

Name: Key

The University of Akron
Chemistry 3150:264
Organic Chemistry

Exam #3
July 24, 2009
200 pts

There are seven (7) pages and eight (8) questions on this exam. Please check to see that you have a complete test. If you do not, please see me **NOW**. Please read and follow the directions to each question carefully.

Points:

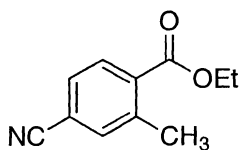
<u>Problem</u>	<u>Points</u>
1	10
2	8
3	6
4	6
5	35
6	35
7	35
8	35
9	30
	200 Total

Bonus 5

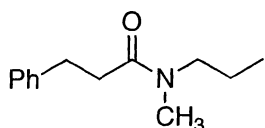
Fortune comes a crawling, calliope woman,
Spinning that curious sense of your own.
Can you answer?
Yes I can!
But what would be the answer to the answer man?

-J. Garcia, R. Hunter

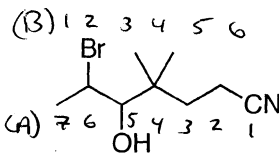
- 1) Give the correct common or IUPAC nomenclature for *two* of the following molecules. Be sure to include stereochemical designations where necessary and indicate *clearly* which answers you want graded. (10 pts)



Ethyl 4-cyano-2-methylbenzoate

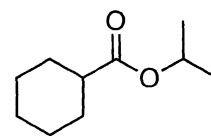


N-methyl-N-propyl-3-phenylpropanamide



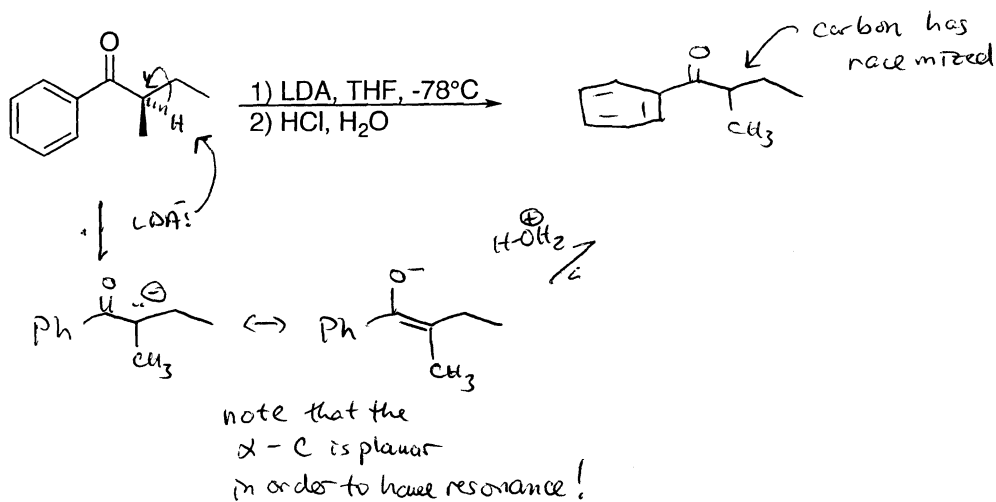
(A) 6-bromo-5-hydroxy-4,4-dimethylheptanenitrile
or

(B) 2-bromo-6-cyano-4,4-dimethyl-3-hexanol

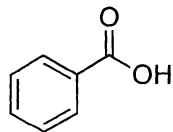


isopropyl cyclohexanecarboxylate

- 2) Carefully predict the product and stereochemistry of that product for the following reaction sequence. To receive full credit, provide a BRIEF explanation for your answer. (8 pts)



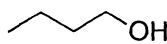
- 3) Give the pK_a values of three of the four molecules below (± 5 pK_a units is acceptable). (6 pts)



