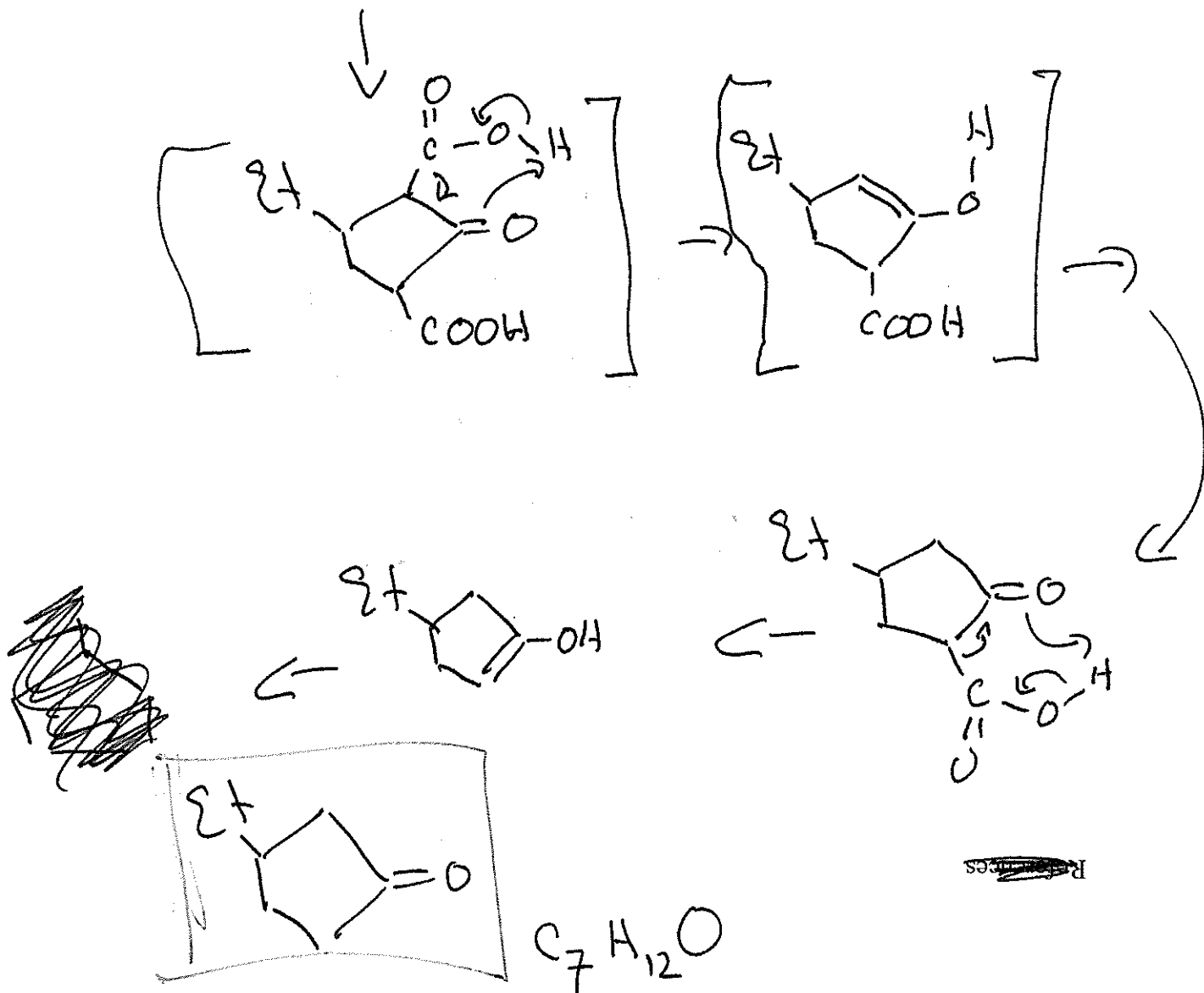
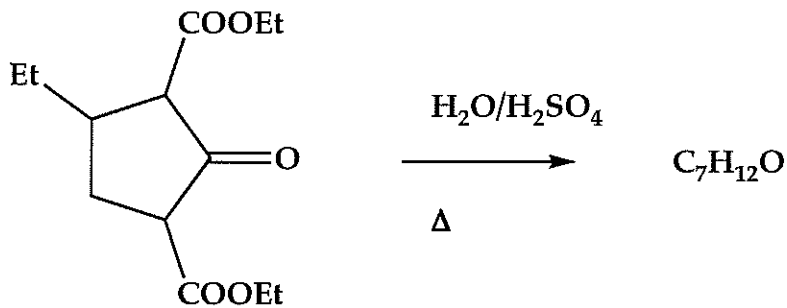


