**Physical Science Test #2 Study Guide**

**Chemical Bonding - Chapter 19**

1. Elements in the same group on the Periodic Table have the same number of \_\_\_\_\_\_\_\_\_\_\_\_\_ electrons.
2. Metals are found on the \_\_\_\_\_\_\_\_\_\_\_\_ side of the Periodic Table. \_\_\_\_\_\_\_\_\_\_\_\_\_\_ are on the right side. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are found along the zig-zag that separates metals and nonmetals.
3. What ending do we change binary compounds endings to?
4. What is unique about the noble gases?
5. An element is chemically stable when it obtains \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ valence electrons.
6. Ionic bonds result from atoms \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ electrons. Ionic bonds are usually formed between atoms of \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and nonmetals.
7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bonds result from atoms sharing electrons. These bonds are usually formed between \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and nonmetals. If the sharing of the electrons is equal then the bond is \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. If the sharing of the electrons is \_\_\_\_\_\_\_\_\_\_\_\_\_\_ then it is a polar covalent bond.
8. Write the chemical formula for the compounds that are made from the following elements. Then name the compound.

Aluminum and Sulfur Calcium and Bromine

1. What is the name of this covalent compound? P2F5
2. Explain the difference between ionic and covalent bonds.
3. Complete the following table:

|  |  |  |
| --- | --- | --- |
| **Chemical formula** | **Name** | **Type of compound (ionic or covalent)** |
| P5O3 |  |  |
|  | Magnesium Nitride |  |
|  | heptanitrogen hexafluoride |  |

**Chemical Reactions – Chapter 20**

1. When balancing chemical equations, you are only allowed to adjust the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. Name and describe the 4 types of chemical reactions.
3. Balance and classify the following chemical reactions.

\_\_CuO + \_\_\_Al  \_\_\_Al2O3 + \_\_\_Cu Type\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_Cl2  +  \_\_\_NaBr  →    \_\_\_NaCl  +  \_\_\_Br2 Type\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_BaCl2  +   \_\_\_Na2 SO4  →    \_\_\_NaCl +  \_\_\_BaSO4 Type\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_N2(g)  +   \_\_\_H2(g)  →    \_\_\_NH3(g) Type\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_ Cu2O + \_\_\_\_\_ C 🡪 \_\_\_\_ Cu +\_\_\_\_ CO2 Type\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_ Fe + \_\_\_\_\_ Cl2  \_\_\_\_\_ FeCl Type\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_ Na + \_\_\_\_\_ HCl 🡪 \_\_\_\_\_ NaCl + \_\_\_\_\_ H2 Type\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_ KCl + \_\_\_\_\_ NaBr 🡪 \_\_\_\_\_ KBr + \_\_\_\_\_ NaCl Type\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_