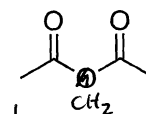
~ 4.5



~ 49

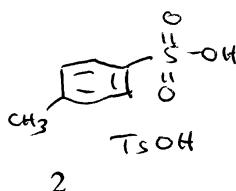
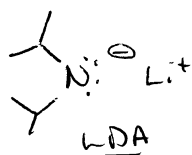


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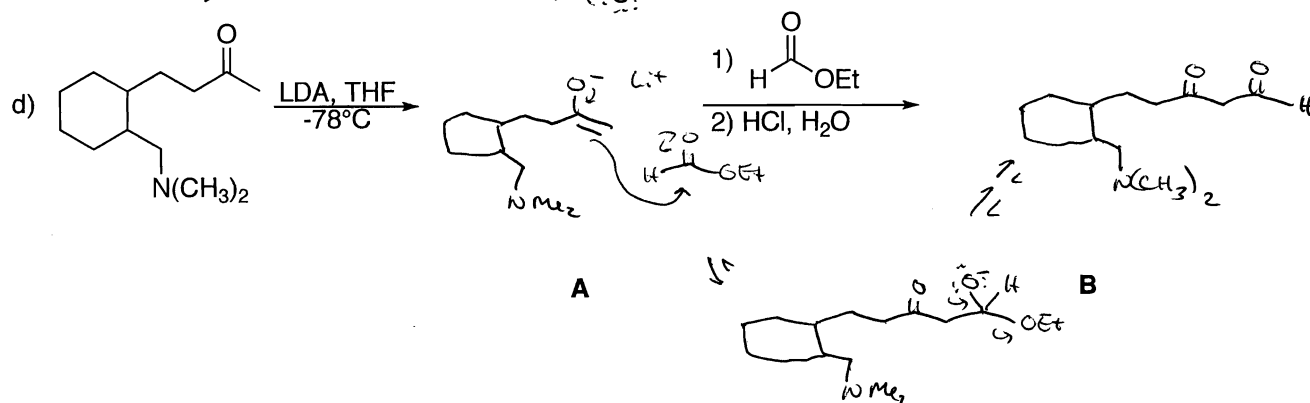
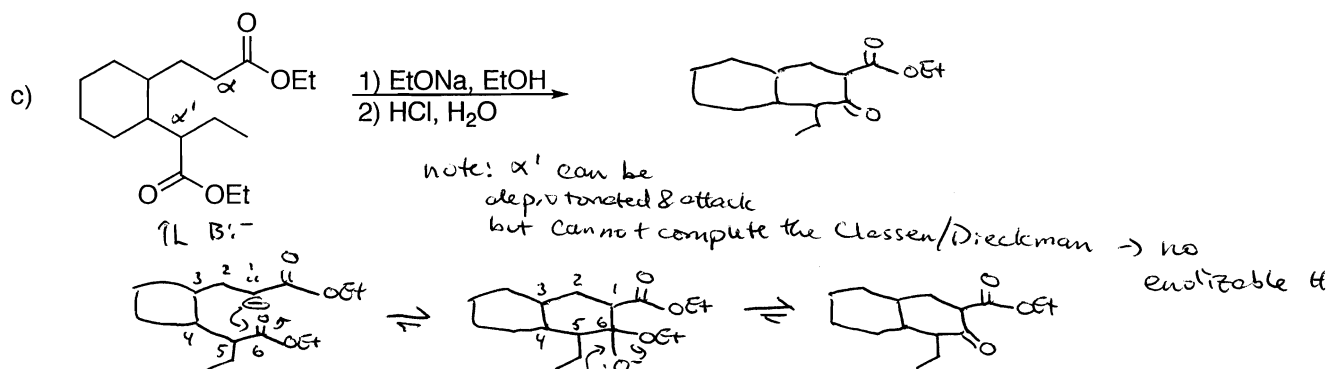
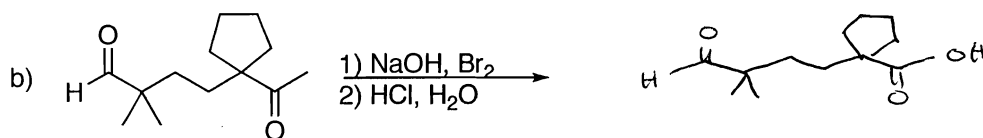
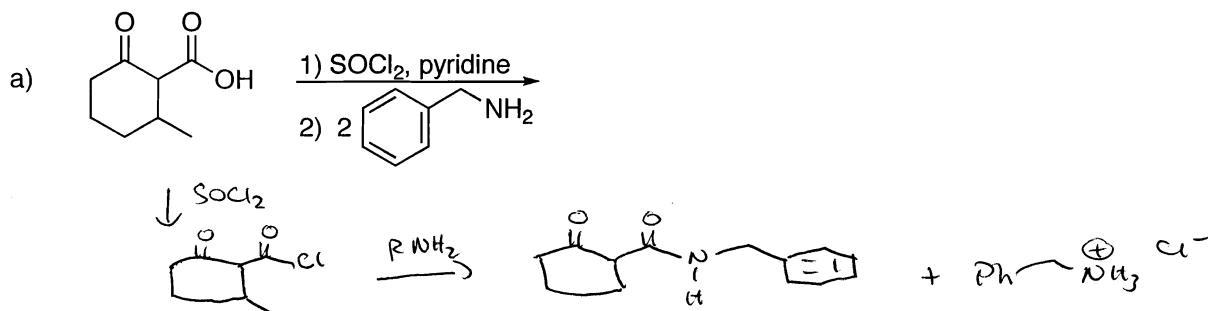