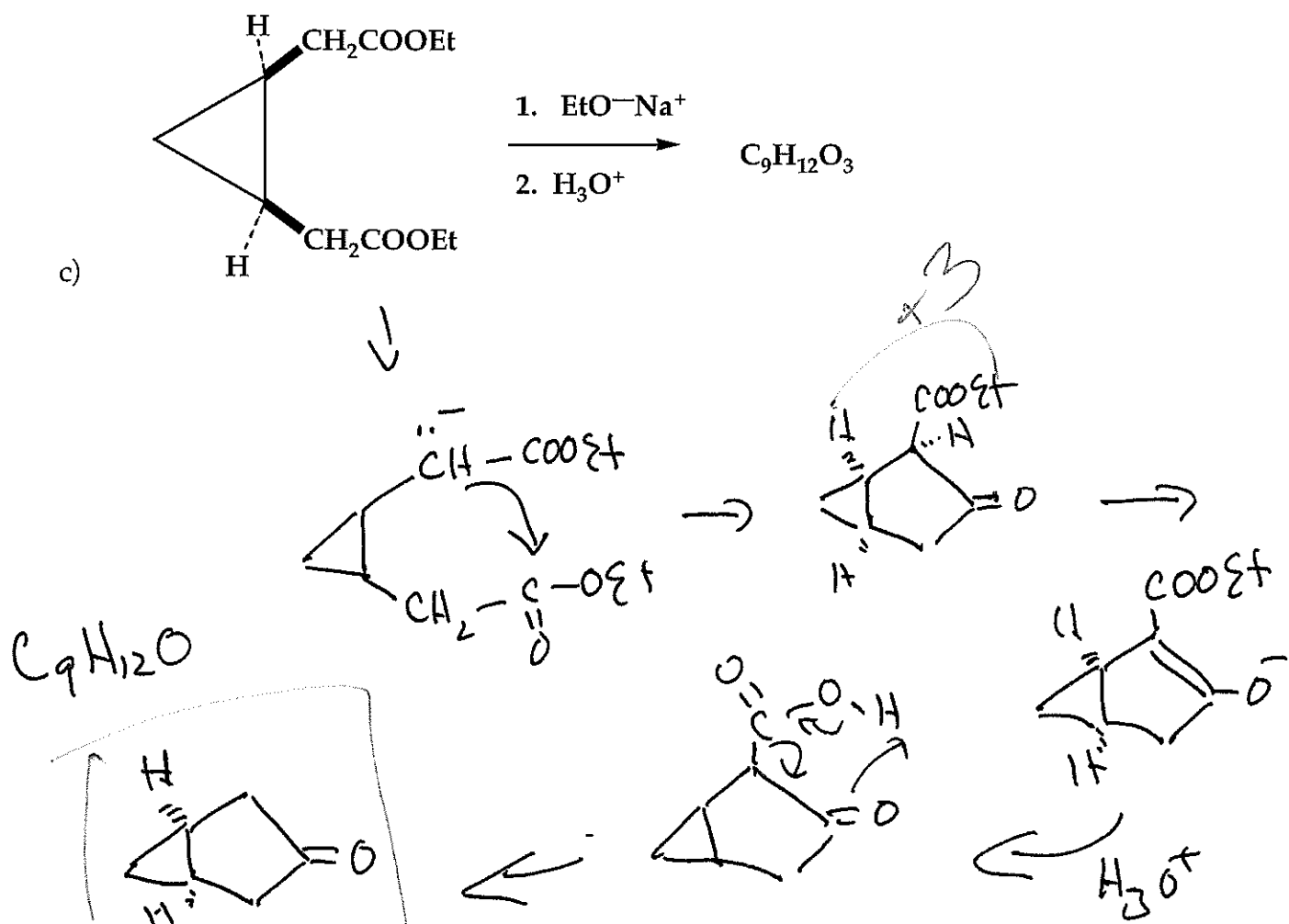
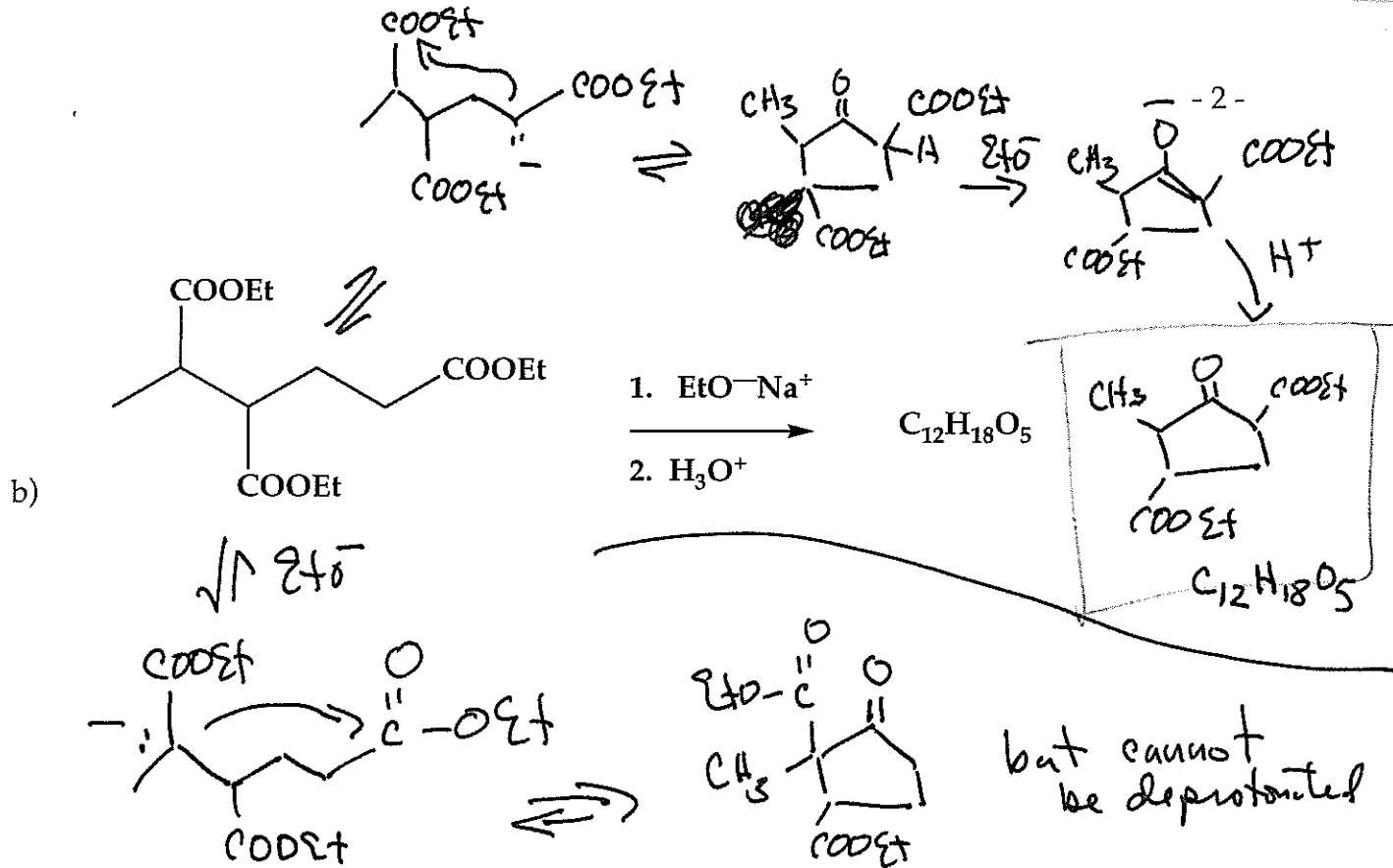
Chemistry 3331-100
Organic Chemistry/Dr. Barney Ellison

