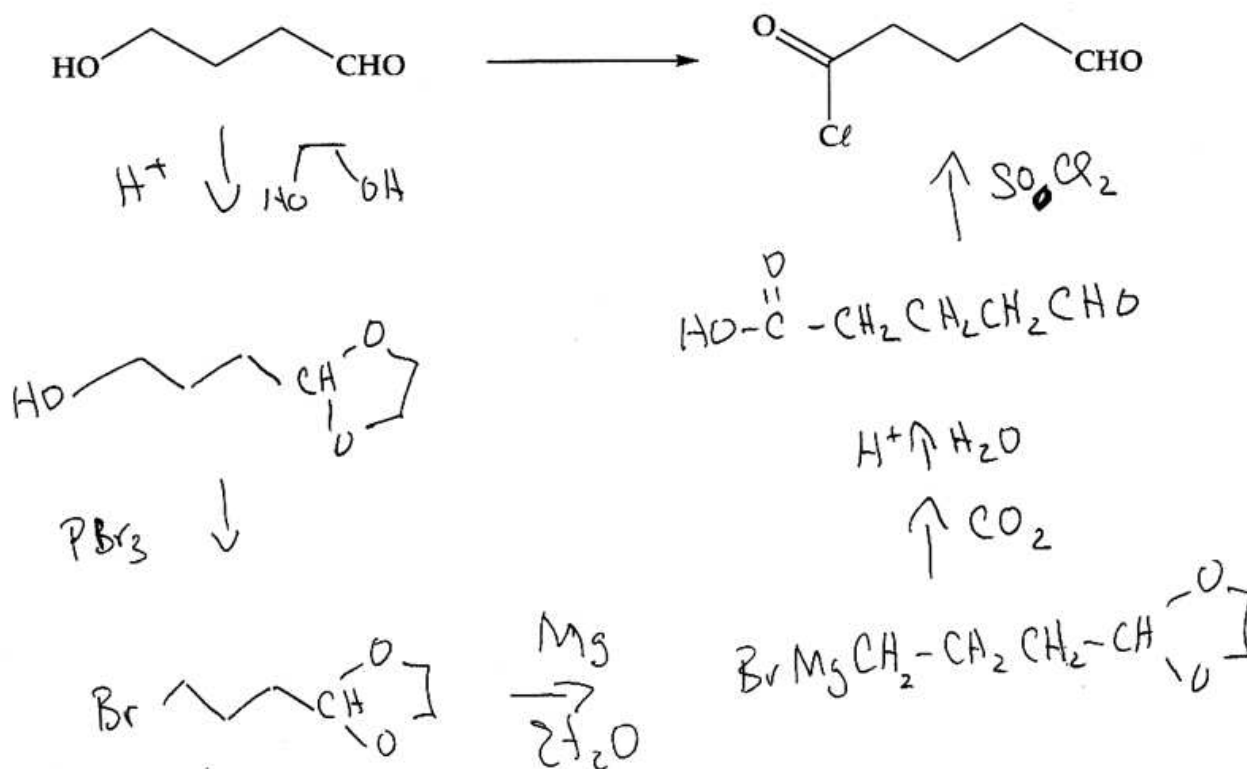


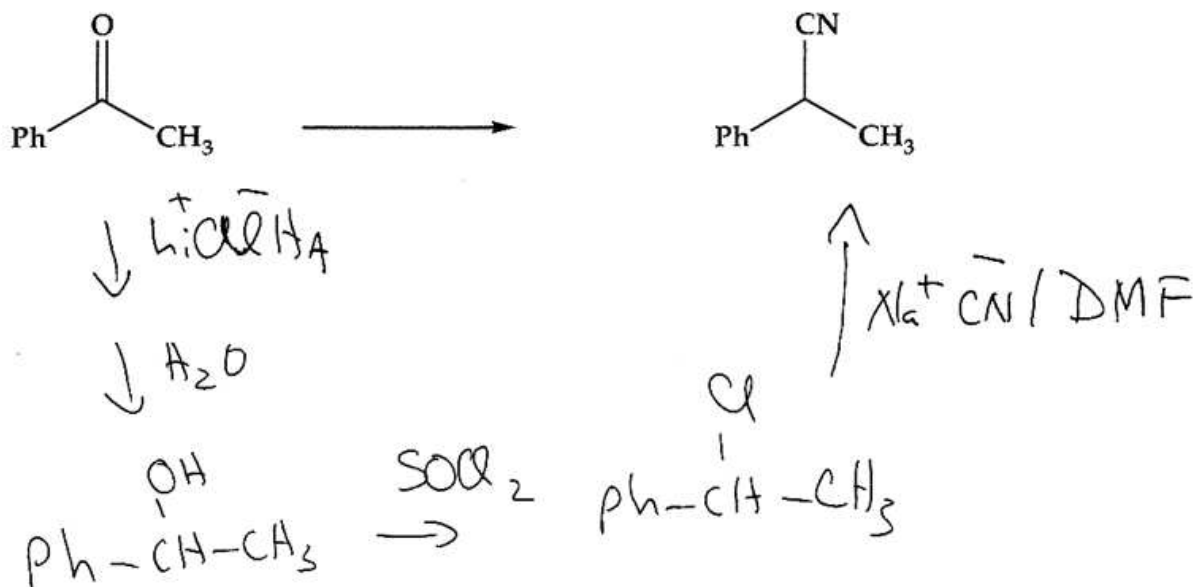
Chemistry 3331-100
 Organic Chemistry/Dr. Barney Ellison
 Thursday: Sept. 22nd @ 7:00pm → 9:00/1st Exam/Chem 142

Name: Key (please print)

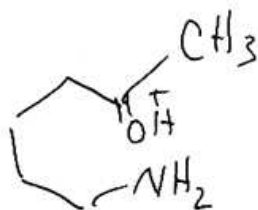
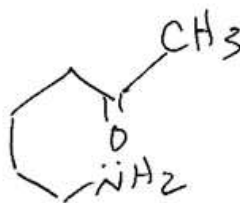
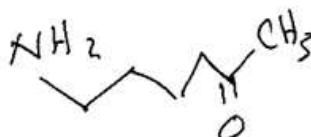
