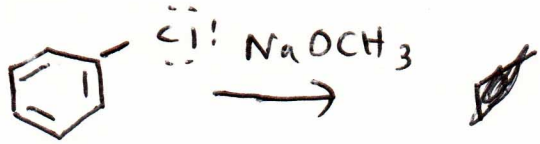
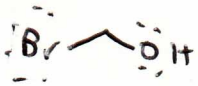
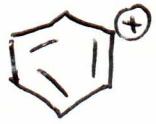



~~NR~~

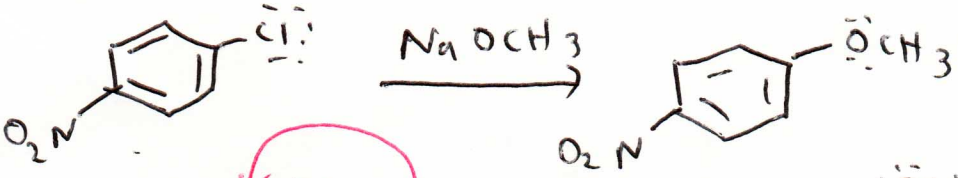


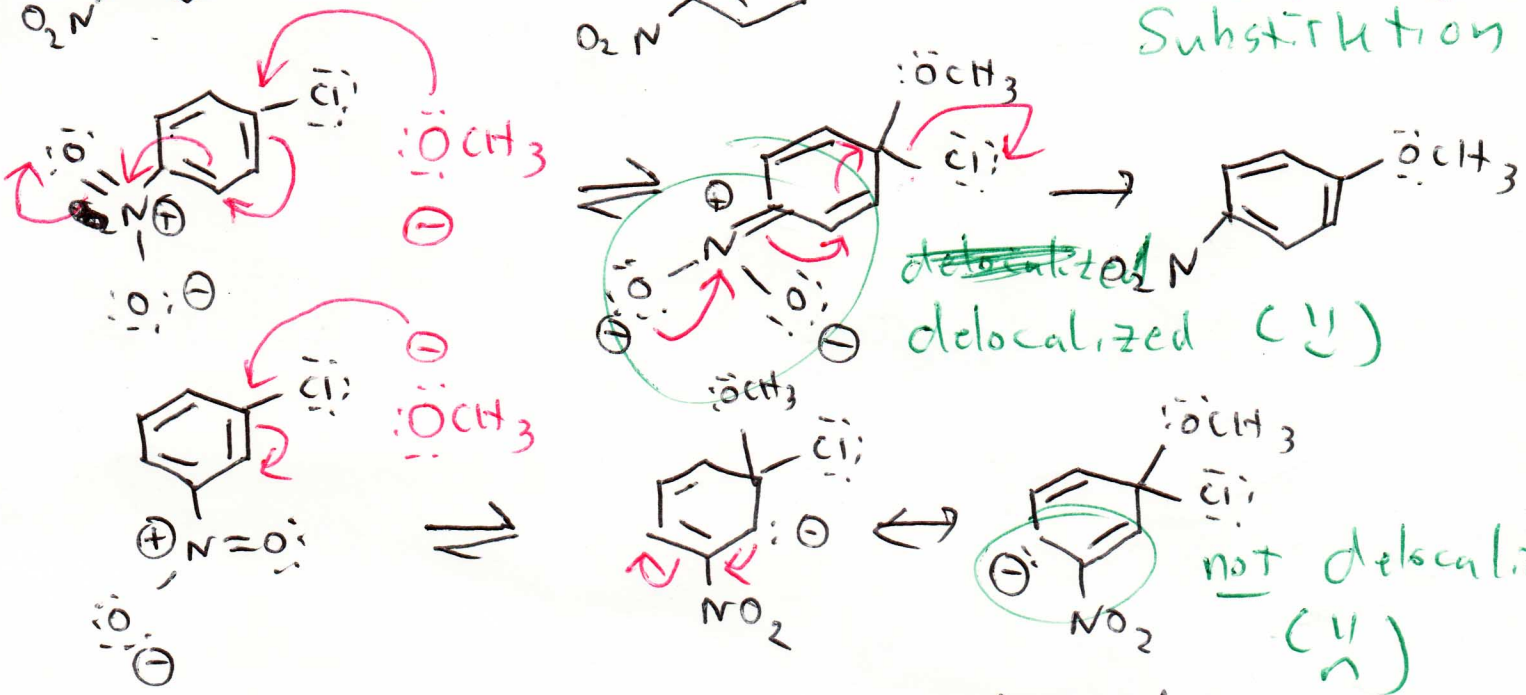

SN2 - Cannot occur due to steric hindrance (the nucleophile would have to pass through the ring) and repulsion of the nucleophile by the π cloud.