Thursday: April 16th @ 7:00pm → 9:00/2nd Exam/Chemistry Humanities 1B50)

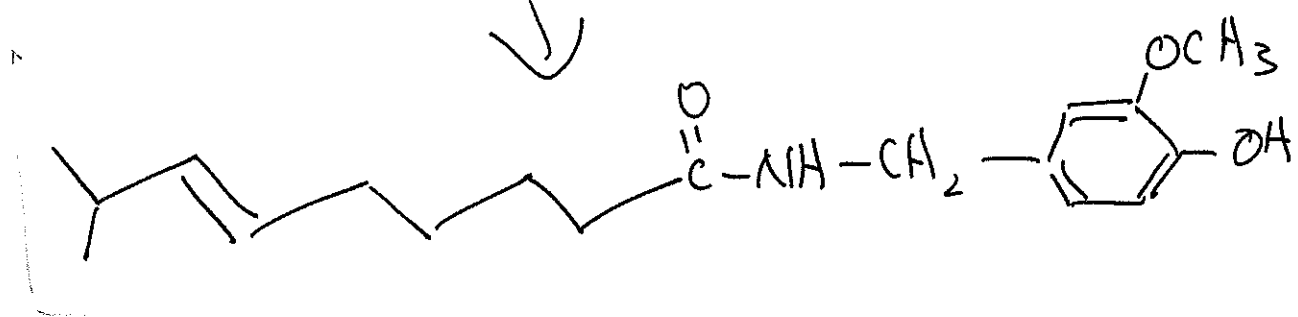
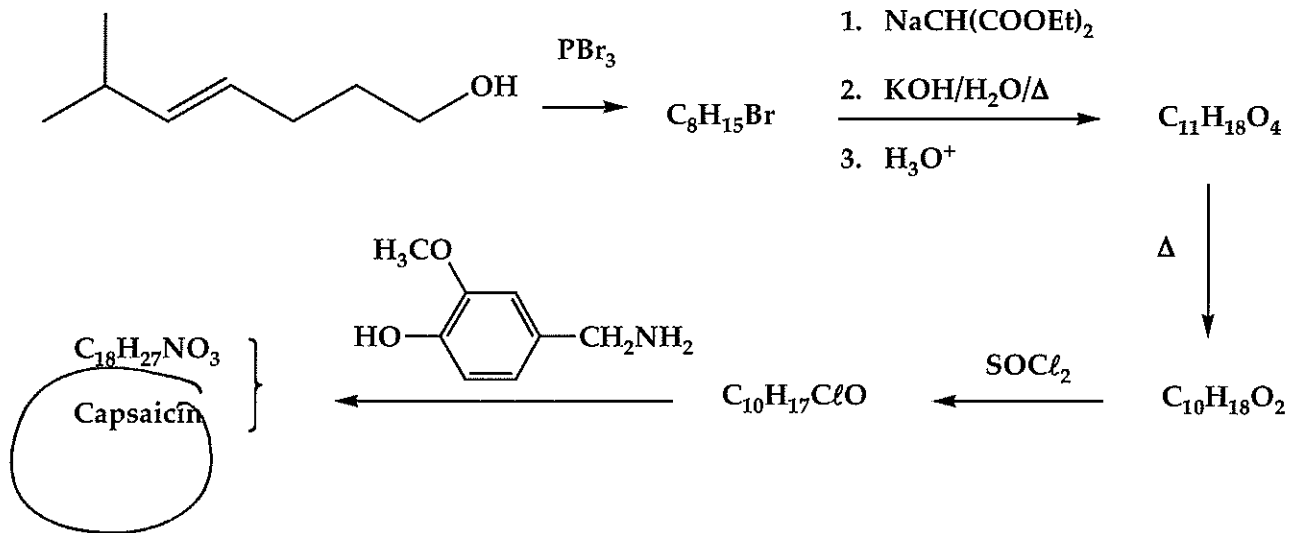
Name: Key (please print)

1. (15 pts) Give the structure of the principal organic product of each of the following reactions.