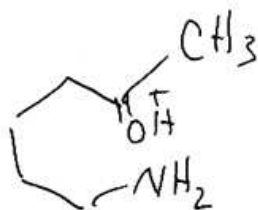
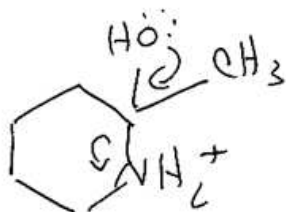
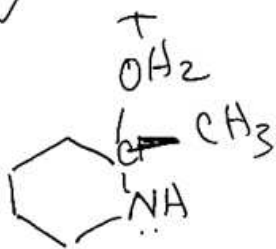
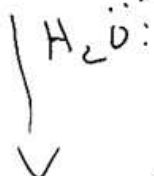
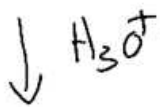
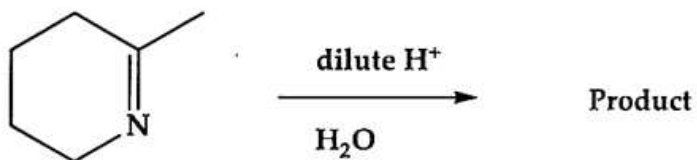
1. (10 pts) Supply the missing reagents necessary to carry out the following transformation. Note that more than one step may be required.