SN1 - Cannot occur due to formation of vinyl carbocation (poor stabilization of ⊕ due to hybridization) and geometric constraints (would want to be linear)




Nucleophilic Aromatic Substitution

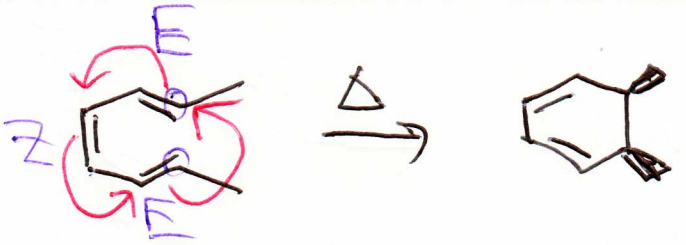


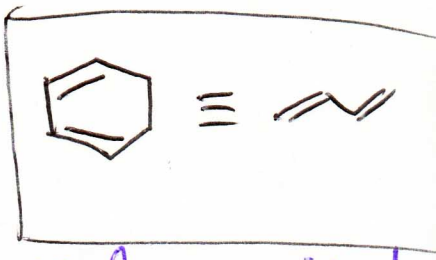

when the nitro group is at the ortho or para positions, it is able to delocalize the ⊖ off the ring, but not in the meta position,

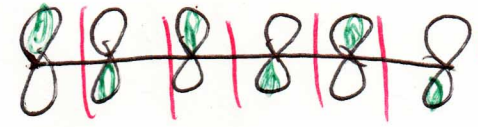
∴ The rxn is possible w/ the $NO_2$ @ ortho or para positions, but not likely, or very slow @ the meta position,

End of Exam 3




(2E, 4Z, 6E) - octa-2,4,6-triene

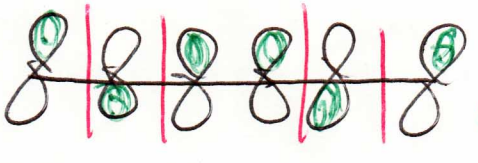


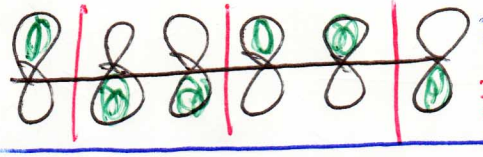



excited

LUMO for excited state

Un Occupied Molecular Orbital



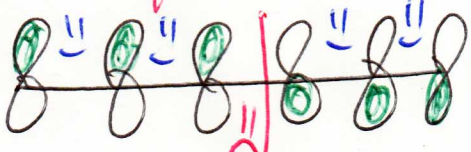

(LUMO)

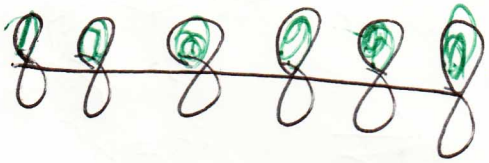
HOMO for the excited state

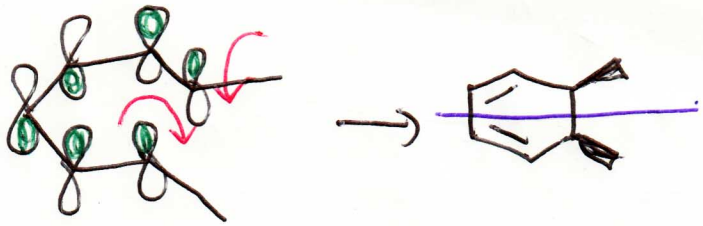

bonding

Highest Occupied Molecular orbital (HOMO)