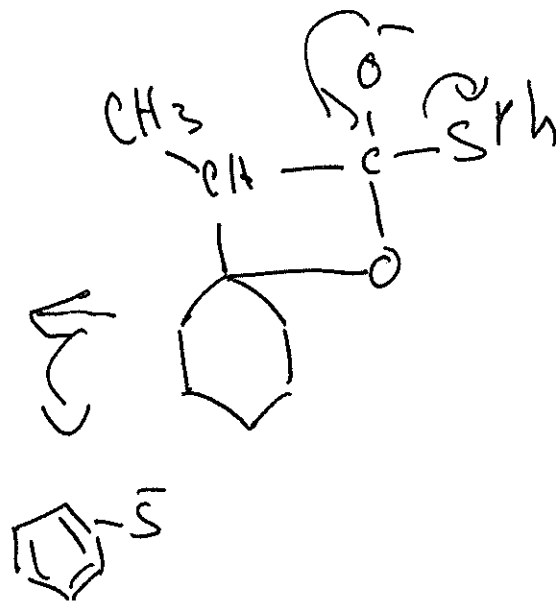
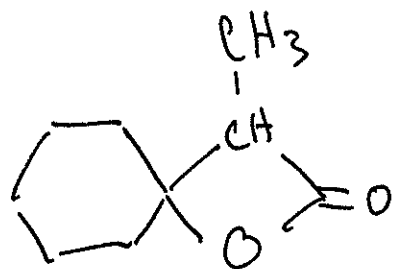
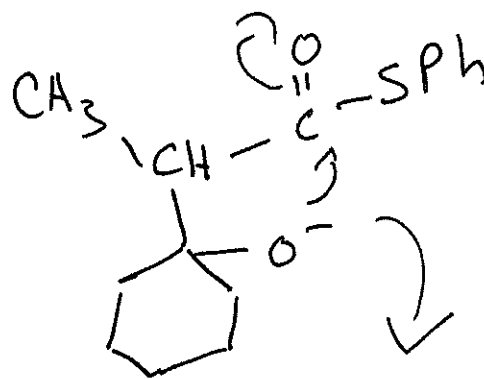
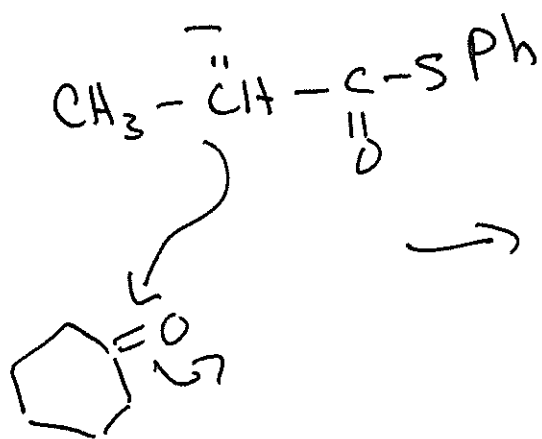
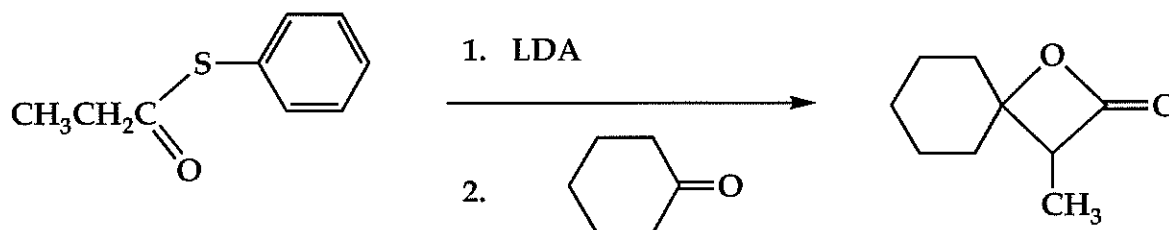


2. (10 pts) What is the structure of capsaicin?

