

## Assessment

**Chemical Bonding****Section Quiz: Molecular Geometry**

In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.

- \_\_\_\_\_ 1. VSEPR theory
- predicts the shape of some molecules.
  - is limited to polar molecules.
  - assumes that pairs of valence electrons surrounding an atom repel each other.
  - Both (a) and (c)
- \_\_\_\_\_ 2. The shape of molecules that contain only two atoms is
- linear.
  - bent.
  - trigonal planar.
  - Either (a) or (b)
- \_\_\_\_\_ 3. According to VSEPR theory, which molecule has a bent shape?
- $\text{CO}_2$
  - $\text{H}_2\text{O}$
  - $\text{CS}_2$
  - $\text{HF}$
- \_\_\_\_\_ 4. VSEPR theory predicts that the shape of carbon tetrachloride,  $\text{CCl}_4$ , is
- linear.
  - bent.
  - trigonal planar.
  - tetrahedral.
- \_\_\_\_\_ 5. Which of the following molecules is polar?
- $\text{C}_2\text{H}_2$
  - $\text{H}_2\text{O}$
  - $\text{BF}_3$
  - $\text{CO}_2$

**Section Quiz, *continued***

- \_\_\_\_\_ 6. The structure of which of the following compounds suggests that it has the highest boiling point?
- CH<sub>4</sub>
  - CO<sub>2</sub>
  - NaCl
  - O<sub>2</sub>
- \_\_\_\_\_ 7. The VSEPR formula for a molecule of type AB<sub>2</sub>E<sub>2</sub> tells you that the molecule is made up of
- a central atom A, with two B atoms and two E atoms bonded to it.
  - a central atom A, with two B atoms bonded to it and two unshared electron pairs.
  - a central atom A, with two B atoms bonded to it by two bonding electron pairs.
  - two central atoms B, with an atom A and two atoms E bonded to it.
- \_\_\_\_\_ 8. Orbitals of equal energy produced by the combination of two or more orbitals on the same atom are called
- bonding orbitals.
  - valence orbitals.
  - hybrid orbitals.
  - high-energy orbitals.
- \_\_\_\_\_ 9. The effects of hydrogen bonding will cause which compound to have the highest boiling point?
- H<sub>2</sub>O
  - PH<sub>3</sub>
  - H<sub>2</sub>S
  - HCl
- \_\_\_\_\_ 10. Which are the intermolecular forces that can act between non-polar molecules?
- covalent bonds
  - hybridization
  - hydrogen bonds
  - London dispersion forces