

Polarity

Draw the LDMS for the following molecules as 3 dimensionally accurate as possible.

Then:

-Draw the polarity arrows for the individual bonds

-Indicate the polarity of the molecule (or indicate it is nonpolar)

- 1) CCl_2O
- 2) HF
- 3) N_2
- 4) NO_2^{-1}
- 5) NO_3^{-1}
- 6) HCN
- 7) NCl_3
- 8) CO_3^{-2}
- 9) CH_4
- 10) CH_2Cl_2
- 11) H_2O
- 12) C_2H_2
- 13) $\text{CH}_3\text{CH}_2\text{Br}$
- 14) OH^{-1}

15) What is a dipole? What determines which end of a bond will be dipole positive and negative? What determines which end of a molecule will be dipole positive and negative?

16) The following pairs of atoms are all covalently bonded. Arrange the pairs in order of decreasing polarity of the bond.

- a) Al & P b) Cl & C c) Mo & Te d) H & S e) P & S f) Cl & Si

17) Without drawing these molecules, predict whether they are polar. For each, explain the reasoning process you used to determine the polarity.

- a) HBr b) CF_4 c) Cl_2

18) How does a polar molecule differ from a non-polar molecule?

19) Looking at the molecules you drew previously and your answer to #17, what characteristics tend to make molecules polar? Hint: there are two....

20) Why is it that polar covalent bonds don't necessarily create polar molecules? Give three examples of molecules which support this observation