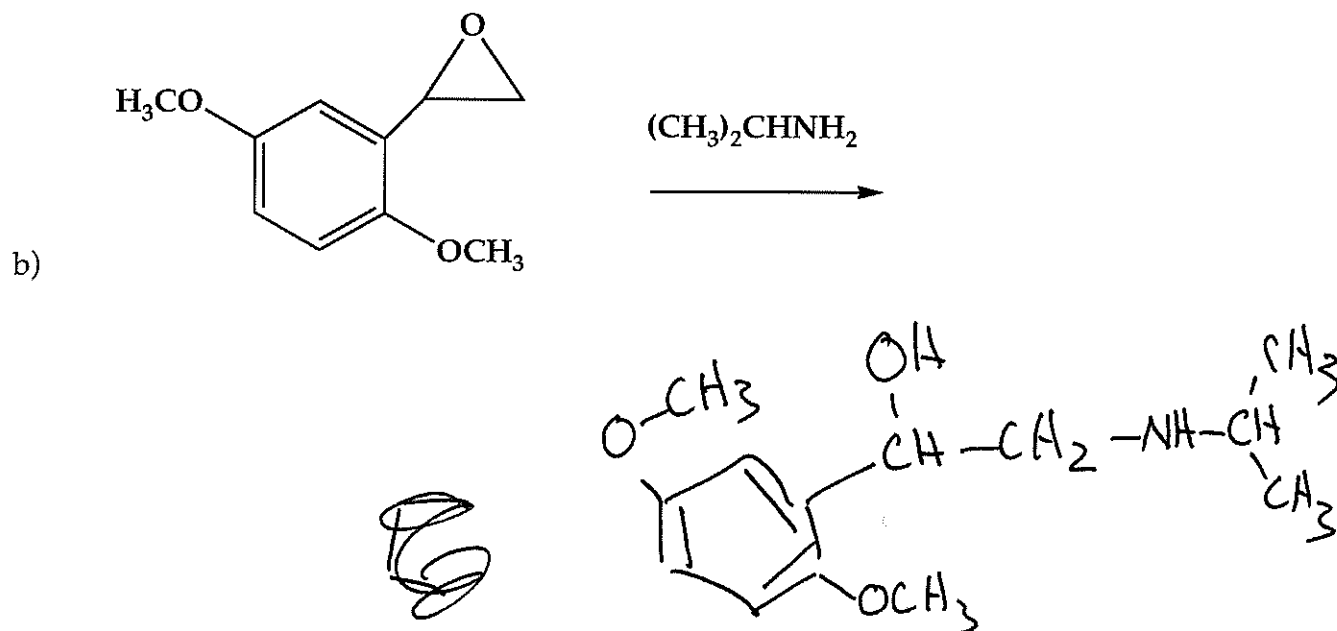
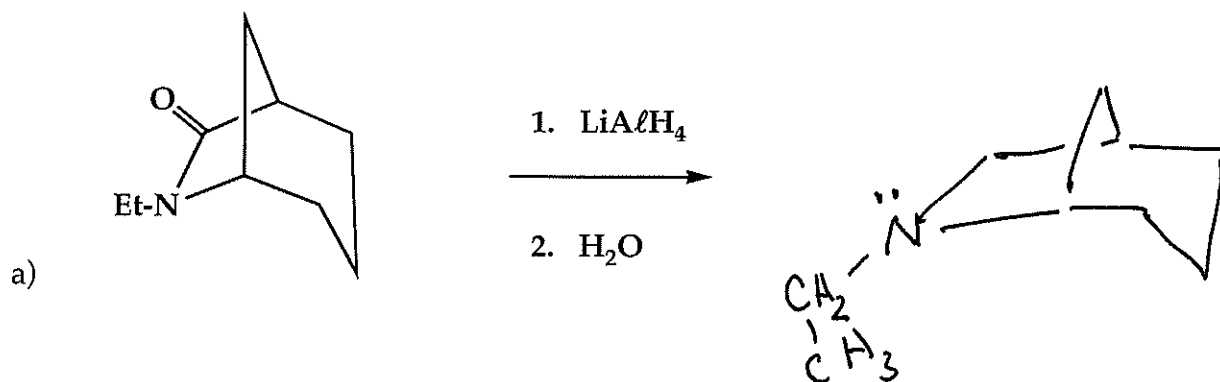


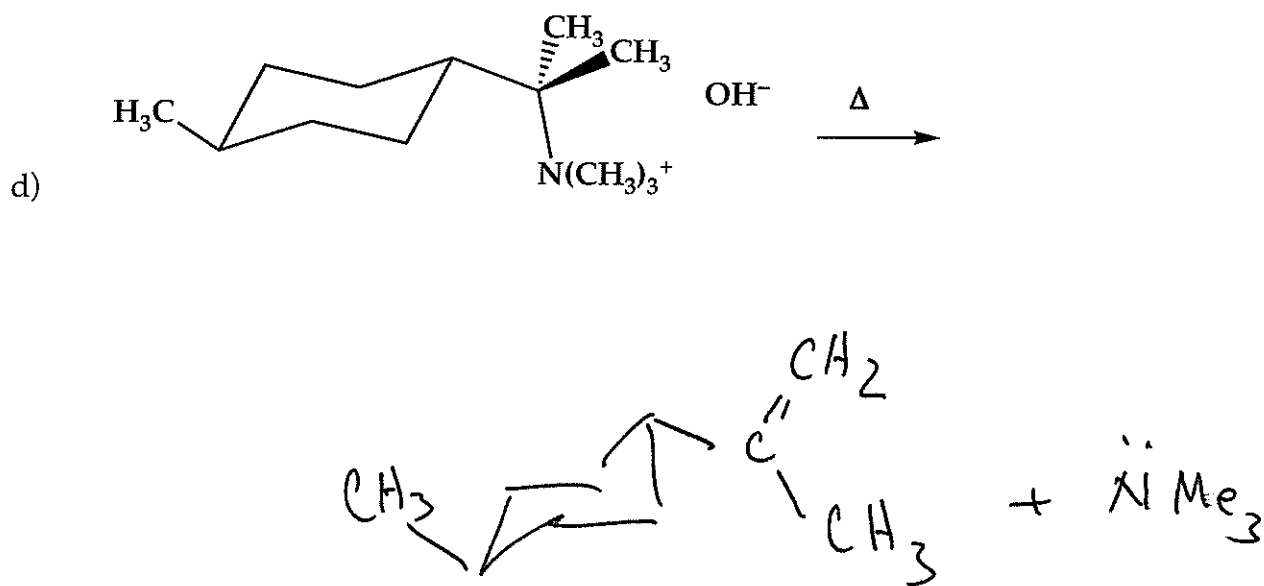
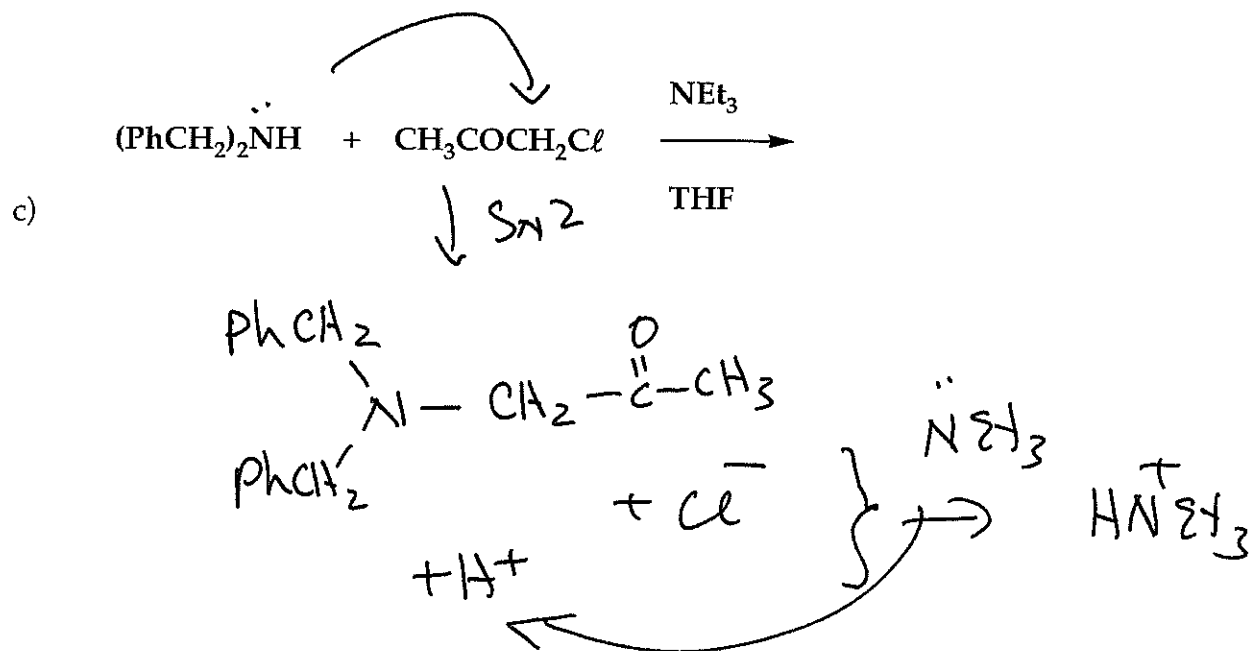
$\text{C}_{18} \text{H}_{27} \text{NO}_3$