*ground state

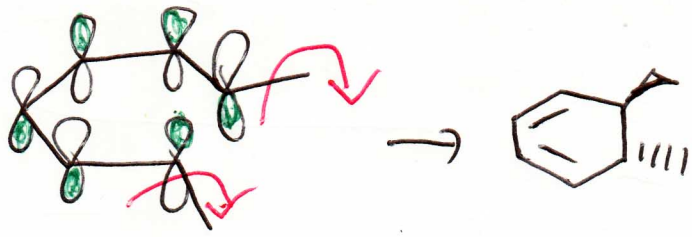


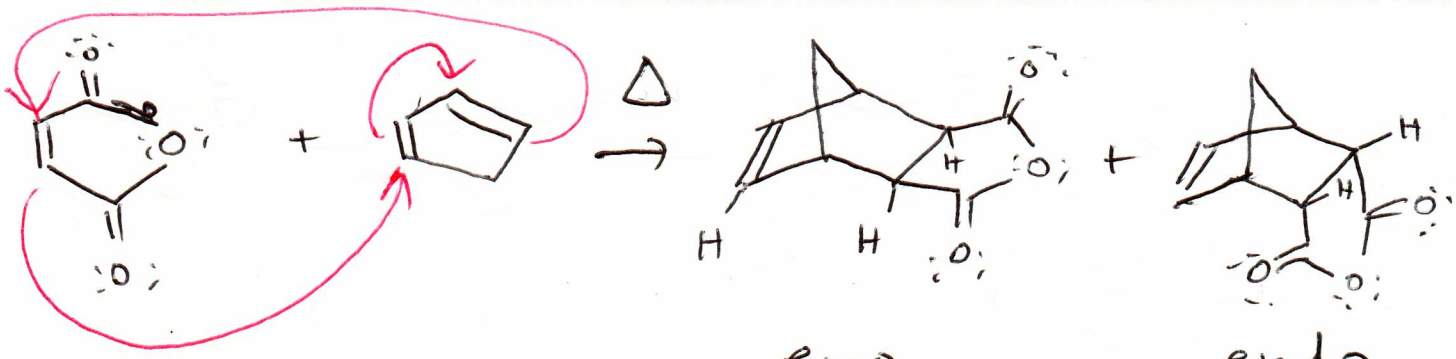
) meso → not optically active

disrotatory



not meso → optically active

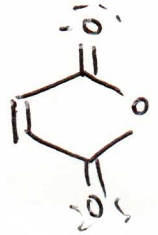
conrotatory

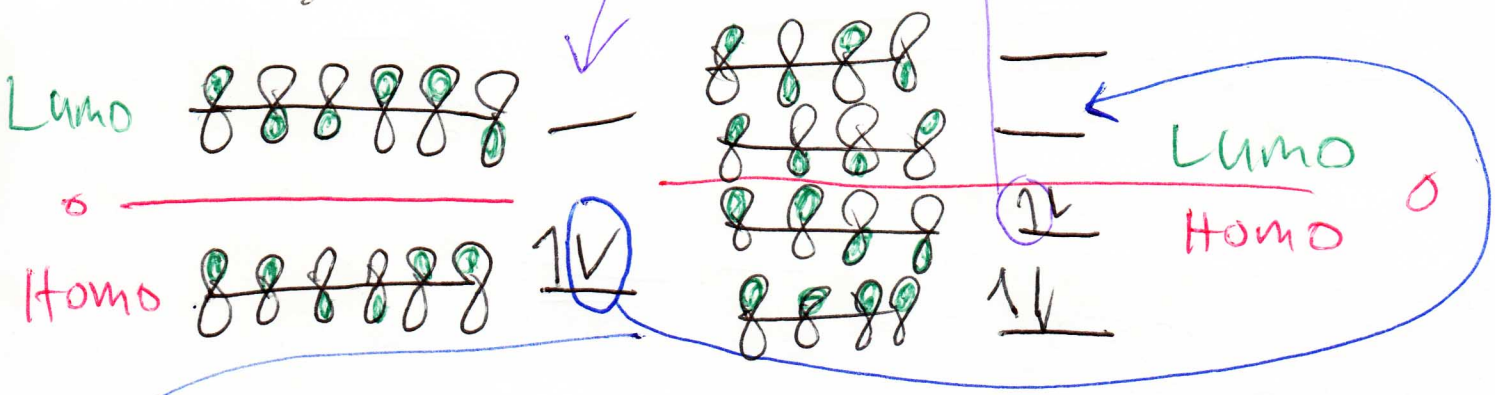


exo

endo

major product, despite steric factors



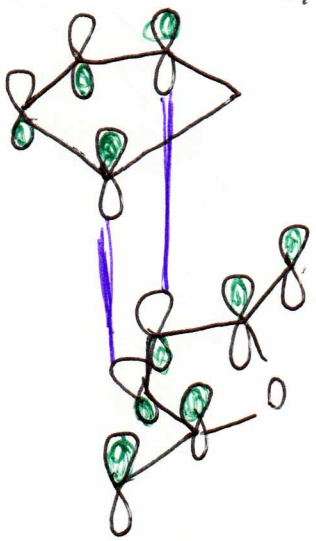



Either an electron moves from the Homo of the cyclopentadiene to the Lumo of the anhydride or an electron moves from the Homo of the anhydried to the Lumo of the cyclopentadiene.

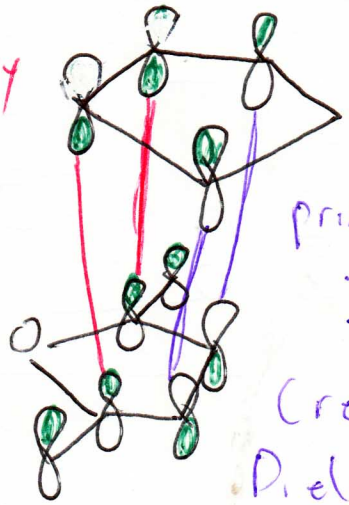
used here

exo

endo



Secondary overlap → makes endo more favorable



primary orbital overlap

Results in Yields - Alder rxn