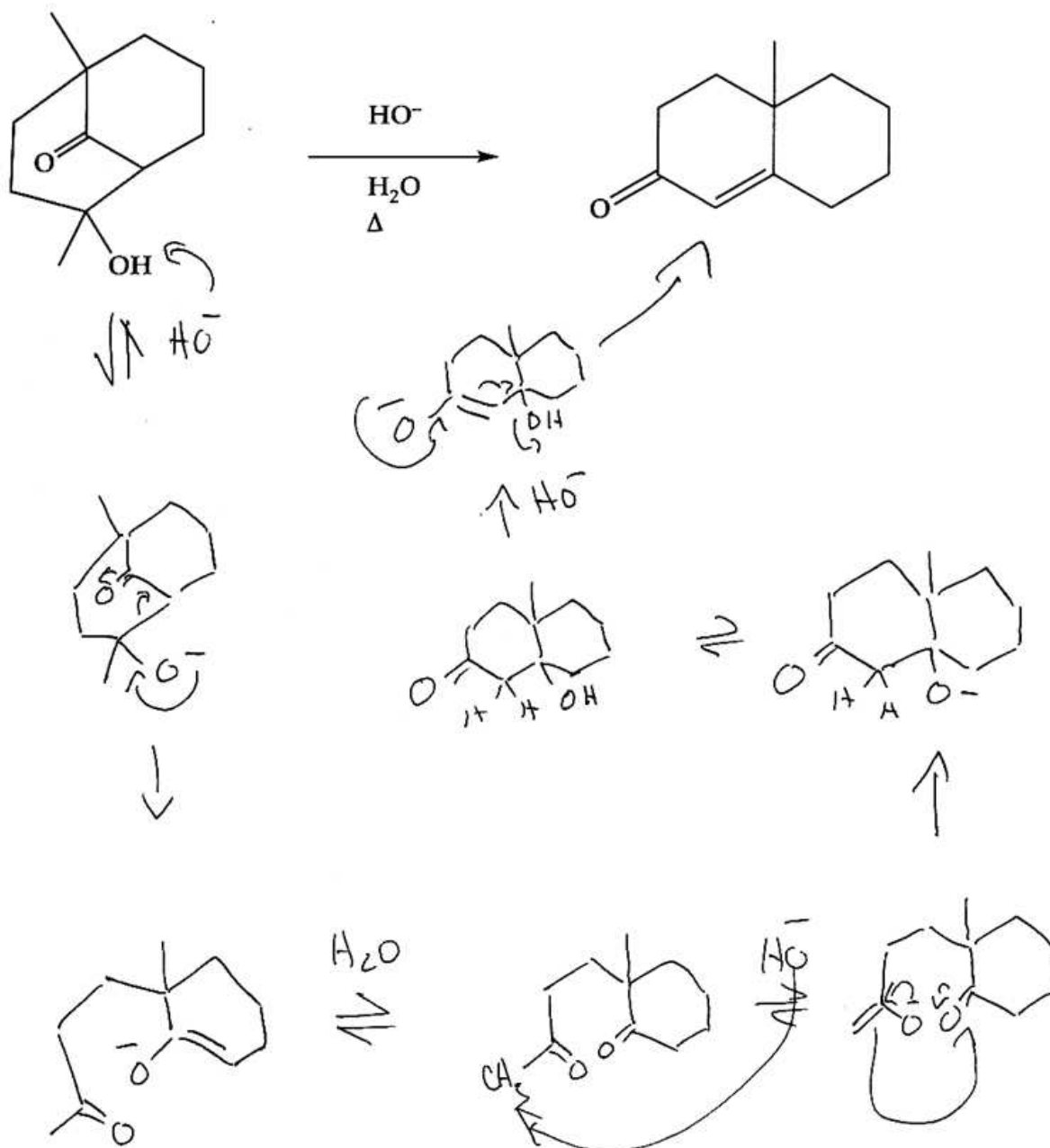
2. (10 pts) Supply the missing reagents necessary to carry out the following transformation. Note that more than one step may be required.



