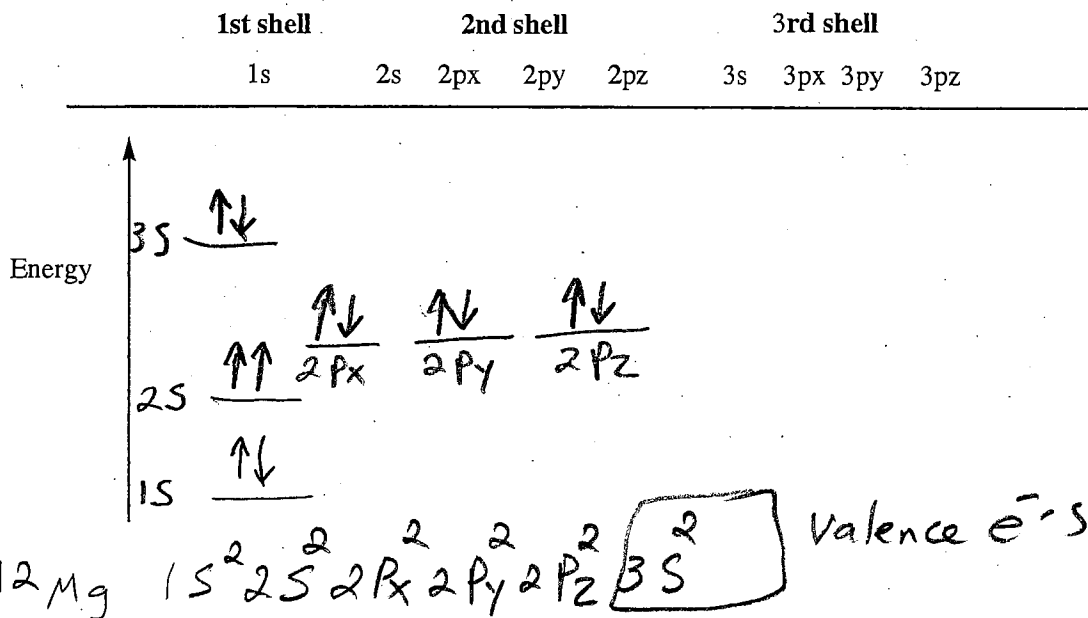


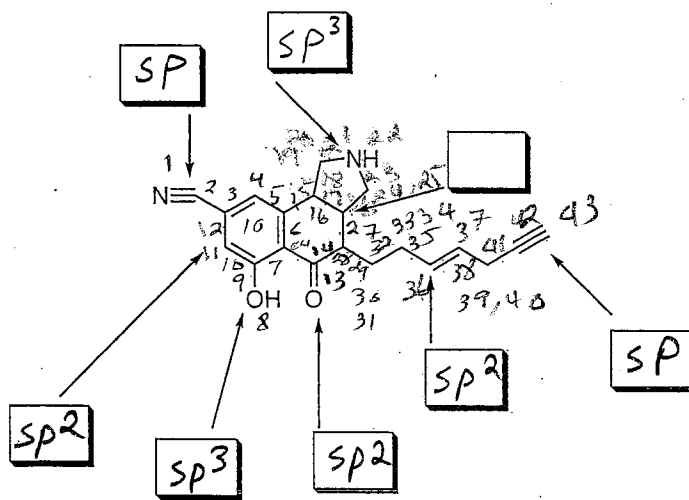
Problem Set 1 B

Answer To Problem set 1 B

1. Using the diagram below, assign all of the electrons present in magnesium (Mg) to their proper orbitals, shells and approximate energy level.



2. Indicate the hybridization of each of the indicated atoms in the following molecule.



3. How many pi bonds are present in the molecule shown above?

9

4. How many sigma bonds are present in the molecule shown above?

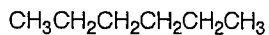
44

5. What types of orbitals are overlapping to form the C-C bonds in the following molecule?

6. What types of orbitals are overlapping to form the C-H bonds?

sp^3-s

sp^3-sp^3

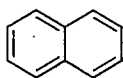


7. What types of orbitals are overlapping to form the C-C bonds in the following molecule?

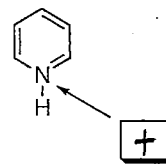
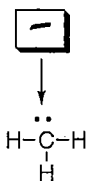
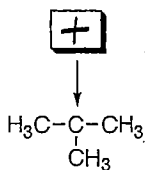
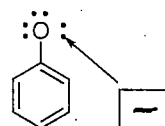
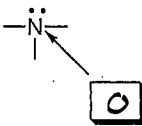
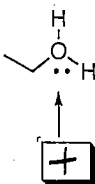
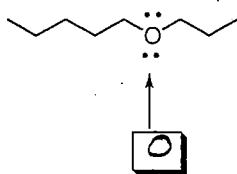
8. What types of orbitals are overlapping to form the C-H bonds?

