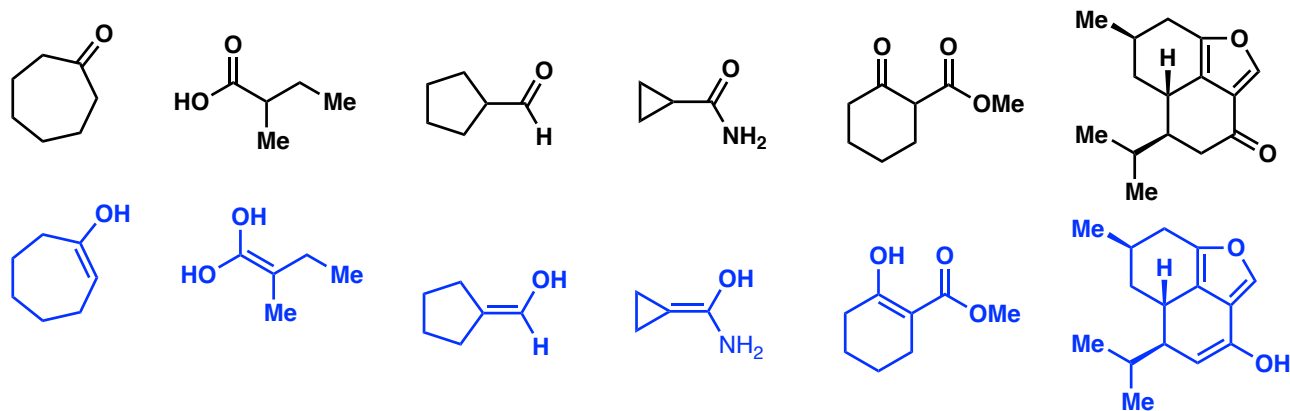
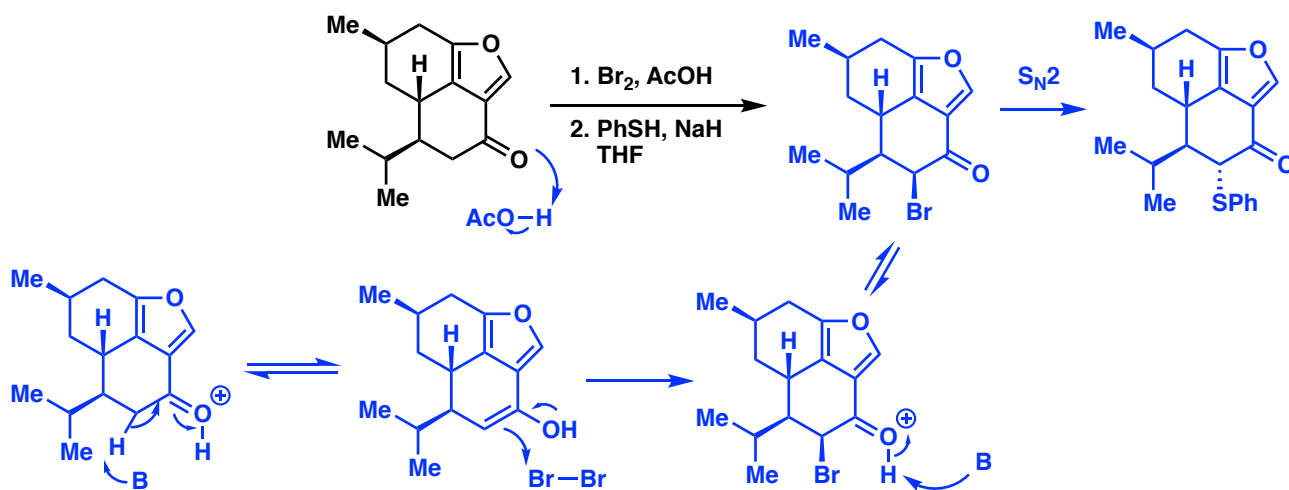


Problem Set 9
Chem 2211 Honors

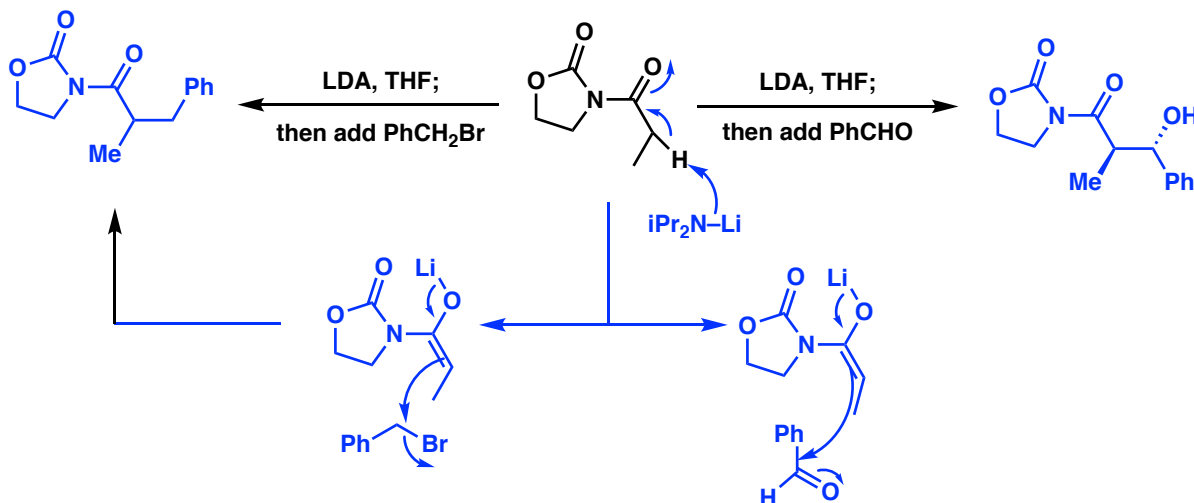
1. a. Draw the appropriate enol tautomers of the following carbonyl compounds.