~ 19 ~ 10

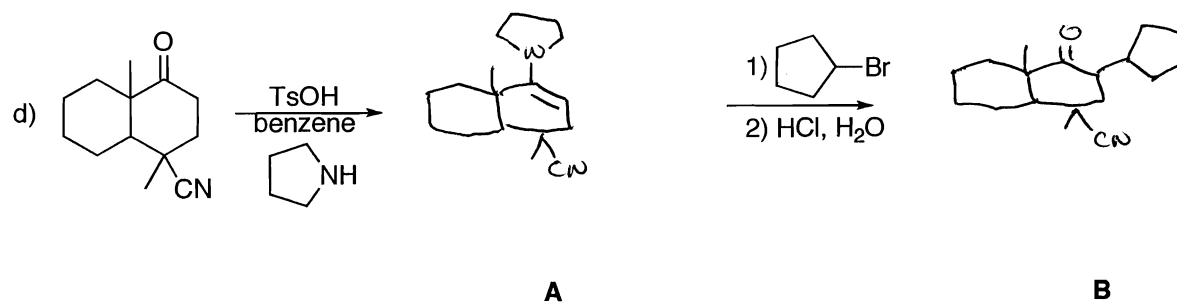
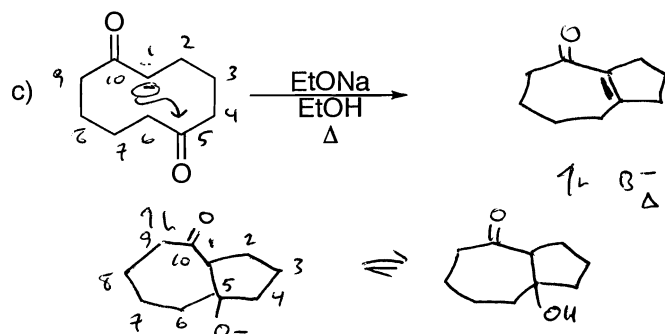
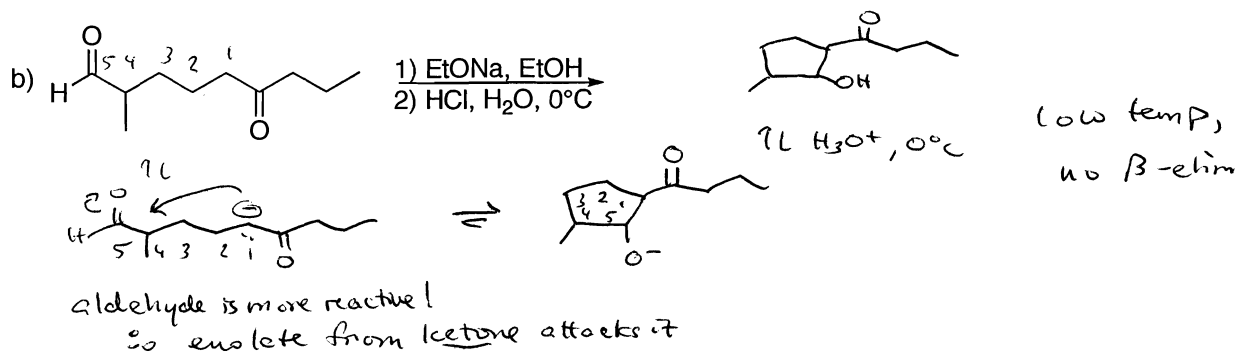
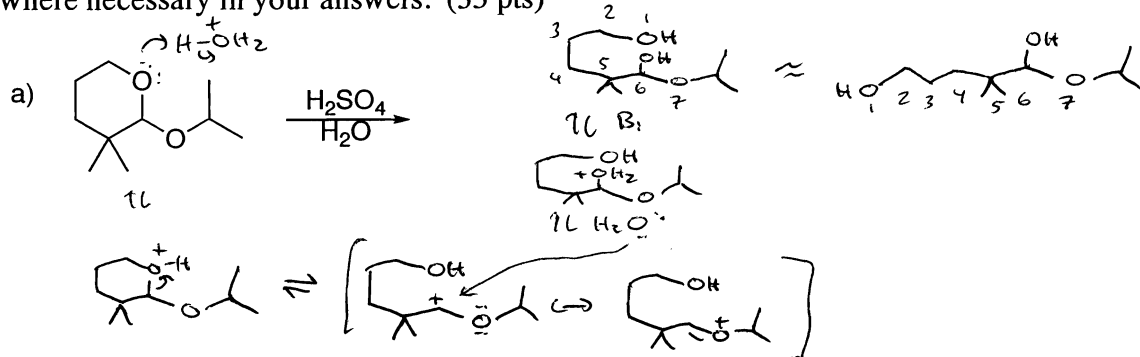
- 4) Draw the structures of LDA and TsOH. (6 pts)



