These problems are intended to ***supplement*** the problems in the textbook, not ***replace*** them.

Questions

A. Draw the Lewis structures for the following, including all equivalent resonance structures, if appropriate. (Ch. 8)

1.	CCl_3F	4.	HBrO	7.	BCl_3	10.	PO_2^{1-}
2.	H_3O^{1+}	5.	SO_3	8.	CO_2	11.	CH_3CN
3.	CH_3OH	6.	H_2CO_3	9.	PBr_3	12.	$C_2O_4^{2-}$

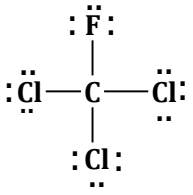
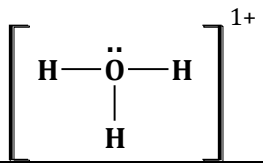
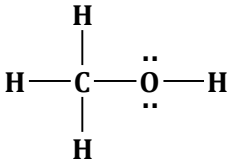
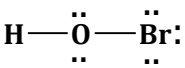
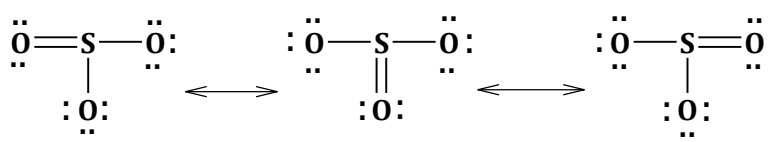
B. Indicate the molecular geometry, the bond angle, and the hybridization of the orbitals for EVERY CENTRAL ATOM for the molecules and ions in Part A. (Ch. 9)

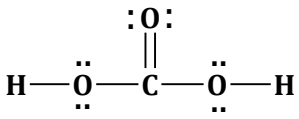
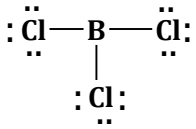
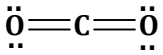
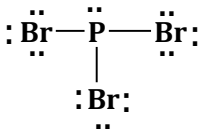
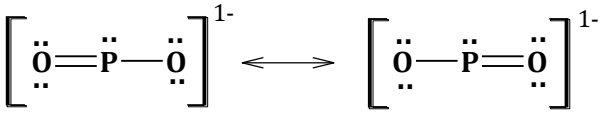
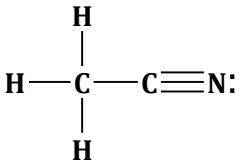
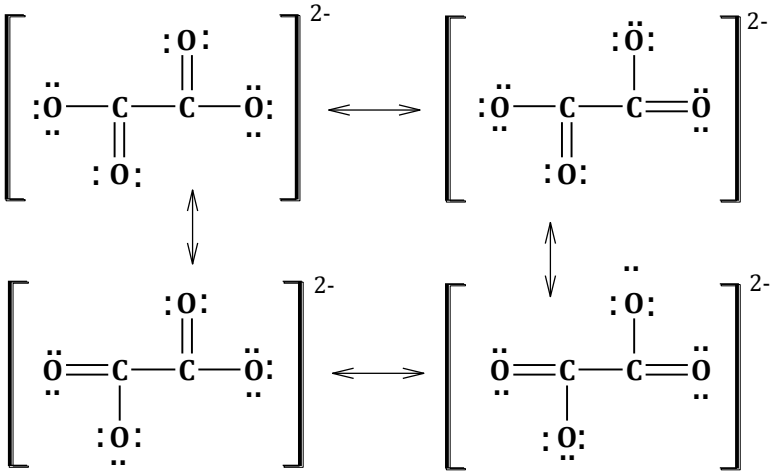
C. Indicate whether the molecules in Part A are polar or nonpolar. For the ions, write N/A. (Ch. 9)

D. How many sigma bonds and pi bonds are there in the molecules and ions in Part A? (Ch. 9)

Answers

If you cannot figure out how to get the correct answer, go to your instructor, the Science Tutoring Center, SI, etc.

	A	B		C	D
1.		C	tetrahedral 109.5°, sp^3	polar	4 sigma 0 pi
2.		O	trigonal pyramidal 109.5°, sp^3	N/A	3 sigma 0 pi
3.		C	tetrahedral 109.5°, sp^3	polar	5 sigma 0 pi
		O	bent 109.5°, sp^3		
4.		O	bent 109.5°, sp^3	polar	2 sigma 0 pi
5.		S	trigonal planar 120°, sp^2	nonpolar	3 sigma 1 pi

6.		O	bent 109.5°, sp^3	polar	5 sigma 1 pi
		C	trigonal planar 120°, sp^2		
		O	bent 109.5°, sp^3		
7.		B	trigonal planar 120°, sp^2	nonpolar	3 sigma 0 pi
8.		C	linear 180°, sp	nonpolar	2 sigma 2 pi
9.		P	trigonal pyramidal 109.5°, sp^3	polar	3 sigma 0 pi
10.		P	bent 120°, sp^2	N/A	2 sigma 1 pi
11.		C	tetrahedral 109.5°, sp^3	polar	5 sigma 2 pi
		C	linear 180°, sp		
12.		C	trigonal planar 120°, sp^2	N/A	5 sigma 2 pi
		C	trigonal planar 120°, sp^2		