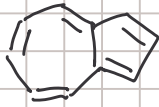


Ch 16 group work

Note Title

2/15/2006

1.



azulene

the only other neutral resonance (Kekulé) structure is the mirror image

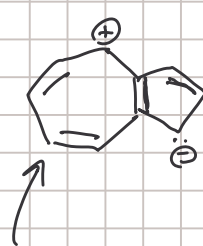
$10e^-$ in planar consecutive p orbitals

= aromatic (whole compound)



in each case, the 7-membered ring is aromatic w/ $6e^-$ but the 5-membered ring is antiaromatic w/ $4e^-$

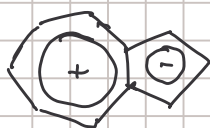
there is a way to get $6e^-$ in each ring - we'll make a charge-separated resonance structure that will make the 7-membered AND 5-membered rings both aromatic.



like a cp^- ion ($6\pi e^-$)

like a tropylium ion ($6\pi e^-$)

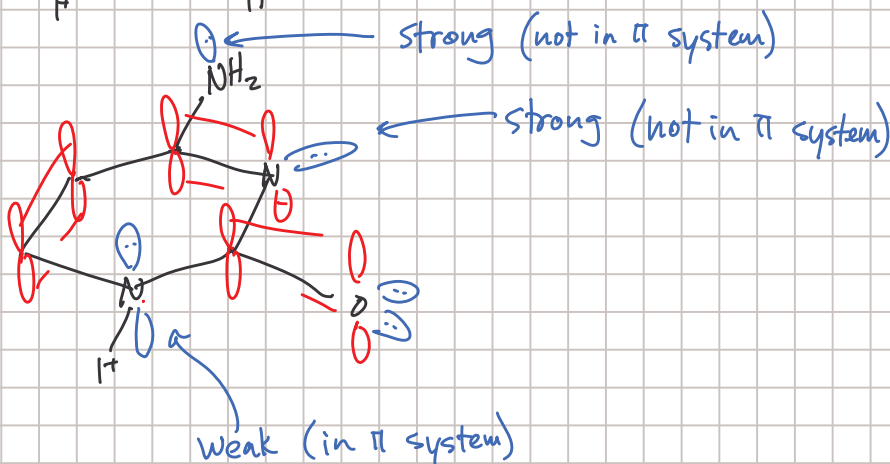
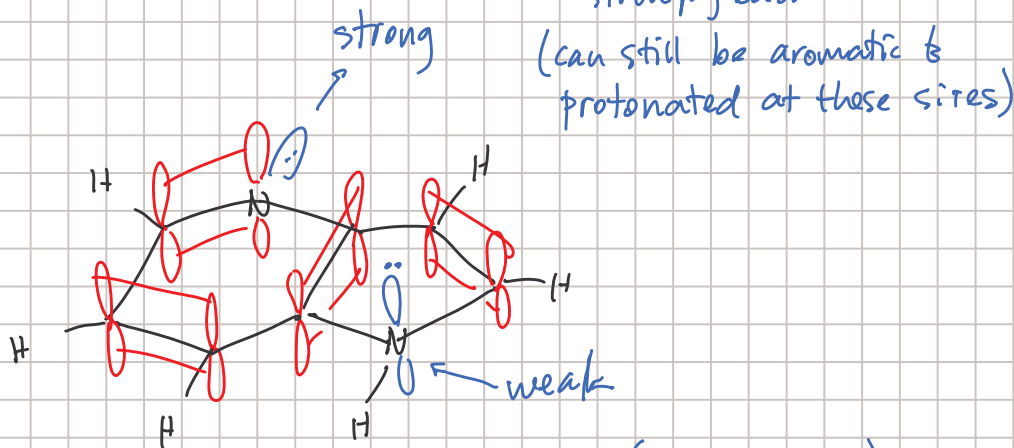
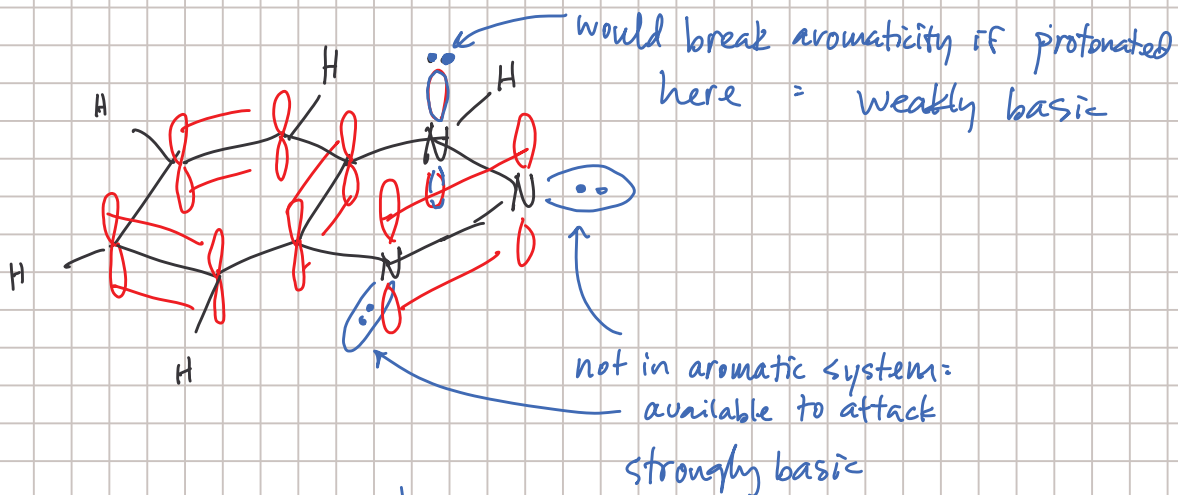
the charges will be delocalized in each of the rings:



dipole moment \rightarrow

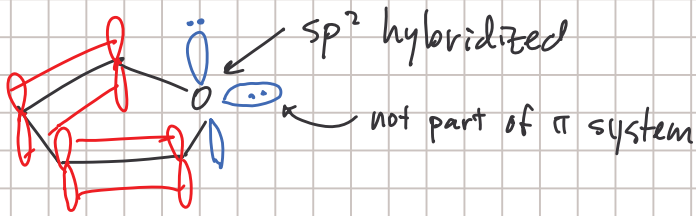
so the molecule will have a large dipole moment, pointing towards the \ominus charged ring.

2.

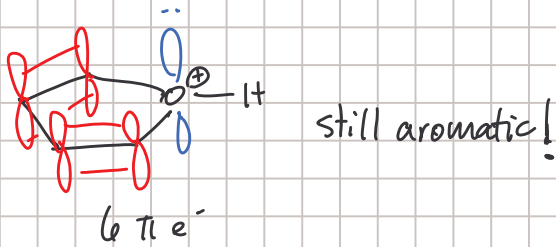


Notice in aromatic systems, N's that look like this =N: are strongly basic while N's that look like this N-H are weakly basic.

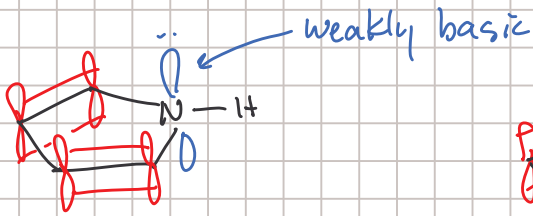
3.



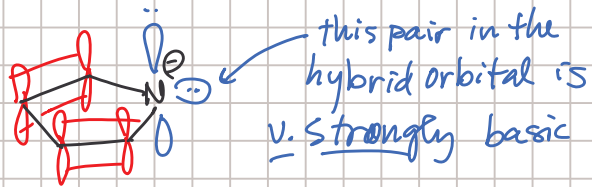
6 π e⁻ = aromatic



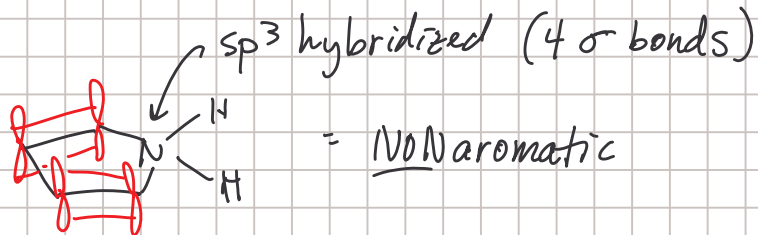
6 π e⁻



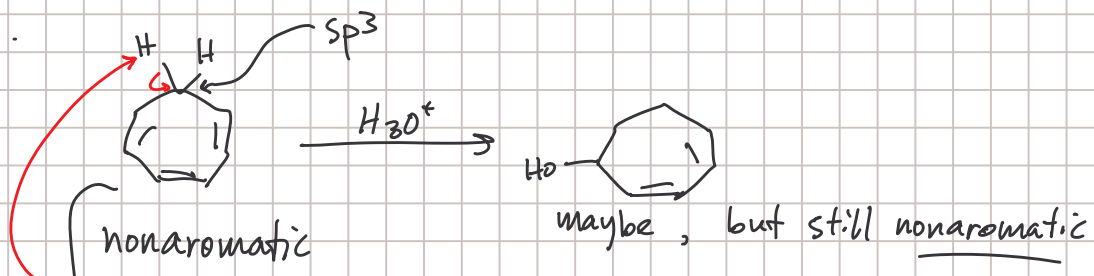
6 π e⁻ = aromatic



6 π e⁻ = aromatic



4.



~~$B:\ominus$~~
no reaction
- pdt too unstable.

