

Organic Chemistry - CHEM 231A

Problem Set #1

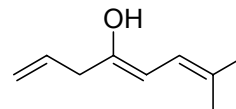
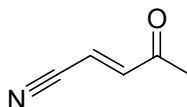
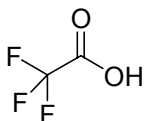
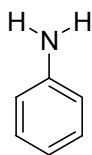
Due September 18, 2002

1. Consider the following condensed molecular structures:



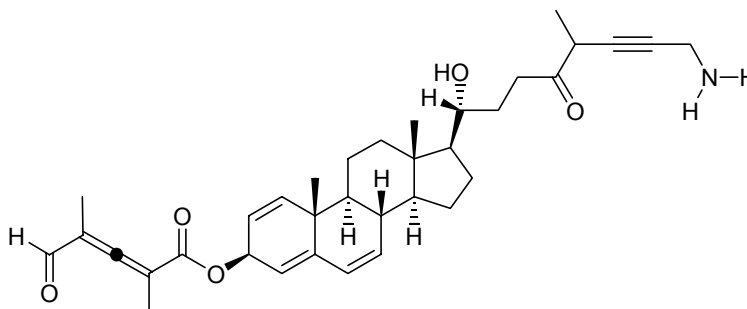
For each structure, convert the condensed structure into a kekulé structure, a bond-line structure, a 3-D structure using dashes and wedges, and use a computer program to draw the molecule. I would encourage you to practice drawing first, before you use the computer program.

2. Consider the following molecules:



For each structure, draw all possible resonance structures (if there are any). Use the electron arrow formalism to show the movement of electrons between each resonance structure. For each resonance structure, including the original, mark formal charges on all non-hydrogen atoms. Choose the two most predominant resonance structures for each structure (if there are more than one), redraw them and note any formal charges, partial charges and/or dipole moments within each molecule.

3. Consider the following molecule, a derivative of cholesterol, a biological organic molecule:



- Redraw the structure on your paper (take your time and practice, you will not be graded for your artistic abilities, but practice makes perfect)
- Label the hybridization for at least 20 non-hydrogen atoms. Ensure that you label identify at least one atom from each type of hybridization.
- Circle and label all functional groups.

4. For each of the following molecules, either draw or name the structure:

a. 3,4-diethyl-2,2,3-trimethylhexane

b. 5-butyl-3-ethyl-4-isopropyl-2-dimethylnonane