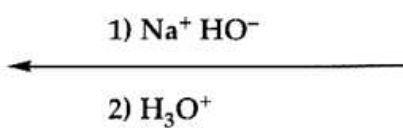
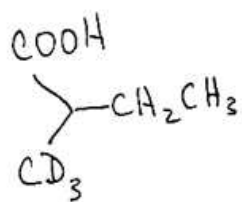
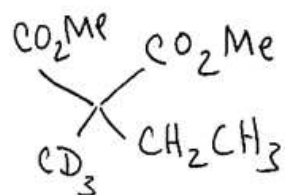
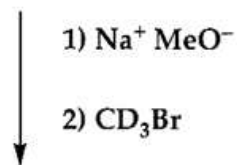
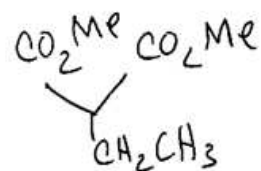
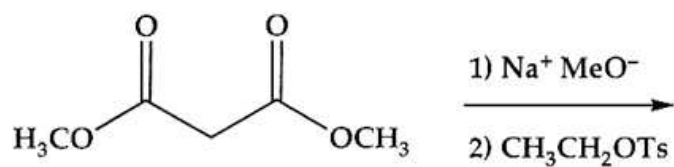
3. (10 pts) Show the mechanism for the following reaction.



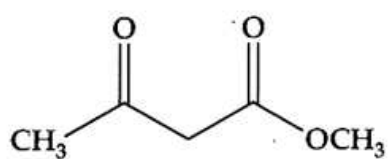
4. (10 pts) Show the best mechanism for the following reaction.



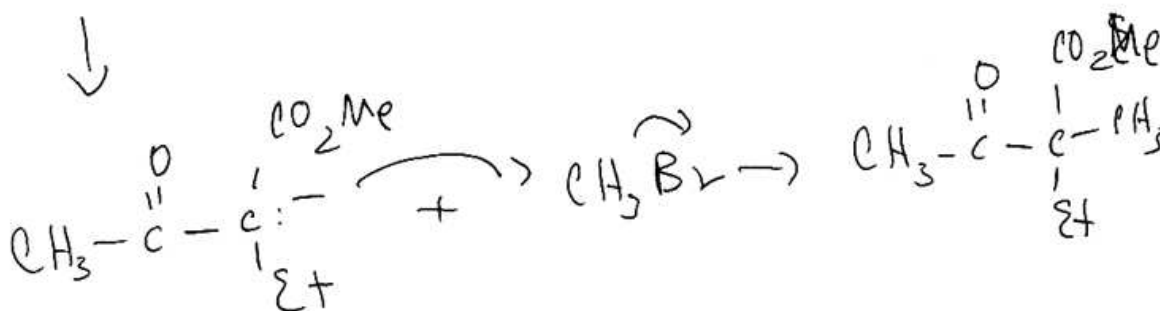
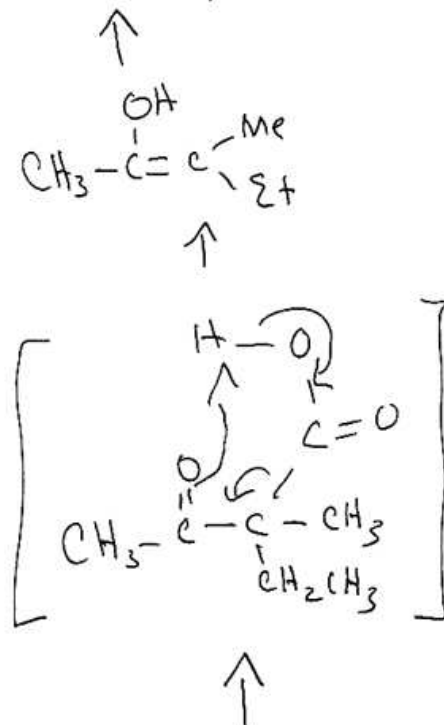
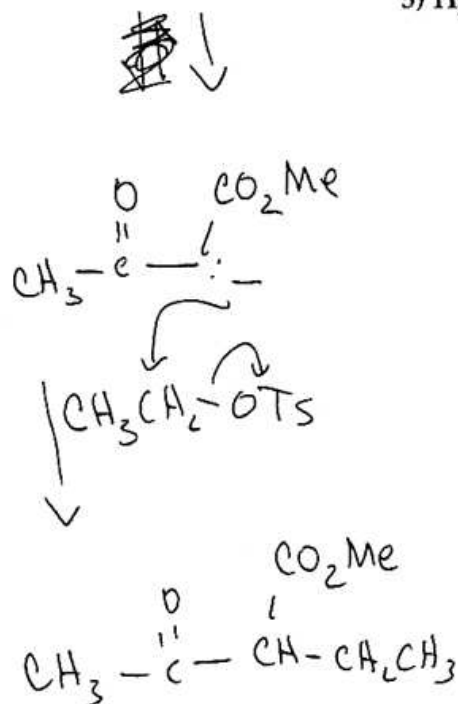
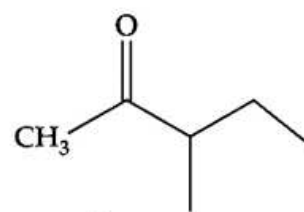
5. (10 pts) Provide the missing information by filling in the boxes.