3. (10 pts) β -Lactones can be prepared in good yield from thioesters. Suggest a mechanism.

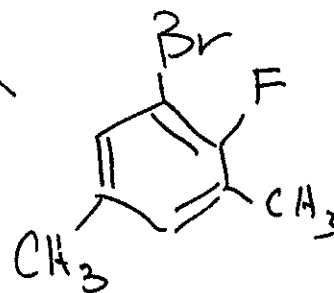
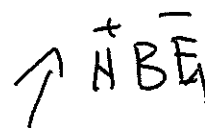
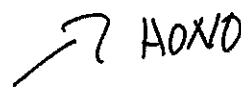
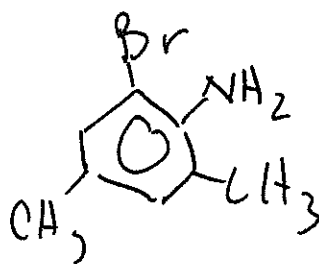
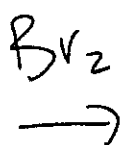
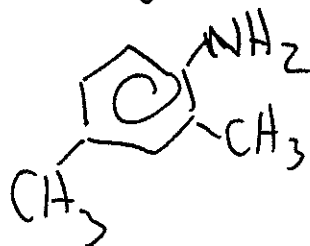
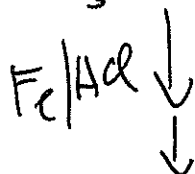
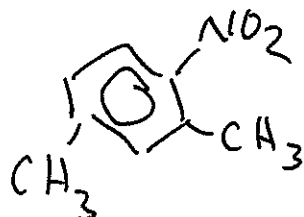
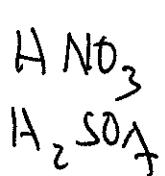
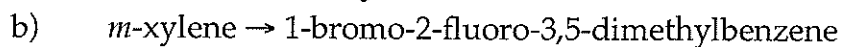
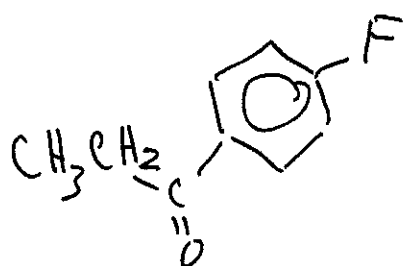
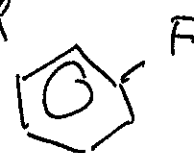
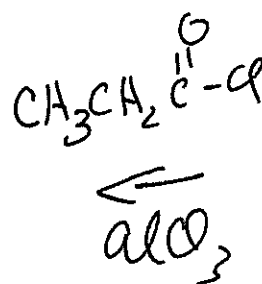
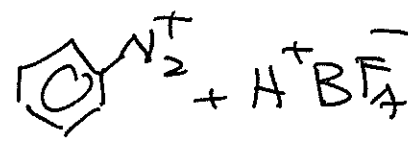
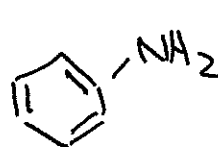
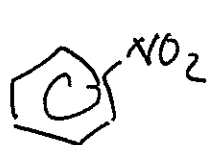
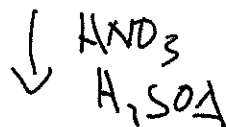
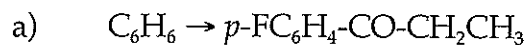