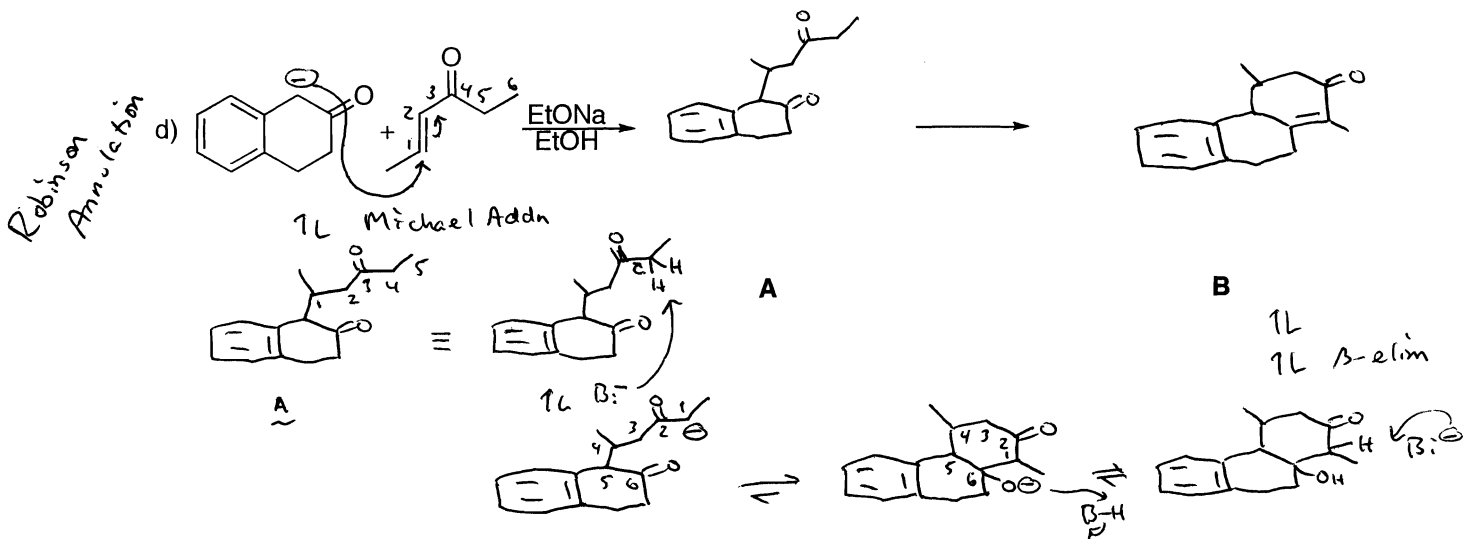
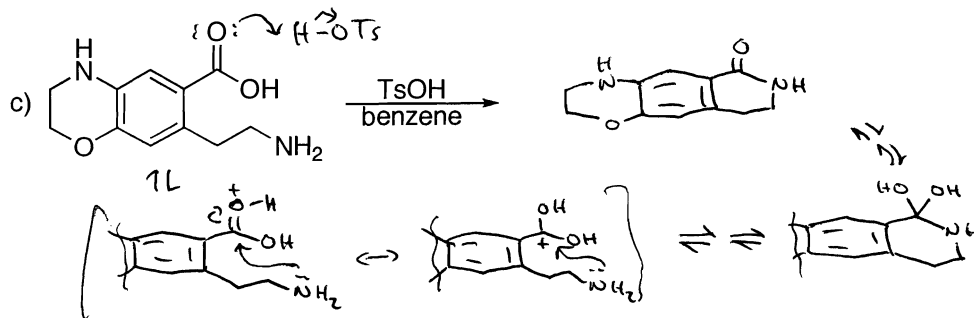
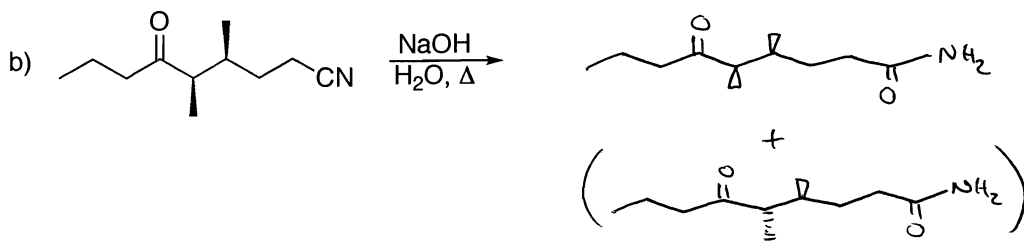
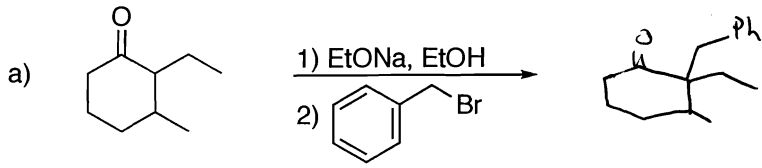
5) Indicate the expected products for the following reactions. Be sure to show stereochemistry where necessary in your answers. (35 pts)