sp^2-s

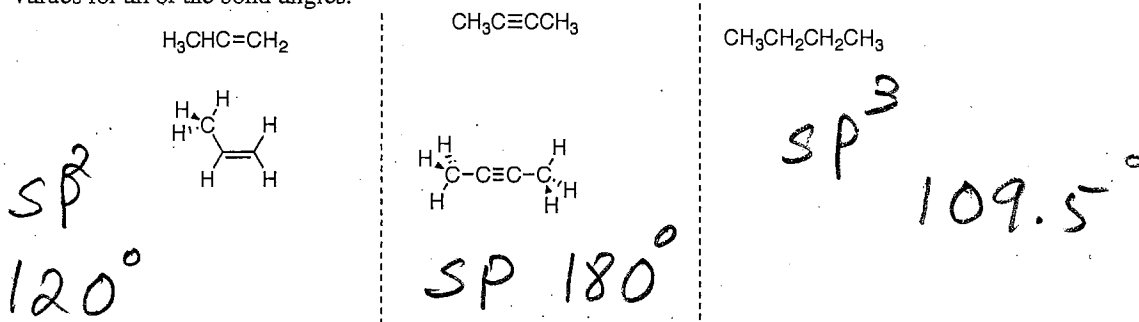
sp^2-sp^2



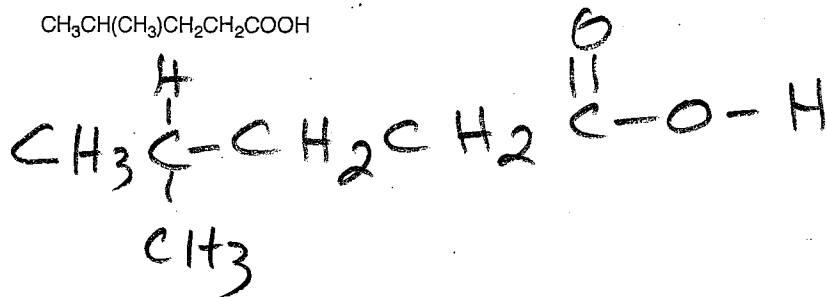
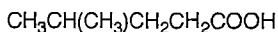
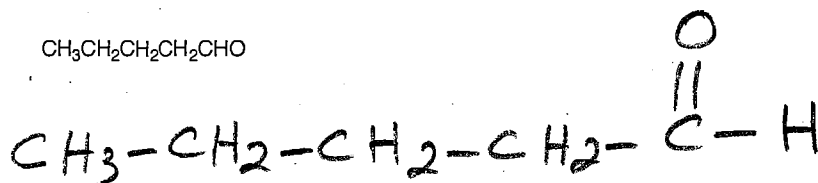
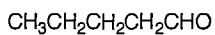
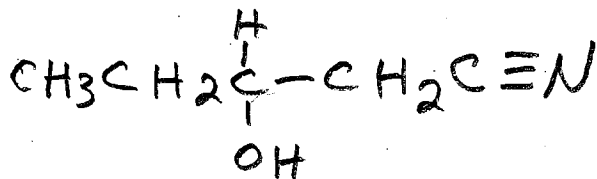
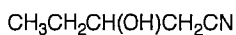
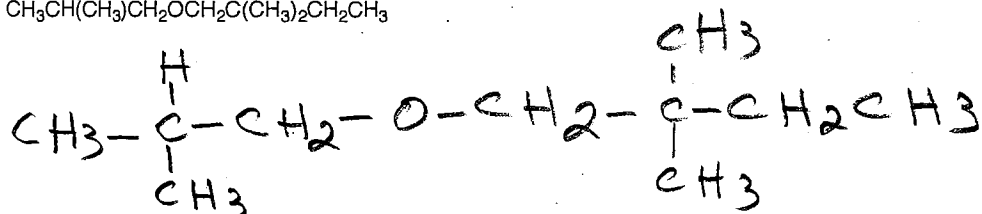
9. Assign the indicated atoms their appropriate formal charge.