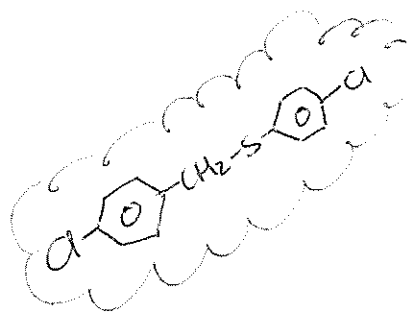
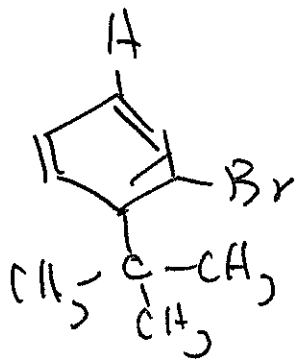
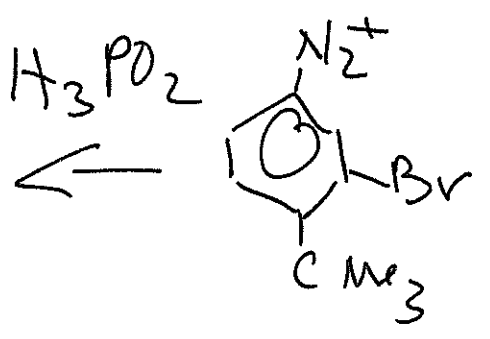
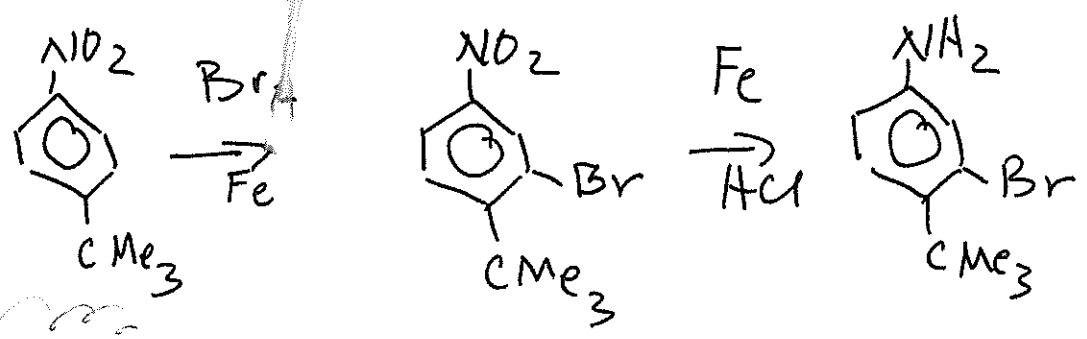
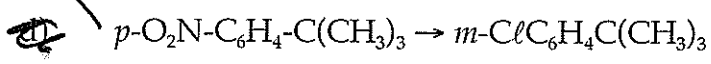
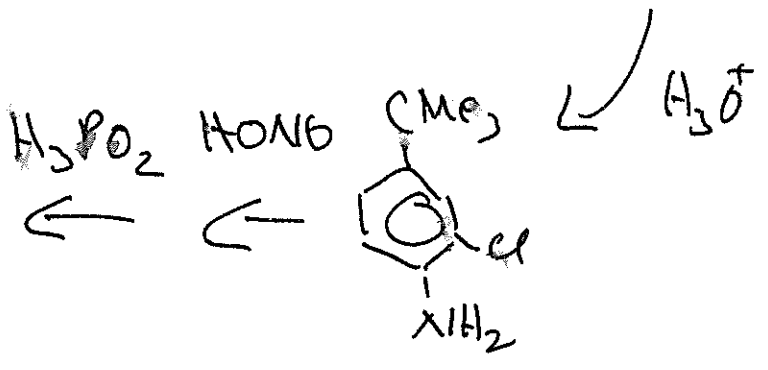
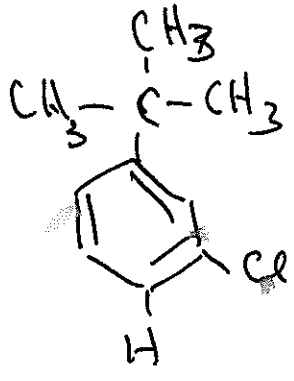
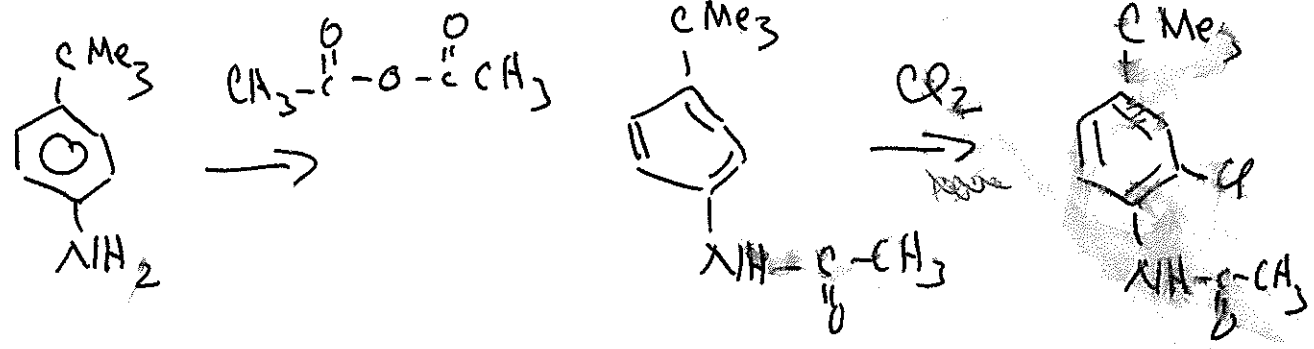
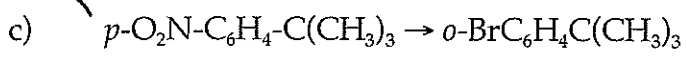
4. (20 pts) Give the structure of the principal organic product of each of the following reactions.



