

Chem 141
Problem-Set
Wednesday 6th September 2006.

1. Write the proper Lewis dot structures for the following compounds. A covalent bond should be drawn as a line.

a) C_2H_6

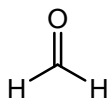
b) NH_2^- (-1 charge).

c) H_2O

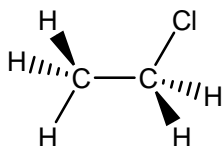
2. What are the two main trends when defining electronegativity. Consider the trends relative to the Periodic Table.

3. Assign partial charges (δ^- and δ^+) to the following polar covalently bonded compounds.

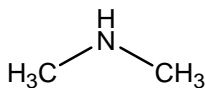
a)



b)

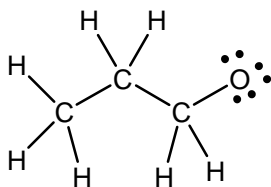


c)

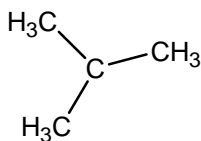


4. What are the formal charges on the atoms in the following structures and what is the resultant overall charge.

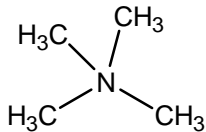
a)



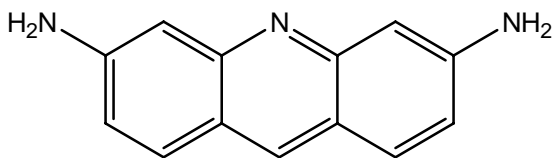
b)



c)



5. The following compound (acridine) was used as a powerful antiseptic in WWII to dress wounds. It also works well as an antiviral drug. How many sp^3 , sp^2 and sp hybridized atoms are present?



$sp^3 =$ _____

$sp^2 =$ _____

$sp =$ _____

6. Draw and illustration of ethyne clearly illustrating the orbitals which were not hybridized and the effect that has on the bonding between the two carbons.