

The following questions are worth 1 point each.

1. Which of the following has the least ionization energy?
  - a. Ba
  - b. Ca
  - c. Ra
2. Choose the largest element from the following
  - a. Cl
  - b. P
  - c. Na
3. Which of the following elements has the smallest electronegativity?
  - a. Cl
  - b. Br
  - c. As

Discuss how electrons are allotted among the atoms in the following situations:

4. Covalent bond-
5. Ionic bond-
6. Polar covalent bond-

Use the following choices to classify each of the molecules. Place the capital letter of your choice on the line.

- A. ionic  
B. covalent  
C. polar covalent

7. NaCl \_\_\_\_\_
8. CO<sub>2</sub> \_\_\_\_\_
9. Cl<sub>2</sub> \_\_\_\_\_

10. Draw the Lewis dot diagram for the phosphorus atom.

11. Draw the Lewis dot diagram for the  $\text{CCl}_4$  molecule.

Complete each configuration as indicated. 2 points each.

12. What is the **complete** electron configuration of Silicon (atomic # = 14)

13. What is the **abbreviated** electron configuration of Tin (atomic # = 50)

14. Draw an **orbital diagram** of the electron configuration of cobalt (atomic # = 27)

The following questions are worth 2 points each!

15. Draw the Lewis structure for the HF molecule and show the dipole moment if present.

16. Draw the Lewis structure for  $\text{Br}_2$  and show the dipole moment if present.

17. Define "ELECTRONEGATIVITY"

18. Define "IONIZATION ENERGY"

19. What is a "BOND" (define)?

20. What is BOND ENERGY?

21. What is a "DIPOLE MOMENT" and give an example.

22. Explain why the elements in the same group (vertical column) have the same chemical and bonding properties.

23. State the trend for ionization energy for both the group (column) and the period (row).

24. State the trend for electronegativity for both the group (column) and the period (row).

25. Explain what causes the trend for atomic size down a group (column) and from left to right across a period (horizontal row). ( You need to state the if the trend is increasing or decreasing, and then explain why it is this way for each)