

**CP Bonding Test****Multiple Choice**

Identify the letter of the choice that best completes the statement or answers the question.

- \_\_\_\_\_ 1. How many valence electrons are in an atom of phosphorus?  
a. 2 c. 4  
b. 3 d. 5
- \_\_\_\_\_ 2. How many valence electrons are in a silicon atom?  
a. 2 c. 6  
b. 4 d. 8
- \_\_\_\_\_ 3. What is the name given to the electrons in the highest occupied energy level of an atom?  
a. orbital electrons c. anions  
b. valence electrons d. cations
- \_\_\_\_\_ 4. How does calcium obey the octet rule when reacting to form compounds?  
a. It gains electrons.  
b. It gives up electrons.  
c. It does not change its number of electrons.  
d. Calcium does not obey the octet rule.
- \_\_\_\_\_ 5. How many electrons does barium have to give up to achieve a noble-gas electron configuration?  
a. 1 c. 3  
b. 2 d. 4
- \_\_\_\_\_ 6. How many electrons does nitrogen gain in order to achieve a noble-gas electron configuration?  
a. 1 c. 3  
b. 2 d. 4
- \_\_\_\_\_ 7. How does oxygen obey the octet rule when reacting to form compounds?  
a. It gains electrons.  
b. It gives up electrons.  
c. It does not change its number of electrons.  
d. Oxygen does not obey the octet rule.
- \_\_\_\_\_ 8. Which of the following occurs in an ionic bond?  
a. Oppositely charged ions attract.  
b. Two atoms share two electrons.  
c. Two atoms share more than two electrons.  
d. Like-charged ions attract.
- \_\_\_\_\_ 9. Which of the following pairs of elements is most likely to form an ionic compound?  
a. magnesium and fluorine c. oxygen and chlorine  
b. nitrogen and sulfur d. sodium and aluminum
- \_\_\_\_\_ 10. Which of the following particles are free to drift in metals?  
a. protons c. neutrons  
b. electrons d. cations
- \_\_\_\_\_ 11. How do atoms achieve noble-gas electron configurations in single covalent bonds?  
a. One atom completely loses two electrons to the other atom in the bond.  
b. Two atoms share two pairs of electrons.  
c. Two atoms share two electrons.  
d. Two atoms share one electron.

Name: \_\_\_\_\_

ID: A

- \_\_\_\_\_ 12. Why do atoms share electrons in covalent bonds?
- to become ions and attract each other
  - to attain a noble-gas electron configuration
  - to become more polar
  - to increase their atomic numbers
- \_\_\_\_\_ 13. In which of the following compounds is the octet expanded to include 12 electrons?
- $\text{H}_2\text{S}$
  - $\text{PCl}_3$
  - $\text{PCl}_5$
  - $\text{SF}_6$
- \_\_\_\_\_ 14. Which of the following atoms acquires the most negative charge in a covalent bond with hydrogen?
- C
  - Na
  - O
  - S
- \_\_\_\_\_ 15. Which of the following covalent bonds is the most polar?
- $\text{H}-\text{F}$
  - $\text{H}-\text{C}$
  - $\text{H}-\text{H}$
  - $\text{H}-\text{N}$