Chemistry 1
Problem Set Ch.10

1. Determine the electron arrangement, molecular shape, and bond angles(s) for each of the following.

a) NF_3 b) O_3

c) H_3O^+ d) CO_3^{2-}

e) SeF_4 f) ClO_2^-

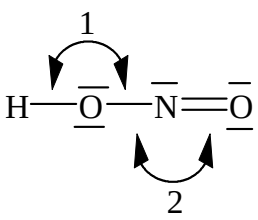
2. Predict whether the following molecules are polar or nonpolar:

a) PH_3 _____ b) $SiCl_4$ _____ c) BF_3 _____

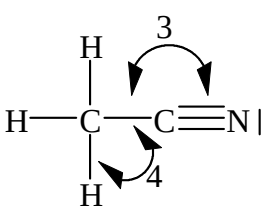
d) IF _____ e) C_2H_4 _____ f) SO_2 _____

3. Give values for the indicated bond angles in the following molecules:

a)



b)



4. Without referring to tables or figures in the chapter, indicate the hybridization and bond angle associated with each of the following geometric arrangements:

geometric arrangement	hybridization	bond angles
linear		
tetrahedral		
trigonal planar		
octahedral		
trigonal bipyramid		

5. For each of the following molecules and ions, predict the molecular geometry (including bond angles), and indicate the hybrid orbitals on the central atom using orbital box diagrams:

molecules or ions	molecular geometry	bond angles	hybrid orbitals
OF_2			
SiF_4			
SeF_6			
NO_2^-			
ClF_5			
XeF_2			