Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_

**Test Review: Unit 5 (COLLEGE BOUND)**

**WRITE ANSWERS ON NOTEBOOK PAGE 112.**

**Objective 1: We will define ions and determine the charge on an ion.**

1. What type of ions form a positive charge? How is this charge formed?
2. What would the charge of the copper ion be in CuO?
3. What type of metals can have more than one charge? Explain why they can form more than one charge.

**Objective 2: We will create Lewis dot structures for ionic compounds.**

1. Draw the Lewis dot diagram for the following compounds:
   1. FeO2
   2. Al2O3
   3. Na2S

**Objective 3: We will describe the formation, structure and physical properties of an ionic bond.**

1. What are the 4 properties of an ionic compound?
2. Name 3 ways you can test if a compound is ionic.

**Objective 4: We will write formulae and apply naming conventions to ionic compounds.**

1. Write the formula for the following compounds:
   1. Magnesium Sulfide
   2. Calcium Nitrate
   3. Aluminum Sulfate
2. Write the formula for the following names:
   1. Iron (III) Oxide
   2. Magnesium Nitride
   3. Copper (II) Phosphide

**Objective 5: We will apply the octet rule to explain the formation and structure of a covalent bond.**

1. How do covalent bonds form?
2. Which atom does not obey the octet rule? Explain.
3. How are the properties of a covalent compound different than an ionic compound?

**Objective 6: We will create Lewis dot structures for covalent compounds with single, double and triple bonds.**

1. How many TOTAL electrons are shared in a
   1. Single bond?
   2. Double bond?
   3. Triple bond?
2. How many PAIRS of electrons are shared in a
3. Single bond?
4. Double bond?
5. Triple bond?
6. Draw the Lewis dot diagrams for the following compounds (make sure the shape/bond angles are correct):
7. N2O
8. NH3
9. CCl4
10. CO2
11. The compound PF3 has \_\_\_\_\_\_\_\_ lone pairs and therefor has a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ geometrical shape.

**Objective 7: We will write formulae and apply naming conventions to covalent compounds.**

1. Write the formula for the following compounds:
   1. Dicarbon Hexahydride
   2. Dihydrogen monoxide
   3. Sulfur Trioxide
2. Write the name for the following formulas:
   1. N2O4
   2. PCl5
   3. CS2

**Objective 8: We will apply the concept of electronegativity to bond polarity.**

1. What is the difference between a nonpolar and polar covalent bond?
2. Determine if the compound listed is ionic, nonpolar, or polar.
   1. LiF
   2. CO
   3. Cl2
   4. HF
   5. PF3
   6. CCl4
3. Circle the bond that is the most polar. (Use electronegativity chart when necessary)
   1. H---F or H---Cl
   2. C---O or C---Cl
   3. N---F or P---F

|  |  |
| --- | --- |
| **Electronegativity Difference** | **Type of Bond** |
| 0.0-0.4 | Nonpolar Covalent |
| 0.5-1.9 | Polar Covalent |
| ≥2.0 | Ionic |

**Objective 9: We will define and describe the effects of intermolecular forces on physical and chemical properties of a substance.**

1. Dispersion forces occur between what type of compounds and/or molecules?
2. List the intermolecular forces from weakest to strongest.
3. Dipole-Dipole interaction would most likely occur between two molecules of? (circle answer)
   1. F---F
   2. Na---Cl
   3. H---Br
4. Draw the Lewis dot diagram and then draw the electron cloud around the structure based on electronegativity difference. (Refer to NOTEBOOK PAGE 110 for help)
5. Which compound below would have the highest boiling point? Explain.
   1. Cl2
   2. LiF
   3. HF
6. You are given 3 different unknown substances and need to determine which substance has the strongest intermolecular forces. Name two different ways you can test the intermolecular forces in the substances and the outcome that would prove which substance has the weakest intermolecular force.
7. What intermolecular force is responsible for the surface tension of water?