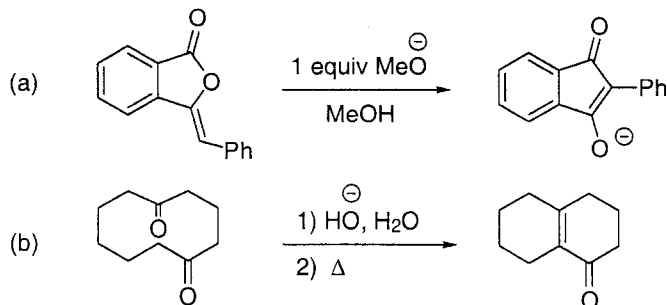
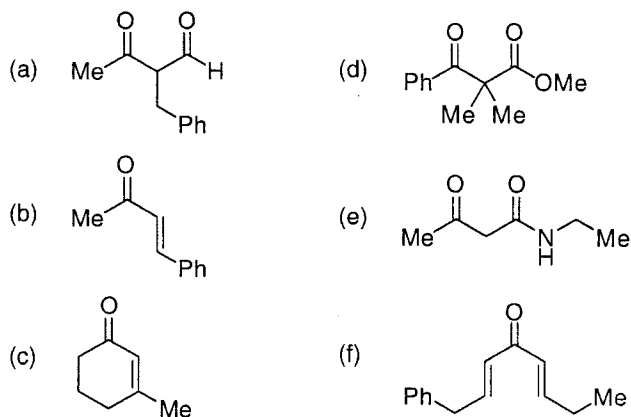


Problem Set 8
Due: Monday, April 28, by noon

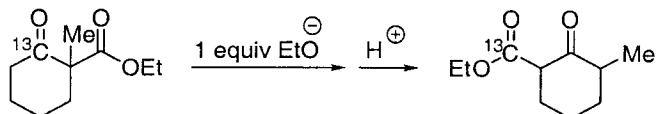
(1) Provide the best mechanism. Please show all arrow-pushing.



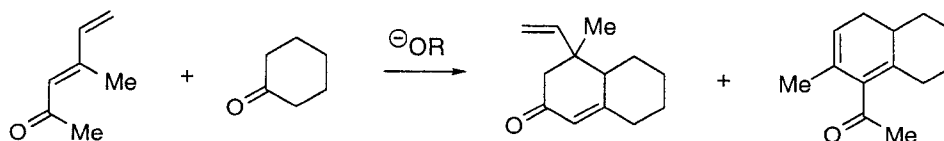
(2) Propose a synthesis for each of the following compounds, starting with benzyl alcohol (PhCH₂OH) and with alcohols that contain three or fewer carbons.



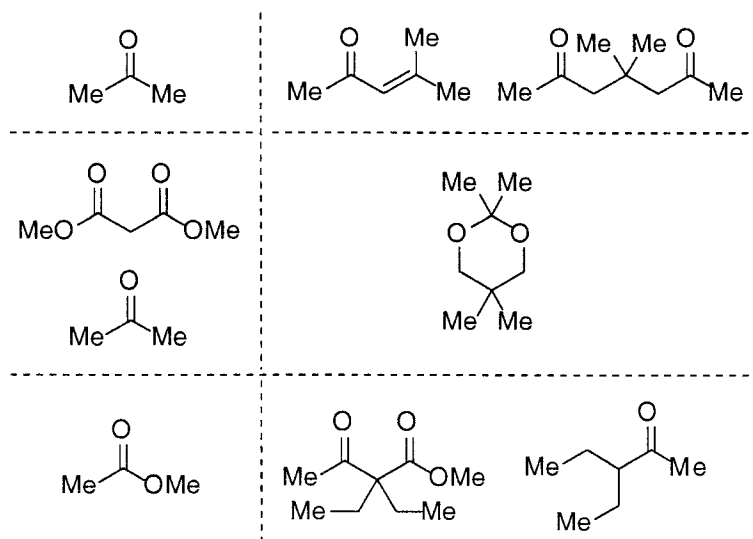
(3) Provide a mechanism for the illustrated transformation that is consistent with the carbon-13 labeling result. Please show arrow pushing.



