewis structures for the following molecules and identify the shape using the VSEPR model:**

1. CO2
2. N2
3. NH3
4. CH4

**For each of the following, indicate whether it is indicative of: (I) Ionic Bonding, (C) Covalent Bonding, (M) Metallic Bonding**

1. \_\_\_\_\_ A mixture of elements; no exchange of electrons
2. \_\_\_\_\_ A sea of electrons surrounds cations
3. \_\_\_\_\_ Oppositely charged particles are attracted to one another
4. \_\_\_\_\_ Can be polar or non-polar
5. \_\_\_\_\_ Form alloys
6. \_\_\_\_\_ Electrons are shared
7. \_\_\_\_\_ Has high melting and boiling points
8. \_\_\_\_\_ Occurs between two nonmetals
9. \_\_\_\_\_ Occurs between nonmetals and metals
10. \_\_\_\_\_ Occurs between two metals; no chemical change occurs
11. \_\_\_\_\_ Has low melting and boiling points
12. \_\_\_\_\_ Types of bonds found within a water molecule