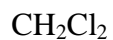
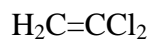
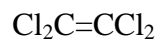
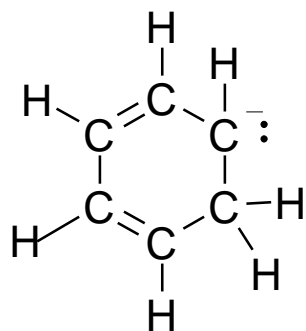


CHM 2210 - Ch 2 Homework

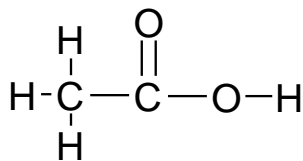
1. Draw the following molecules in detail, and in 3D where applicable.
Indicate direction of net dipole moments (vector sum) for all four molecules.
Review Figures 1.6 and 1.14, Sections 2.1 and 2.2, and Example 2-1 in McMurry. (2 pts.)



2. The anion below would occur if a proton is removed from 1,3-cyclohexadiene (C_6H_8).
Show all three possible resonance structures.
Include curved arrows to show all movement of e^- pairs on all three resonance forms.
What kind of orbital is involved in the e^- pair movement? Can any H or C atoms move?
Review Sections 2.5 and 2.6, as well as Examples 2-2 and 2-3, in McMurry. (2 pts.)

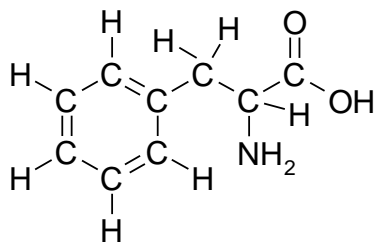
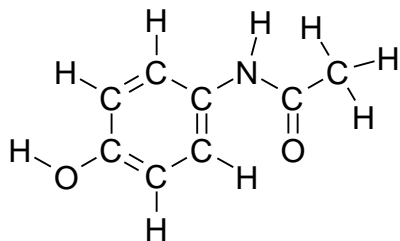


3. Describe both reasons why the H bonded to the O in acetic acid (below) is more acidic than the other three H's. Then, draw the conjugate base anion, and use words and curved arrows to explain how it is stabilized. Review Sections 2.5 (rule 5) and 2.10 in McMurry. (1 pt.)



4. Acetone, $(\text{H}_3\text{C})_2\text{C}=\text{O}$, could react with the amide anion, NH_2^{-1} , to form acetone's conjugate base, along with ammonia NH_3 . Draw the reactants and include their lone pairs. Show the overall reaction using a curved arrow. Then, draw both resonance forms for the anionic product, and include curved arrows on both. Also, explain in terms of acid strength which direction the reaction would proceed in if $\text{pK}_\text{A}=19$ for acetone and $\text{pK}_\text{A}=36$ for ammonia. Review Sections 2.5 and 2.9, as well as Examples 2-4, 2-5, and 2-6, in McMurry. (2 pts.)

5. Draw the skeletal structures for acetaminophen and phenylalanine (below).
 Be sure to show the hydrogens attached to the oxygens and nitrogens, as well as all lone pairs.
 Review Section 1.4 and Table 1.3 in McMurry. (2 pts.)



6. Provide condensed structures for the following molecules (below). See the chapter 1 class notes (last page) and Section 1.12 in McMurry. Essentially, write all of the atomic symbols on one line, omitting the bonds, and add subscripts and parentheses where applicable.
 Be sure to keep track of all of the atoms and how they are connected. (1 pt.)