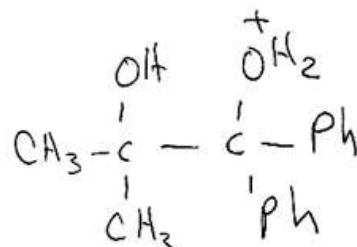
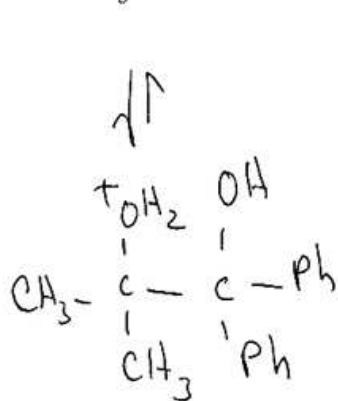
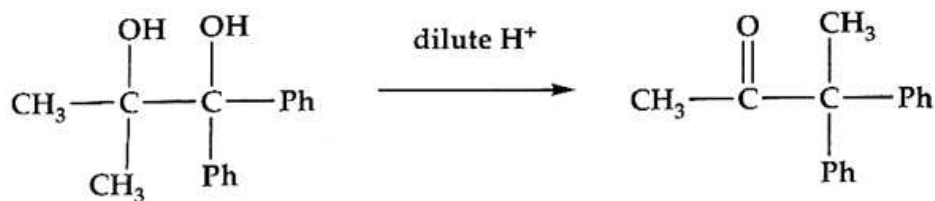
6. (10 pts) Give the correct mechanisms for the following conversion. (You may omit details of the ester hydrolysis mechanism.)



- 1) NaOCH₃/CH₃OH
- 2) CH₃CH₂OTs
- 3) NaOCH₃/CH₃OH
- 4) CH₃Br
- 5) H₃O⁺

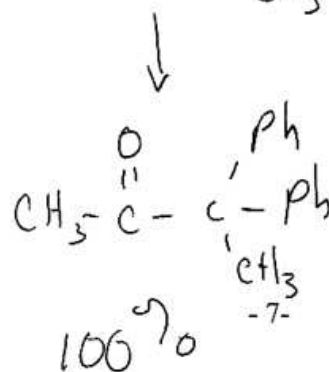
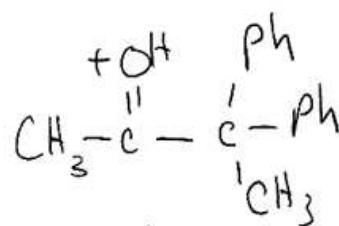
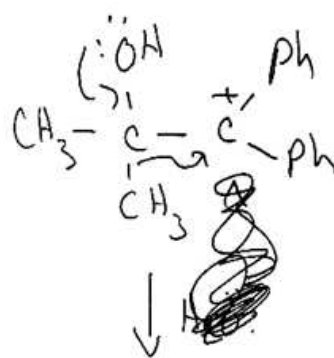
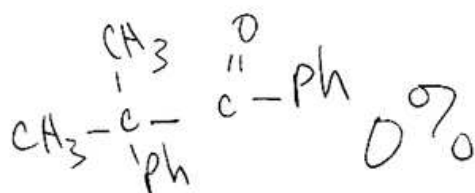
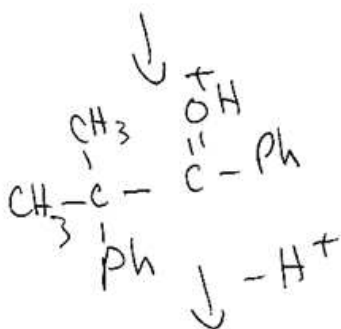
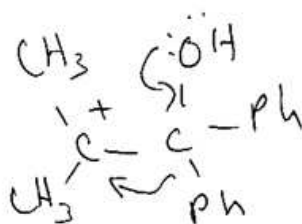