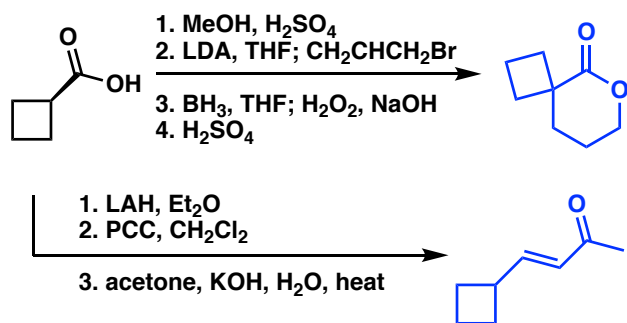
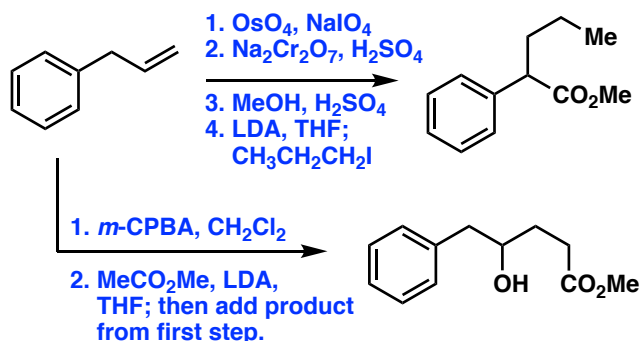
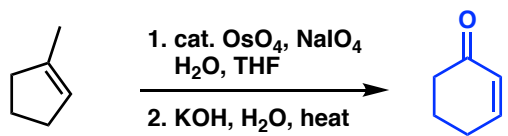
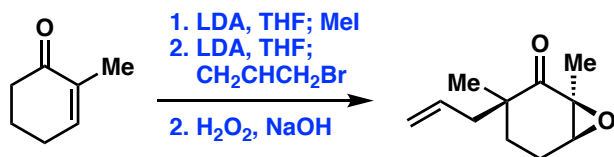
b. Predict the product of the following transformation and provide a mechanism explaining its formation



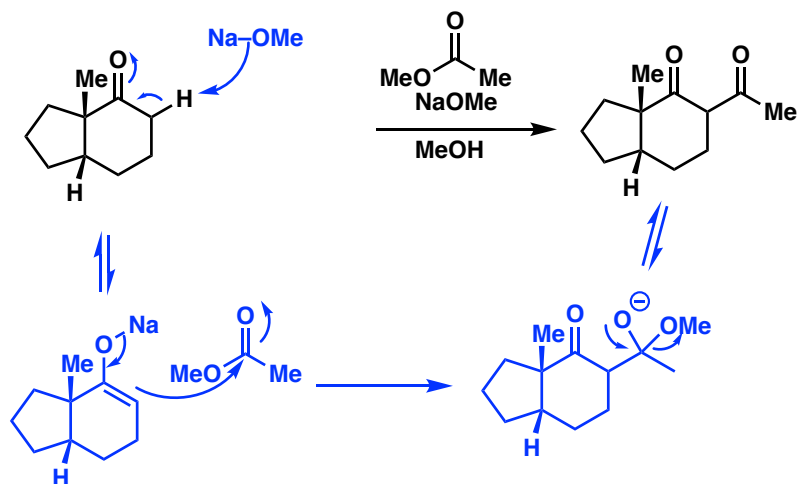
c. The aldol (Borodin) reaction has been investigated by many chemists over the years. Provide a mechanisms and products for the following reactions.



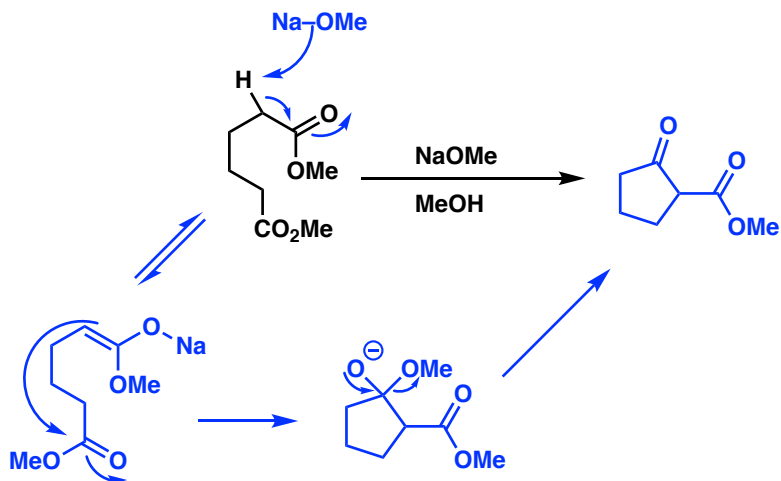
2. Provide reagents and/or products to the reactions below.



3. a. The Claisen condensation is a variation of the aldol reaction. Provide a mechanism for the following reaction.



b. Show a mechanism for the following Dieckmann condensation and predict the product.



4. Provide a forward synthesis of the following compounds from cyclopentadiene or cyclopentanone and units of 3 carbons or fewer (a retrosynthesis will help you!!).