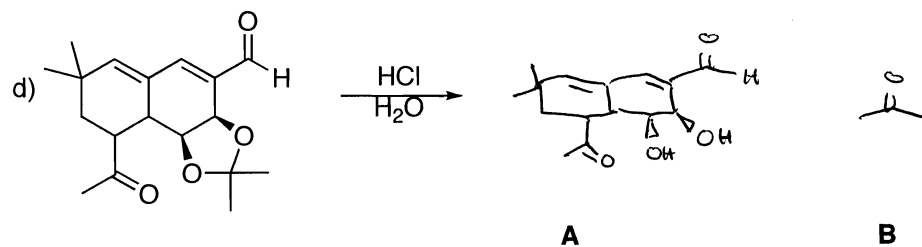
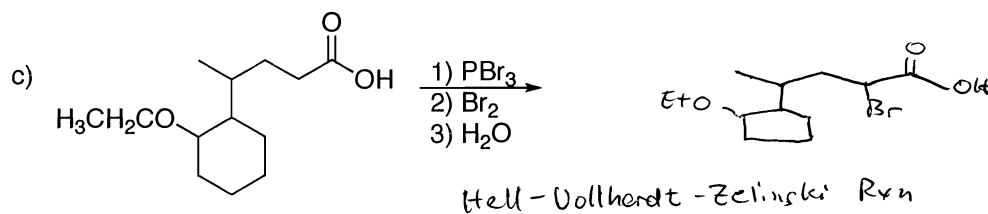
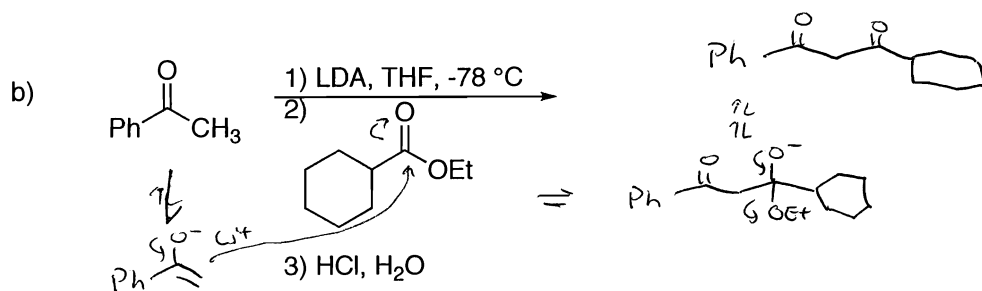
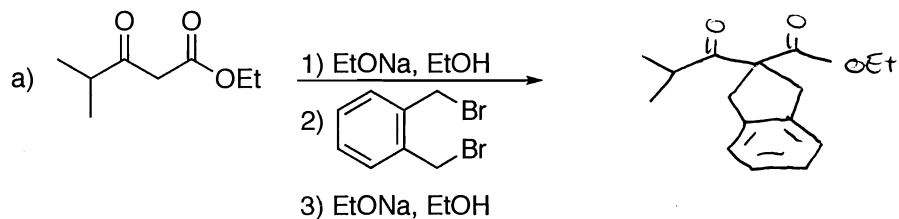
6) Indicate the expected products for the following reactions. Be sure to show stereochemistry where necessary in your answers. (35 pts)



7) Indicate the expected products for the following reactions. Be sure to show stereochemistry where necessary in your answers. (35 pts)



