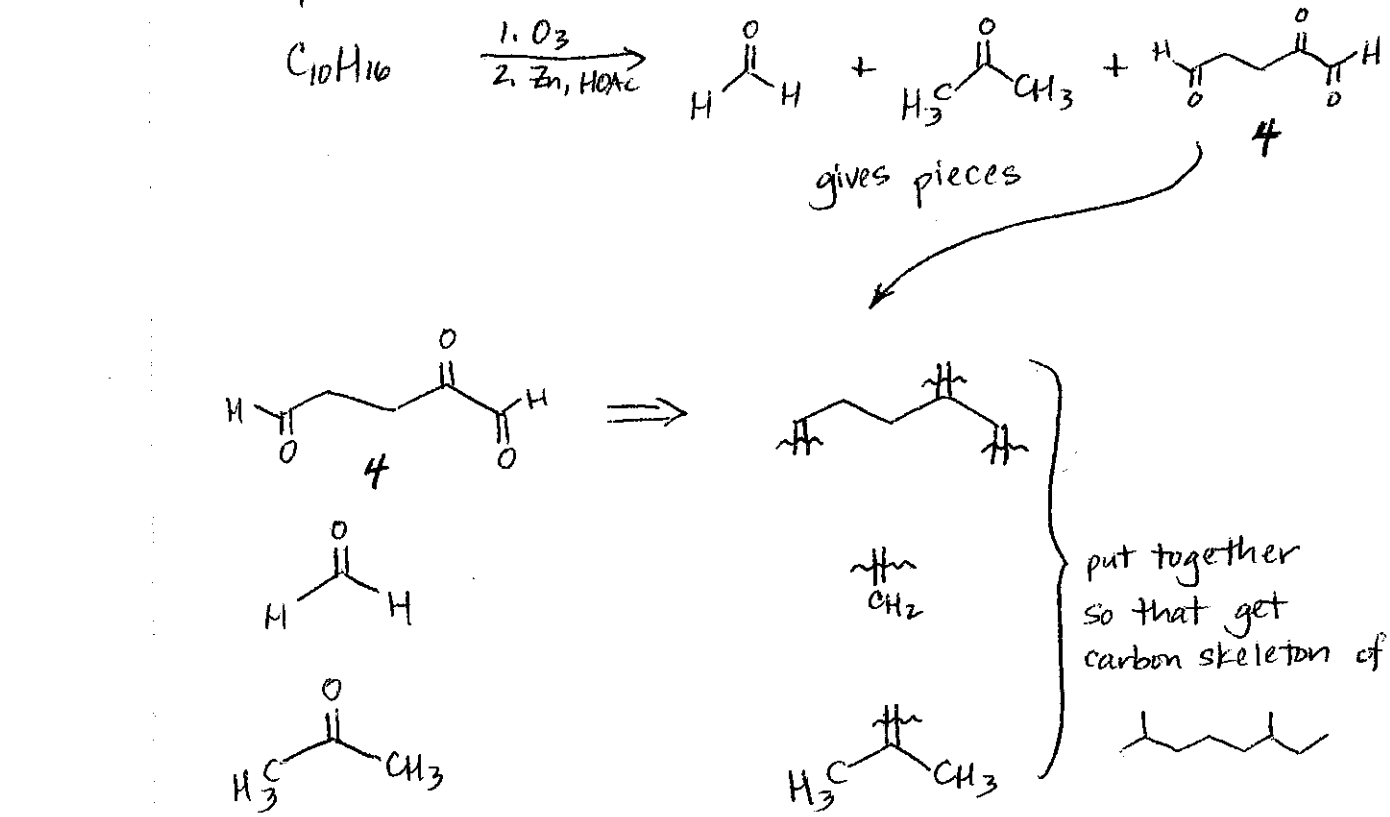
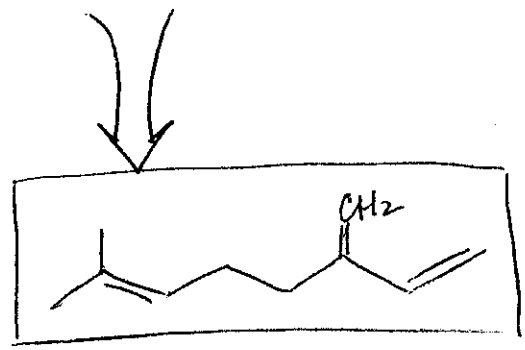
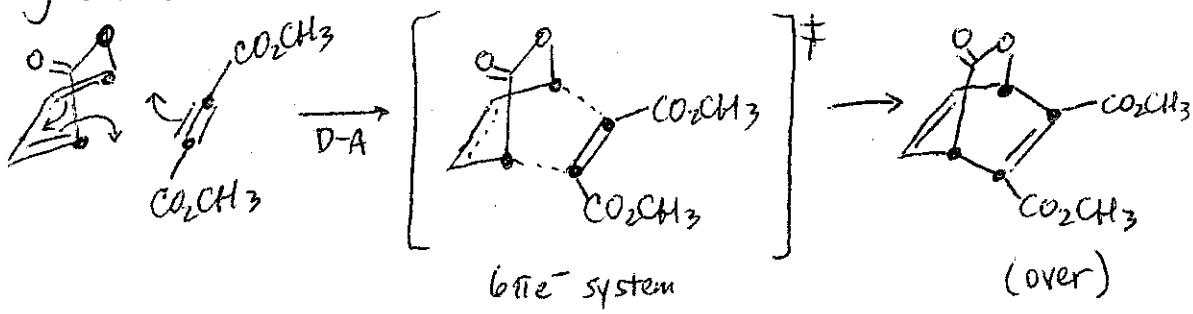
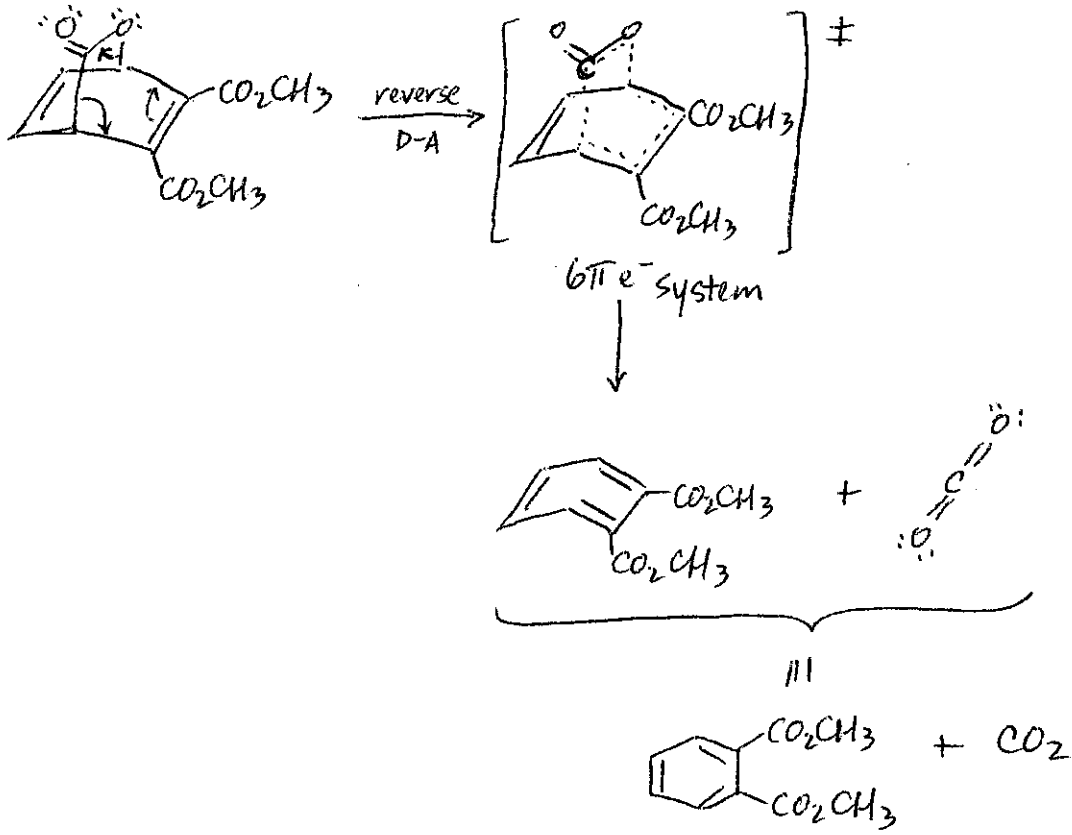
Ozonolysis:

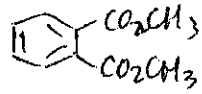




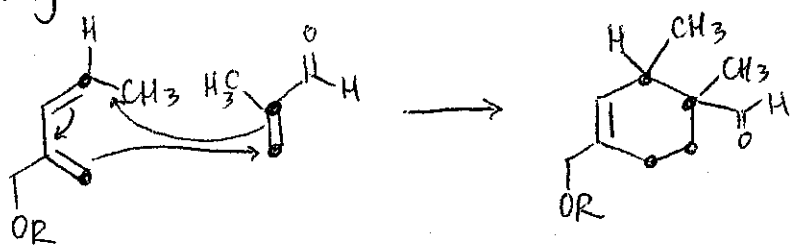
4. There are successive Diels-Alder and reverse Diels-Alder reactions going on here:



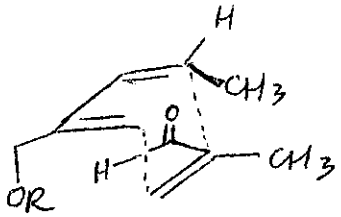


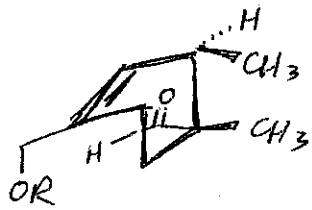
The driving force for the expulsion of CO_2 in the second step of this reaction is formation of the highly stabilized, aromatic product,  . We'll learn more about the special stability of such compounds next chapter.

5. Before going into great detail, let's do standard Diels-Alder e⁻ pushing:



(a,b) Now, draw good pictures to address stereochemistry:

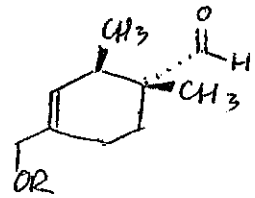




endo ±

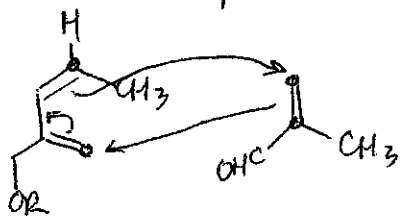
-favored by 2° orbital overlap

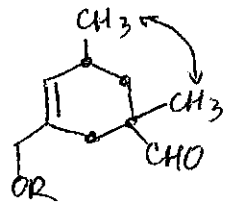
III



This is the enantiomer of 7 — 7 and its enantiomer (shown here) are produced in equal amts. in this reaction

(c) The other possible regioisomer would be:





substituents are "meta" on ring

regioisomer of 7

The "meta" product is usually disfavored in Diels-Alder reactions.