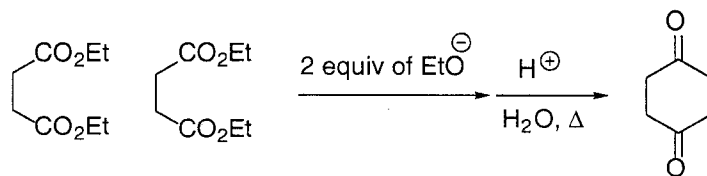
(4) Provide a mechanism. Please show arrow-pushing.



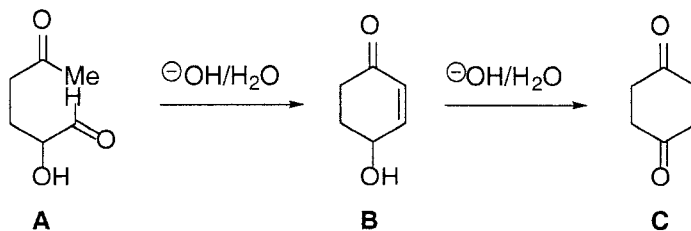
- (5) Propose a synthesis for the molecules on the right using the starting materials on the left and any one-carbon organic molecules.



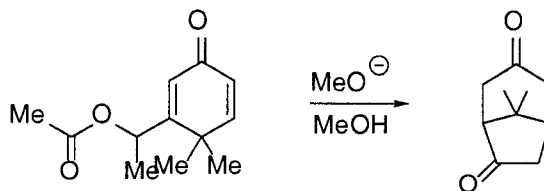
- (6) Provide a mechanism for the illustrated reaction. Please show arrow pushing.



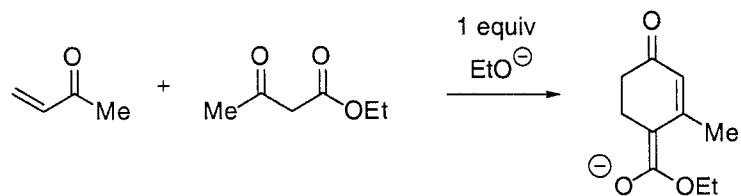
- (7) Provide a mechanism for the conversion of **A** to **B** and of **B** to **C**. Please show arrow pushing.



- (8) Provide a mechanism for the illustrated reaction. Please show arrow pushing.



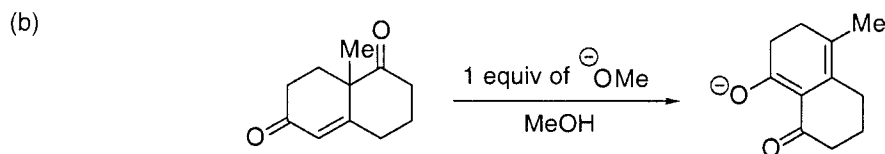
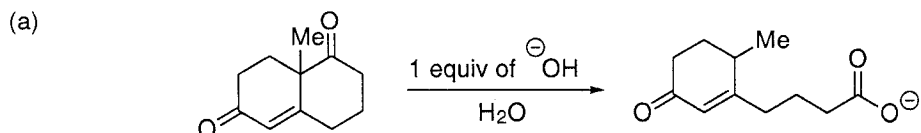
(9) Provide the best mechanism. Please show all arrow pushing.



(10) Provide the best mechanism for each of the reactions illustrated below.

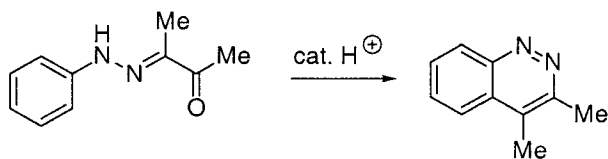
Hint: The mechanism for part (a) only requires three or four steps.

Please show all arrow pushing.

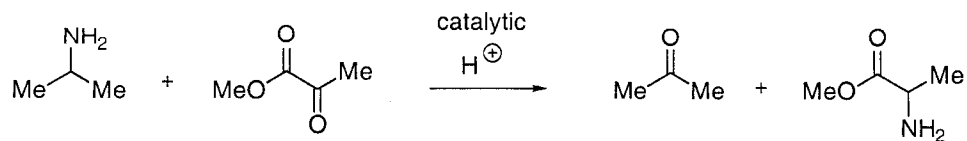


(c) Succinctly explain why different pathways are observed under the different reaction conditions.

(11) Provide the best mechanism. Please show all arrow pushing.



(12) Provide the best mechanism. Please show all arrow pushing.



(13) Provide the best mechanism. Please show all arrow pushing. **Hint:** The last step is a Michael addition reaction.

