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

**Questions 1-8: Multiple Choice. Select the best answer, and write the *capital letter* in the given blank. (1 point each)**

1. How many valence electrons completes an octet?
   1. 2
   2. 4
   3. 5
   4. 8
2. The elements of Group \_\_\_ satisfy the octet rule, are non-reactive, and typically do not form ions.
   1. 1
   2. 2
   3. 17
   4. 18
3. Which of the following situations will cause the element with the electron configuration of 1s22s22p63s23p3 to have a noble gas configuration?
   1. loss of one electron
   2. gain of two electrons
   3. loss of two electrons
   4. gain of three electrons
4. Which of the following situations will cause the element with the electron configuration of 1s22s22p4 to have a noble gas configuration?
   1. loss of one electron
   2. gain of two electrons
   3. loss of two electrons
   4. gain of three electrons
5. Which one of the following elements might **NOT** follow the octet rule when forming ions?
   1. F
   2. Br
   3. Na
   4. Co
6. An ion and its parent atom differ in…
   1. electron configuration.
   2. number of electrons.
   3. chemical and physical properties.
   4. All of the above
7. The electrostatic attraction between \_\_\_\_\_\_\_\_\_ forms an ionic bond.
   1. nonpolar elements
   2. neutrons
   3. ions
   4. nuclei
8. The salts, NaCl (solid) and CaCl2 (solid), are strong electrolytes; therefore, you can infer that they…
   1. are good conductors of electricity.
   2. are positively charged.
   3. completely dissociate (break apart) into respective ions in solution.
   4. remain in solid form.
   5. Both A and C
   6. All of the above

**Questions 9-18: Write the chemical name or the chemical formula for the following ionic compounds. (1 point each)**

1. LiBr \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Na2O \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Ca3P2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. NiSO4 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. AgOH \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. cesium fluoride \_\_\_\_\_\_\_\_\_\_\_\_\_
7. potassium nitride \_\_\_\_\_\_\_\_\_\_\_\_\_
8. manganese (IV) sulfide \_\_\_\_\_\_\_\_\_\_\_\_\_
9. magnesium nitrite \_\_\_\_\_\_\_\_\_\_\_\_\_
10. tin (IV) carbonate \_\_\_\_\_\_\_\_\_\_\_\_\_

**Extra Credit: Use the table below to label the Born Haber Cycle for the formation of LiF(s). (2 points)**

|  |  |  |
| --- | --- | --- |
| 1. **Breaking covalent bond between F2 atoms. F2(g)** 🡪 **F(g) + F(g)** | 1. **Formation of ionic bond. Li+(g) + F-(g)** 🡪 **LiF** | 1. **Sublimation of solid Li metal. Li(s)** 🡪 **Li(g)** |
| 1. **Li(g)** 🡪 **Li+(g) + e-** | 1. **F(g) + e-** 🡪 **F-(g)** |  |

3.\_\_\_\_\_\_\_

2.\_\_\_\_\_\_\_

1.\_\_\_\_\_\_\_

0 kJ

Energy

4.\_\_\_\_\_\_\_

5.\_\_\_\_\_\_\_