

# Quiz 11 – Covalent Bonding & Solids & Liquids AP Chemistry

**This quiz must be completed and brought to my room before the start of first period on Tuesday. Failure to do so will incur a 25% penalty unless there is a legal reason.**

**You must show all work in order to receive credit.**

1. Sulfur is capable of forming many compounds with unique geometry.  
For the following sulfur compounds:  $\text{SF}_6$ ,  $\text{SCl}_2$ ,  $\text{SO}_2$ ,  $\text{SBr}_4$ 
  - a. Draw the Lewis dot structure
  - b. Determine the shape of each molecule
  - c. List the bond angle(s) involved in the molecule's geometry
  - d. State the hybridization of each molecule
  - e. Draw any resonance structures which apply.
2. Draw the molecular orbital diagram, calculate the bond order and determine if  $\text{O}_2^-$ , is dia or para magnetic.
3. Draw the molecular orbital diagram, calculate the bond order and determine dia or paramagnetism for  $\text{NO}^+$ ,  $\text{NO}$ , and  $\text{NO}^-$ . Place the three species in order of increasing bond energy.
4. Draw the Lewis structure for  $\text{XeOF}_2$  and describe the molecular shape of the molecule.