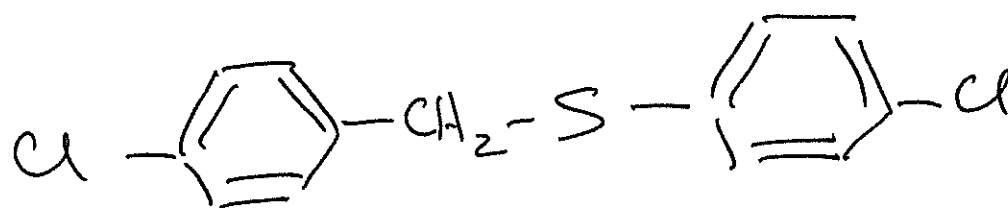
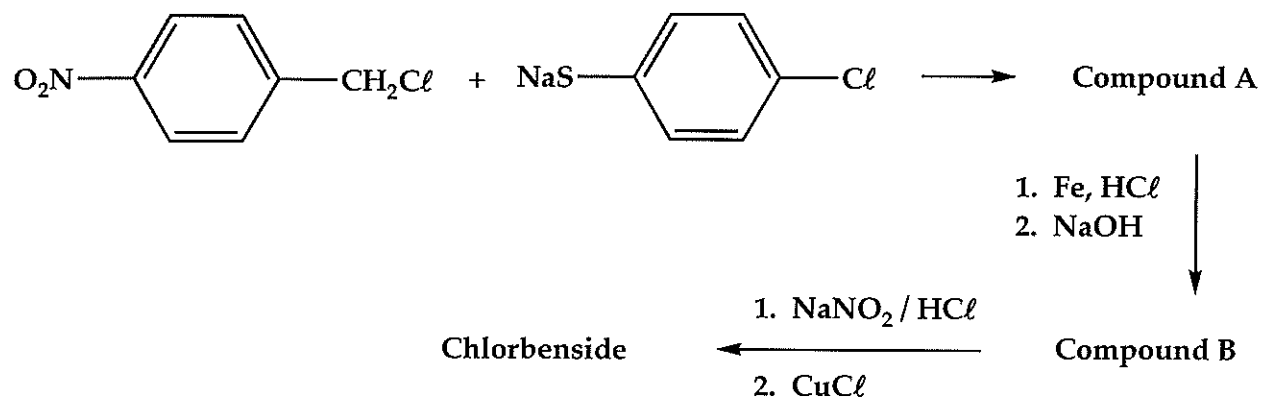


5. (20 pts) Design syntheses for each of the following.



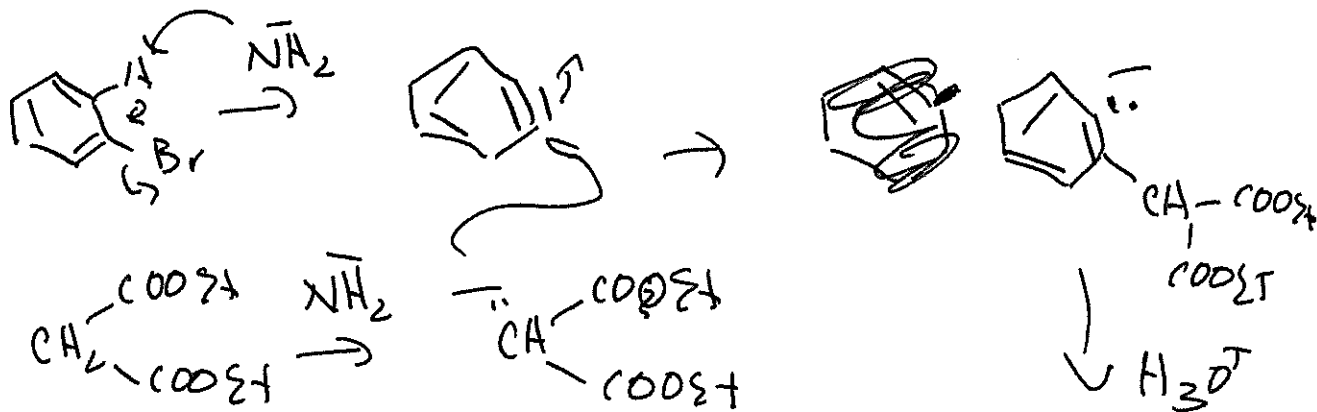


6. (10 pts) What is the structure of chlorbenside?

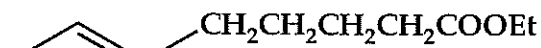


7. (15 pts) Suggest a mechanism for the following.

a) $C_6H_5Br + CH_2(COOEt)_2 + \text{excess } NH_2^-Na^+/NH_3$ followed by dilute $H_3O^+ \rightarrow PhCH(COOEt)_2$



b)



1. excess $NaNH_2/NH_3$
2. H_3O^+

