**Chemistry - Honors: Periodic Trends** Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Part I. Identification of Periodic Trends**

***Directions: Identify how the following properties change down a group or across a period, from left to right.***

*atomic radii*

* + decreases \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + increases \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*electronegativity*

* increases \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* decreases \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*ionization energy*

* + increases \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + decreases \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Part II. Periodic Trends Questions**

1. Which requires the **least** energy to form, Be+, Be2+ or Be3+?
2. Write an equation for IE1 of gallium.
3. Write an equation for IE2 of gallium.
4. Write an equation for IE3 of gallium.
5. Which is the **largest**: Al, Al+, Al2+, or Al3+?
6. Arrange the following ions in order of **decreasing** size: Sr, Sr+, Sr2+
7. Arrange the following ions in order of **decreasing** size: N, N-, N2-, N3-
8. Arrange the following ions in order of **decreasing** size: Li, Na, K, Rb, Cs, Fr
9. Which is **smaller**, N3-, O2- or F-?
10. Which is **larger**, Al3+, Mg2+ or Na+?
11. Of the following, which element is the **most** electronegative: N, O, P, S
12. Of the following, which element is the **least** electronegative: Cs, Ba, Rb, Sr
13. Arrange the elements in period 2 and group 16 in order of **decreasing** electronegativity. Do not include the noble gas in your list.