**Chemistry - Bonding Pre-test**

**Multiple Choice**

*Identify the letter of the choice that best completes the statement or answers the question.*

\_\_\_\_ 1. A bond that shares electrons is

|  |  |  |  |
| --- | --- | --- | --- |
| a. | metallic | d. | polar |
| b. | ionic  | e. | will not bond |
| c. | covalent |

\_\_\_\_ 2. What principle states that atoms tend to form compounds so that each atom can have eight electrons in its outermost energy level?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | rule of eights | c. | configuration rule |
| b. | Avogadro principle | d. | octet rule |

\_\_\_\_ 3. Multiple covalent bonds may occur in atoms that contain carbon, nitrogen, or

|  |  |  |  |
| --- | --- | --- | --- |
| a. | chlorine. | c. | oxygen. |
| b. | hydrogen. | d. | helium. |

\_\_\_\_ 4. Isotopes of the same element have different \_\_\_\_.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | numbers of neutrons | c. | numbers of electrons |
| b. | numbers of protons | d. | atomic numbers |

\_\_\_\_ 5. Given 1 unit of each of the following: Li2O Na2O K2O Fr2O

Which unit has the largest fraction of its mass due to oxygen?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Li2O | d. | Fr2O |
| b. | Na2O | e. | They are all the same.  |
| c. | K2O |

\_\_\_\_ 6. Given 1 unit of each of the following: Li2O Na2O K2O Fr2O

Which unit has the largest number of atoms

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Li2O | d. | Fr2O |
| b. | Na2O | e. | They are all the same.  |
| c. | K2O |

\_\_\_\_ 7. Given 1 unit of each of the following: Li2O Na2O K2O Fr2O

Which unit has the largest mass

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Li2O | d. | Fr2O |
| b. | Na2O | e. | They are all the same.  |
| c. | K2O |

\_\_\_\_ 8. In industry MnO2 is named as a covalent molecule. What is the name?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | manganese dioxide | d. | permanganic acid |
| b. | monomanganese oxide | e. | hydropermanganic acid |
| c. | manganese peroxide |

\_\_\_\_ 9. If the atoms that share electrons have an unequal attraction for the electrons, the bond is called

|  |  |  |  |
| --- | --- | --- | --- |
| a. | non-polar. | c. | ionic. |
| b. | polar. | d. | dipolar. |



\_\_\_\_ 10. What is the Lewis structure for hydrogen chloride, HCl?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | A | c. | C |
| b. | B | d. | D |

**Short Answer**

 11. 

Milk of Magnesia is a common household substance used to treat an upset stomach or heartburn. It has the chemical formula Mg(OH)2.

Answer the following substances about the formula and properties of Milk of Magnesia.

a). Milk of Magnesia is a common name given based on its color, white. What is the actual chemical name of this substance?

b) Mg(OH)2,  How many actual particles are listed in the formula?

c) Are there any poly atomic ions present? If so what?

d) If the polyatomic ions do not break apart when dissolved, how many pieces does the substance break into?

e) Based on your answer in letter “d”, what percent of the ions floating around in milk of magnesia are Mg2+ ions?

f) Based on the formula Mg(OH)2

 i) What is the total mass of Mg(OH)2

 ii) What is the % mass of Mg in the formula

 12. In the table below, Please fill in the blanks.

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Type of Bond | Formula | Unit mass |
| Ammonium |  |  |  |
| Sodium acetate |  |  |  |
| Hydrobromic Acid |  |  |  |
| Sulfur Dioxide |  |  |  |
|  |  | CCl4 |   |
|  |  | NaNO3(aq) |   |
|  |  | KClO |   |
|  |   | HCl(aq) |   |
|  |  | KClO4 |   |
|  |  | H2SO4(aq) |  |
|  |  | Al2S3 |   |
| Sodium Chloride |   |  |  |