

Unit 5 Test Review: Chemical Bonds and Compounds

#1 – 5 match the items on the right with the descriptions on the left

- only forms positive ions
 - has a high melting point and conducts electricity when melted
 - never forms compounds
 - forms when pairs of electrons are shared by two atoms
 - forms when electrons are transferred between atoms
- Ionic bond
 - Metals
 - Covalent bond
 - Noble gas

6. Write the symbol and charge expected for each ion

- | | | | | |
|---------------|----------------|-------------|--------------|----------|
| a. Magnesium | b. Gallium | c. Sulfur | d. Bromine | e. Argon |
| f. Iron (III) | g. Copper (II) | h. Nitrogen | i. Potassium | |

7. Draw an electron dot diagram showing the appropriate valence electrons for each atom below:

B Sr Kr Cl

8. How many electrons do each of the following atoms need to gain, lose, or share to achieve noble gas configuration?

S Mg C

9. Which ONE of the following is a covalent compound?

CO CaBr₂ Cl₂ HCN Mg(OH)₂

10. For each pair of elements below, use the “stairs” on the periodic table to determine the type of compound that will form. Write “C” for covalent, “I” for ionic, and “N” for none if the elements would not make a compound together.

Al & O ____ F & Ne ____ Ni & Cr ____ N & I ____ C & Cl ____ Pb & S ____ Ar & S ____ Na & P ____

11. Write the correct formula and name the ionic compounds that would be formed.

- | | | |
|----------------------------|---------------------------|--------------------------|
| a. Lithium and Bromine | b. Sodium and Oxygen | c. Chlorine and Calcium |
| d. Iron (III) and Fluorine | e. Cuprous and hydroxide | f. Sulfate and Magnesium |
| g. Strontium and Nitrite | h. Zinc and Perchlorate | i. Iodine and Lead (IV) |
| j. Ammonium and Oxygen | k. Aluminum and Sulfur | l. Barium and Carbonate |
| m. Nitrate and Ammonium | n. Cobalt(III) and Iodine | o. Sulfite and Gallium |

12. Write the name of each of the following mixed compounds. Be sure to use different naming rules for ionic and covalent compounds

Na ₂ O _____	N ₂ O ₆ _____	Pb(OH) ₂ _____
(NH ₄) ₂ S _____	SiO ₂ _____	FeSO ₄ _____
H ₂ Se _____	HBrO ₃ _____	

13. Write the chemical formula for each of the following mixed compounds

Copper (I) Phosphate

DiPhosphorus Pentoxide

Magnesium Fluoride

Hydrofluoric acid

Chromium (VI) Chlorite

Iron (II) Oxide

Nitrogen Tribromide

Chlorous acid

14. Draw a Lewis Structure for each of the following

SiO₂

CO

NF₃

NO₃⁻¹

SO₂

SO₃

CH₄

15. For each of the following molecules which you already drew the Lewis structure for above, determine the VSEPR shape. Are there any polar bonds? Is the overall molecule polar or nonpolar?

SiO₂

NF₃

SO₂

CH₄

SO₃