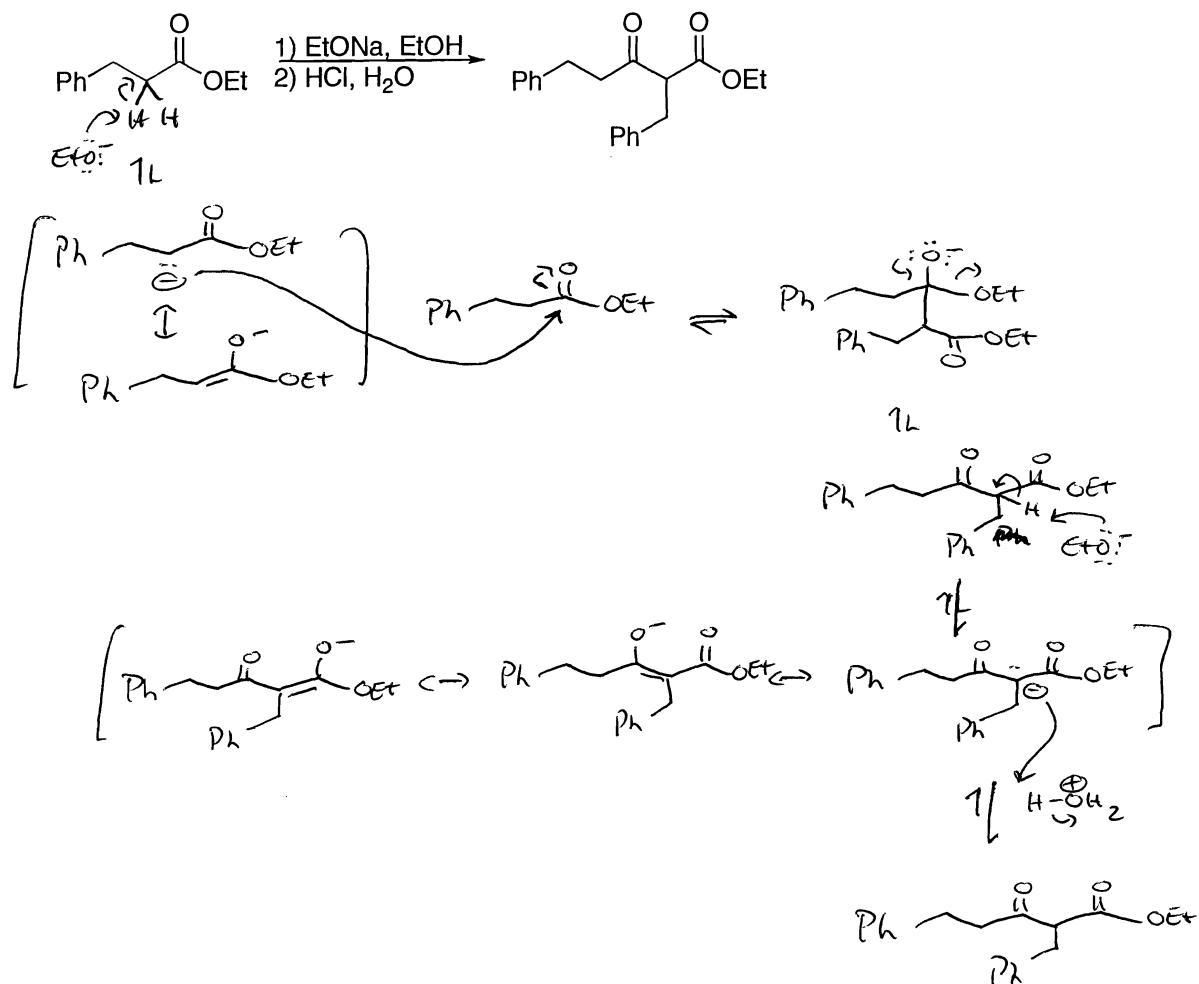
8) Indicate the expected products for the following reactions. Be sure to show stereochemistry where necessary in your answers. (35 pts)



Remember



9) Provide a detailed and reasonable mechanism for the following reaction. Be sure to show all relevant resonance structures, charges and arrows. (30 pts)



Bonus: So, now FINALLY, vacation time! What and where is your ultimate vacation and why?

