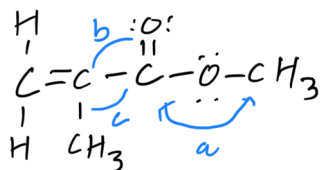


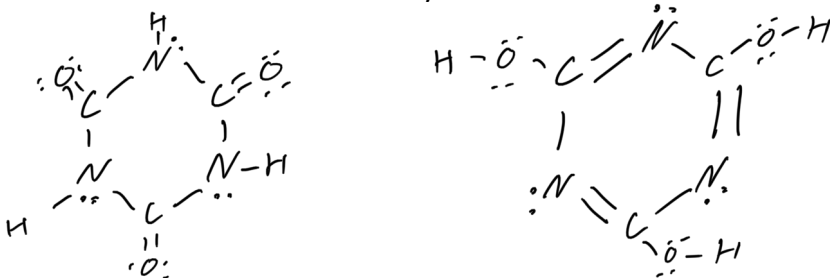
06/23/23

Methyl methacrylate has this Lewis structure:



Draw the 3-D structure for the molecule and indicate the hybridization at each non-hydrogen atom. Also, determine the approximate values of the bond angles noted on the Lewis structure

These are two Lewis structures for cyanuric acid:



What is the hybridization of each non-hydrogen atom in each of these structures?

Using the table of bond dissociation energies from class, which structure is more stable?

Using molecular orbital theory, write the electron configuration for N_2 as well as for the N_2^{-1} anion and the N_2^{+1} cation. Which of these three molecules has the strongest bond and which has the weakest? Justify your answer. Also, which of these three molecules is paramagnetic?

For the B_2 molecule describe the lowest energy molecular orbital that does **not** have electrons in it. Describe this orbital both in words and by making a drawing that shows the molecular orbital as well as the atomic orbitals from which it is derived