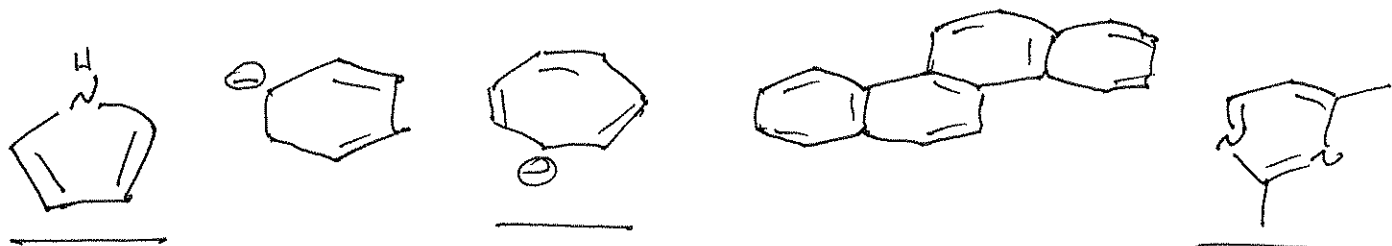


Problem Set 2

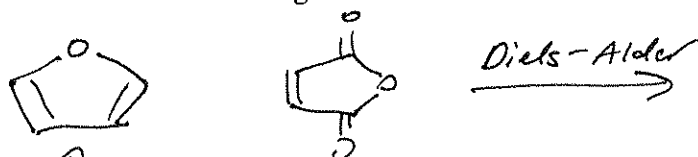
Five points. Due Monday, February 18, by the start of class.

Provide answers on a separate sheet(s) of paper, stapling together multiple pages.

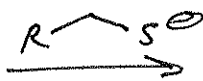
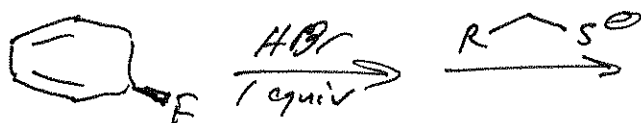
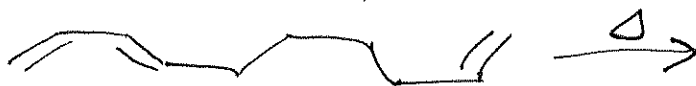
1. Indicate whether the following molecule is aromatic or is not aromatic. Explain, using the criteria for aromaticity. For the compounds underlines, draw a Frost circle.



2. Provide mechanisms and products for the following reactions. Draw relevant stereochemistry. Think about what is the driving force in each reaction.



↑ though aromatic, furan still goes in Diels-Alder; provide a plausible reason why.

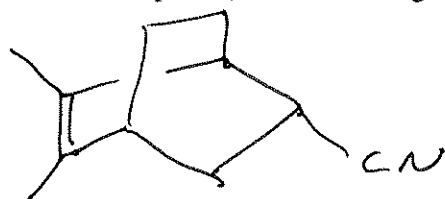


use mechanism to draw/explain



↑ this reaction does not proceed at pH 5; explain if this reaction is conducted at pH 15, the product is $C_5H_{13}NO$

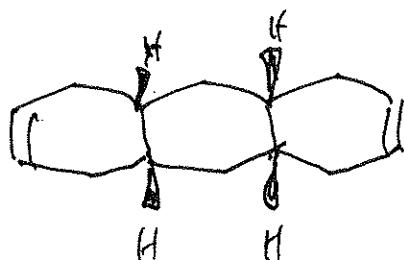
3. Propose syntheses of the following molecules using any **unfunctionalized alkene** (including diene or dienophiles) as the starting material.



via Diels-Alder



using compounds with ≤ 4 carbons



via Diels-Alder, using compounds with ≤ 6 carbons