7. (10 pts) Explain why in the following Pinacol rearrangement, the methyl group migrates exclusively, even though it is well known that phenyl is a better migrating group than methyl.



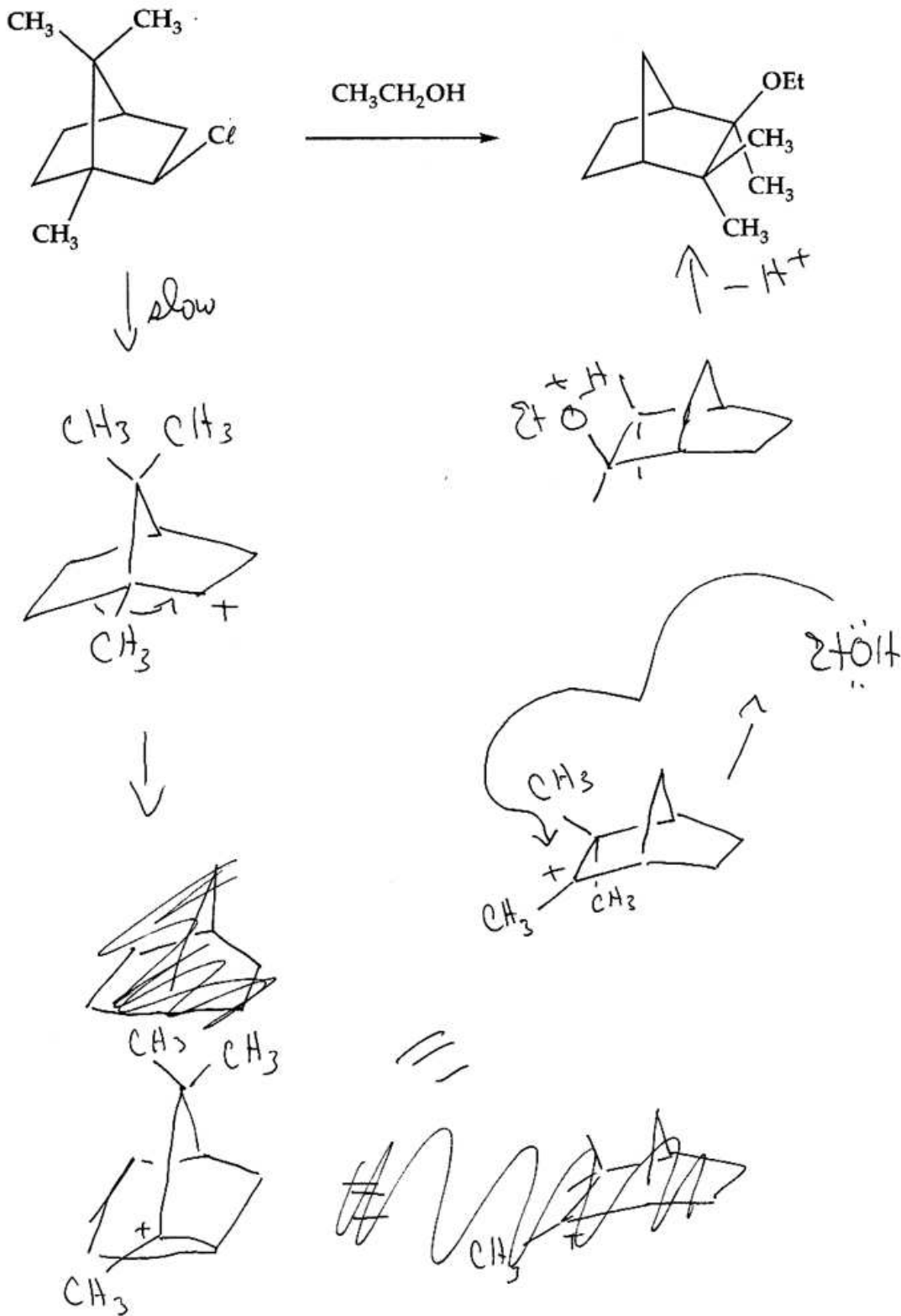
\downarrow FAST!
 great cation

$\text{H}_2\text{O} \leftarrow \downarrow$ slow

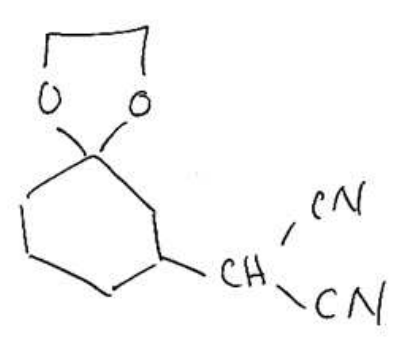
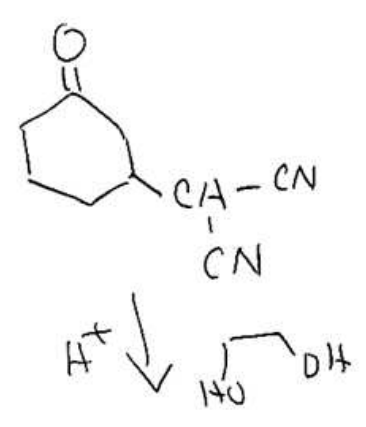
