Chapter 8 Molecular Structure and Covalent Bond Theories

Operational Objectives

☐ 1. Be able to use VSEPR to give the geometry of a molecule or molecular ion.

☐ 2. Use ABU formula for determining the geometric classification of a molecule or molecular ion from the Lewis structure.

☐ 3. Know the bond angles associated with each molecular classification.

☐ 4. Know how the presence of lone pairs on the central atom affects the bond angles.

☐ 5. Apply the ideas of valence bond theory (VBT) to show the hybrid atomic orbitals proposed for each of the molecular geometries.

☐ 6. Know how to determine the polarity of a molecule.

☐ 7. Know the difference between a sigma and pi bond.

☐ 8. Important Tables:
   
   - Table 8-1 p. 307
   - Table 8-2 p. 310
   - Table 8-3 pp. 334-335
   - Table 8-4 p. 340

☐ 9. Suggested problems:

   20, 22, 32, 36, 40, 52, 64, 76