

**Exercise 10-1) Lewis Structures, Resonance, Molecular Shapes, and Polarity (10.10-10.13)**  
**(9th ed. 2014) distributed as HW 10 (2023)**

For each of the following molecules, draw the preferred Lewis structure and use additional equivalent resonance structures if one exists. Then determine the exact (E) the molecular shape and (D) the ideal bond angle(s) for that shape. Later (after our coverage in lecture), determine (B) any deviations from the ideal bond angle(s) (i.e. greater than or less than ideal bond angle) and (P) whether the molecule is polar or nonpolar.

1.  $\text{CO}_2$

(E) \_\_\_\_\_

(D) \_\_\_\_\_

(B) \_\_\_\_\_

\_\_\_\_\_

(P) \_\_\_\_\_

2. Acetone ( $\text{C}_3\text{H}_6\text{O}$ ) -  $\text{C}=\text{O}$  atoms form  
homopolar ring structure (i.e. bonded)

(E) \_\_\_\_\_

(D) \_\_\_\_\_

(B) \_\_\_\_\_

\_\_\_\_\_

(P) \_\_\_\_\_

3.  $\text{H}_2\text{O}^2$

(E) \_\_\_\_\_

(D) \_\_\_\_\_

(B) \_\_\_\_\_

\_\_\_\_\_

(P) \_\_\_\_\_