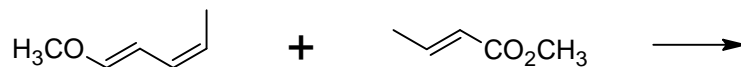


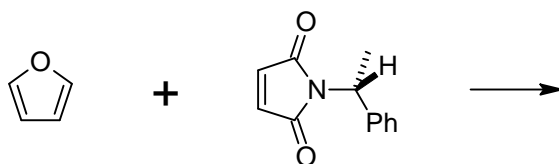
Most of these problems are intended to provide drawing practice. The tasks are 1) to relocate bonds correctly and 2) to apply the principle that the Diels-Alder addition is stereospecific.

1. Draw *all possible* Diels-Alder products. See special instruction regarding isomers.

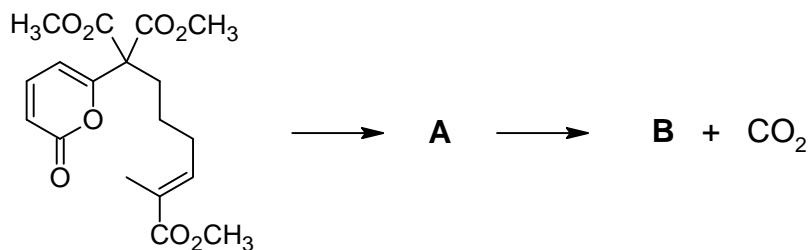
a. Draw all possible regioisomers and diastereomers. Do not draw enantiomers.



b. Draw all possible enantiomers for the following reaction

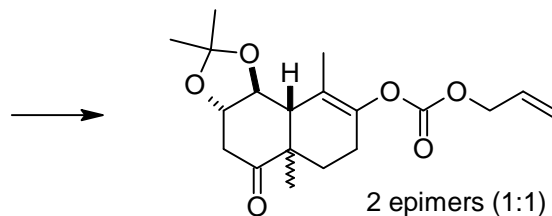


c. Hint: intramolecular rxn. Draw the least strained molecules that might be **A** and **B**. Do not draw enantiomers.

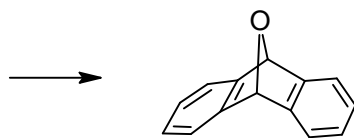


2. Draw the starting materials assuming that the products form *via* Diels-Alder additions.

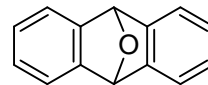
a.



- b. Hint: draw one starting material as a benzyne even though benzyne is not a stable reagent. Draw any other Diels-Alder products that might be obtained from these starting materials.



this molecule is also drawn as:



3. Draw a detailed multistep mechanism for the following transformation. One step involves a Diels-Alder cycloaddition. The other products include methanol and pyrrolidine.

