Honors Chemistry Name _____

Chapter 5: Periodic Trends Review WS Date _____/_____/_____ Period _____

1. What is atomic radius? What are the trends for atomic radius?

2. List the following atoms in order of increasing atomic radius: N, Au, Al

3. List the following atoms in order of decreasing atomic radius: Cl, K, Cu

4. What is the shielding effect?

5. How are shielding effect and the size of the atomic radius related?

6. What is ionic radius? What are the trends for ionic radius?

7. How are neutral atoms converted into cations? How are neutral atoms converted in anions?

8. Metals usually form what type of ions? Nonmetals usually form what type of ions?

9. When an atom becomes an anion, what happens to its radius?

10. When an atom becomes a cation, what happens to its radius?

11. For each of the following pairs, circle the atom or ion that would have the larger radius.

    a. S or O
    b. Ca or Ca^{+2}
    c. Na^{+1} or K^{+1}
    d. Na or K
    e. S^{-2} or O^{-2}
    f. F or F^{-1}

12. For each of the following pairs, identify the smaller ion.

    a. K^{+1} or Ca^{+2}
    b. F^{-1} or Cl^{-1}
    c. C^{+4} or C^{-4}
    d. S^{-2} or F^{-1}
    e. O^{-2} or F^{-1}
    f. Fe^{+2} or Fe^{+3}

13. What is ionization energy? What are the trends for ionization energy? What are the exceptions for ionization energy? What are the units for ionization energy?

14. What is the meaning behind the first, second, and third ionization energies for a particular atom?

15. Why does each successive ionization require more energy than the one before?

16. Which of these elements has the highest first ionization energy: Sn, As, or S?

17. What is electronegativity? What are the trends for electronegativity?

18. List the following atoms in order of increasing electronegativity: O, Al, Ca

19. List the following atoms in order of decreasing electronegativity : Cl, K, Cu

20. What is electron affinity? What are the trends for electron affinity? What are the exceptions to the trends for electron affinity? What are the units for electron affinity?

21. List the following atoms in order of increasing electron affinity: F, S, Cl

22. List the following in order of decreasing electron affinity: Mg, K, Ca

23. Why does chlorine have a higher electron affinity than fluorine?

24. What is melting point? What are the trends for melting point?

25. What is thermal conductivity? What are the trends for thermal conductivity?

26. What is metallic character? What are the trends for metallic character?

27. What are the trends for the number of valence electrons?

28. What is an isoelectronic series? Give an example.

29. What is effective nuclear charge?

30. How would the difference in the above properties / trends affect the reactivity of a metal versus a nonmetal? Include how the number of energy levels and the number of valence electrons would affect reactivity.