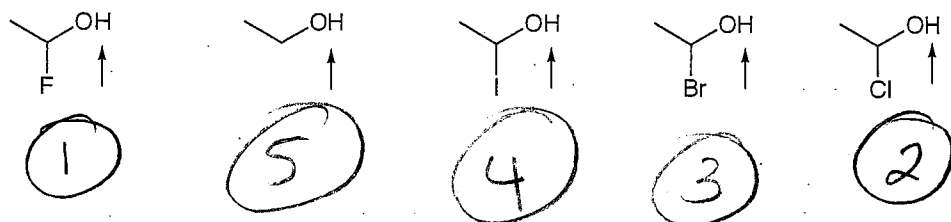
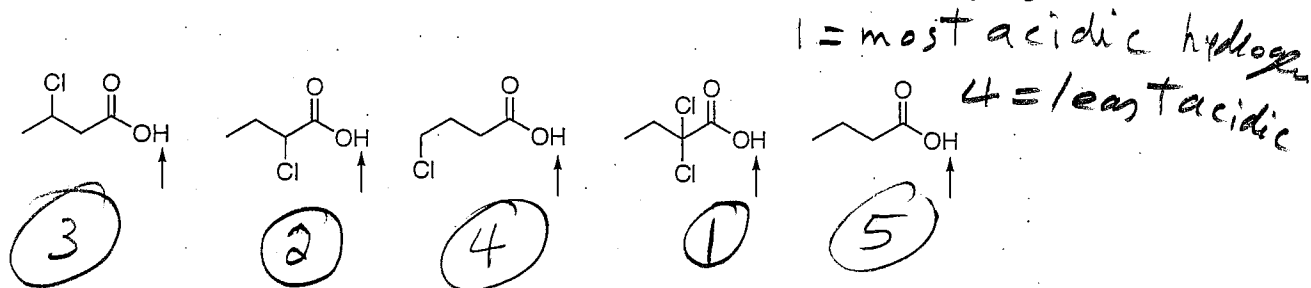
10. For each of the following molecules indicate the hybridization of each atom and the approximate values for all of the bond angles:



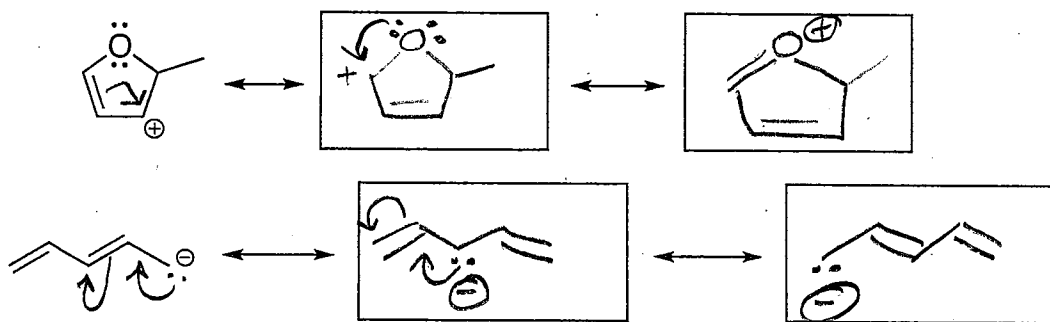
11. Convert the following condensed formulae into their Kekulé' structure and their stick structure:



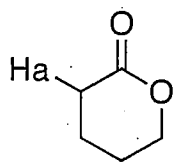
12. Rank the following groups of molecules in order of increasing acidity of the indicated hydrogen:



13. Draw 2 resonance structures for each of the following molecules (show arrows).

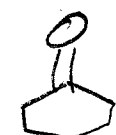
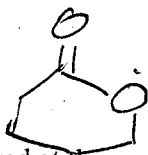


14. Which proton, Ha or Hb is more acidic? Explain using resonance structures.



better
 e^- -withdrawing
group

Hb is more acidic

as  is a better
 e^- -withdrawing group
than 

15. Circle the side of the equation that would be favored at the equilibrium.