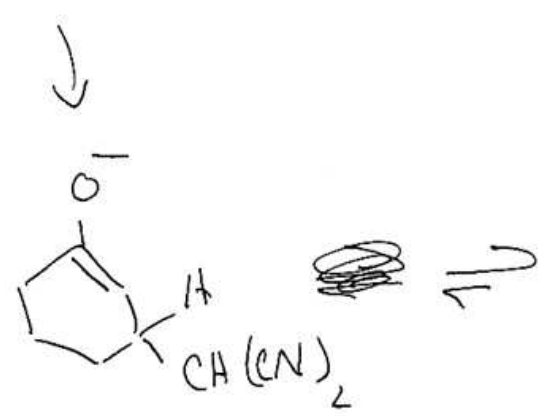
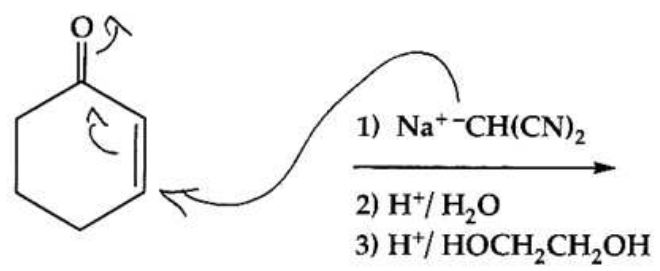


100%

8. (10 pts) Give the best mechanism for the following transformation.



9. (10 pts) Draw a complete Kekule structure of the major organic product of the following reaction. Be sure to indicate stereochemistry when necessary.



10. (10 pts) Draw the best mechanism for the following transformation.

