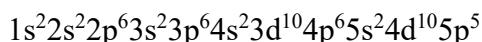


## Chemistry Module 8 Homework

### Assignment #1

Read pages 247- 258 and 263 – 276.

1. What is a valence electron?
2. Why are valence electrons important in determining which chemicals react with each other?
3. How many valence electrons are in the following configuration?



4. Draw the Lewis structures of the following atoms:

- a. Se
- b. Be
- c. Si

5. What is the basic difference between metal atoms and nonmetal atoms?
6. What is an ion?
7. What is the fundamental difference between the way ionic compounds are formed and the way covalent compounds are formed?
8. Give the chemical formulas for the following molecules:
  - a. calcium oxide
  - b. rubidium fluoride
  - c. chromium (III) chloride
  - d. sodium nitride
9. Draw a Lewis structure of  $\text{NF}_3$ .
10. Draw a Lewis structure of  $\text{SiO}_2$ .
11. Draw a Lewis structure of  $\text{CCl}_2\text{S}$ .
12. Based on their Lewis structures, which molecule is the easiest to break apart:  $\text{C}_2\text{H}_2$ ,  $\text{PN}$ , or  $\text{H}_2$ ?
13. Honors - The chemistry of life on Earth is based on carbon. All the molecules of living organisms have carbon as their principal component. Chemists have speculated that there could be a life form with a chemistry based on silicon. Why?

## Chemistry Module 8 Homework

Assignment #2

Read pages 258 - 263.

14. What is a periodic property?
15. List the three periodic properties discussed in this module and how each changes as you go across and as you go down the periodic table.
16. What is ionization potential?
17. What is electronegativity?
18. What are the noble gases? What properties do they all have?
19. Which atom gives up its electrons most easily: Sr, Be, Ra, Mg
20. Write the following atoms in order of increasing ionization potential: Ca, Br, Ni
21. Which atom has the greatest attraction for extra electrons? K, Li, Cs
22. Write the following atoms in order of increasing atomic radius: Al, B, In, Ga
23. Honors – What is another name for ionization potential?
24. Honors – Why are alkali metals stored under oil?
25. Honors – Write a balanced equation for the reaction that occurs in each of the following:
  - a. Potassium is added to water
  - b. Sodium is reacted with chlorine gas
  - c. Hydrogen reacts with cesium
  - d. Sulfur reacts with lithium