

**Exam 3**  
**Organic Chemistry C3444—Section 2**  
**Prof. Nuckolls**  
**April 12, 2002**

- Write your name on every page.
  - You should have 6 pages including this one.
    - Turn off your cellular phones.
      - Do your own work.
      - Good Luck!

Name: \_\_\_\_\_

Columbia I.D. #: \_\_\_\_\_

Signature: \_\_\_\_\_

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Grading:  
Section A \_\_\_\_\_ /60 points

Section B \_\_\_\_\_ /20 points

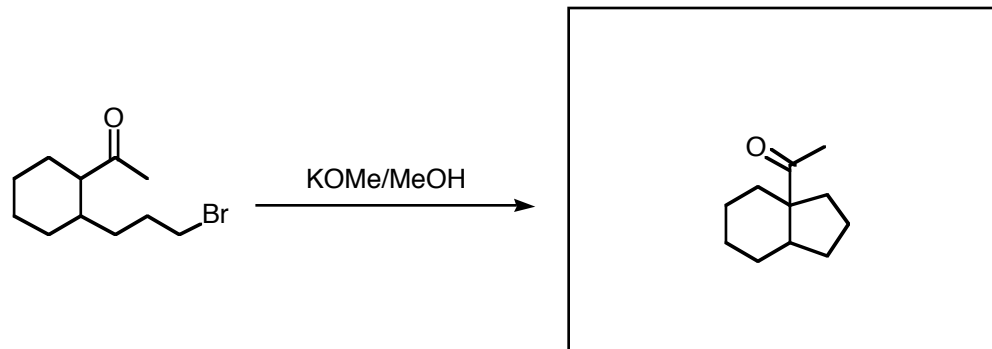
Section C \_\_\_\_\_ /20 points

Total \_\_\_\_\_ /100 points

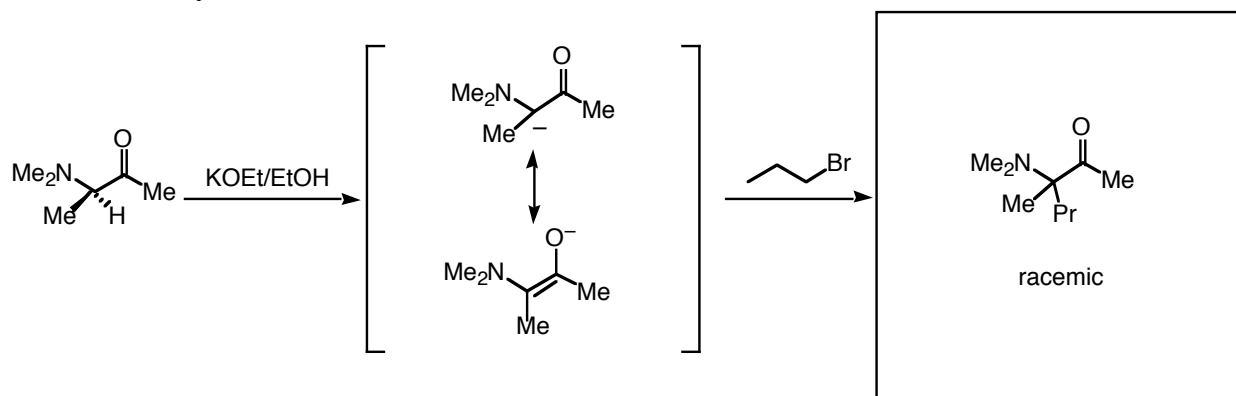
Section A. Answer only 4 out of 5 of the following question. Clearly mark with an "X" the one that is not to be graded. If you answer all of them, only the first four will be graded.

Write the answers to the questions below in the box provided. The syntheses may require multiple steps. To achieve partial credit for an *incorrect* answer you must show your work in the space below the equation. Mechanistic details are not necessary. (15 points each)

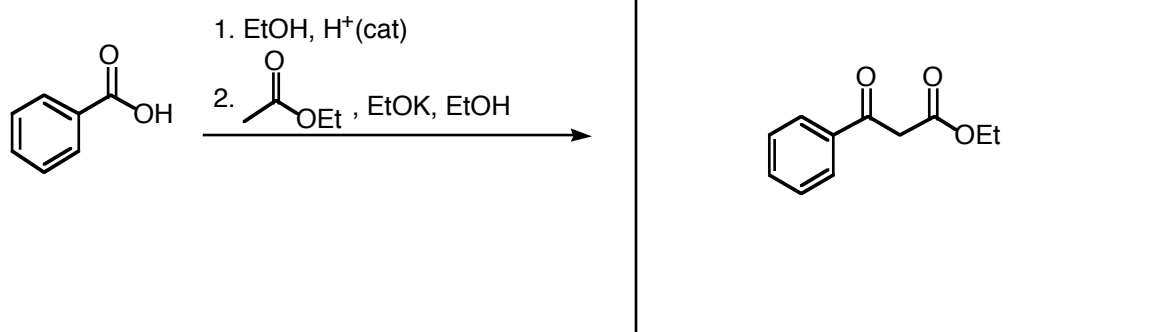
1.



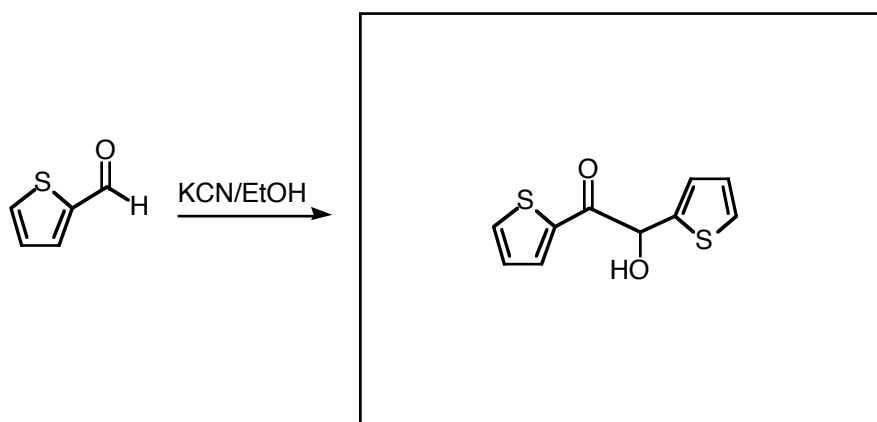
2. In the brackets draw the enolate (both resonance forms). For the product include stereochemistry.



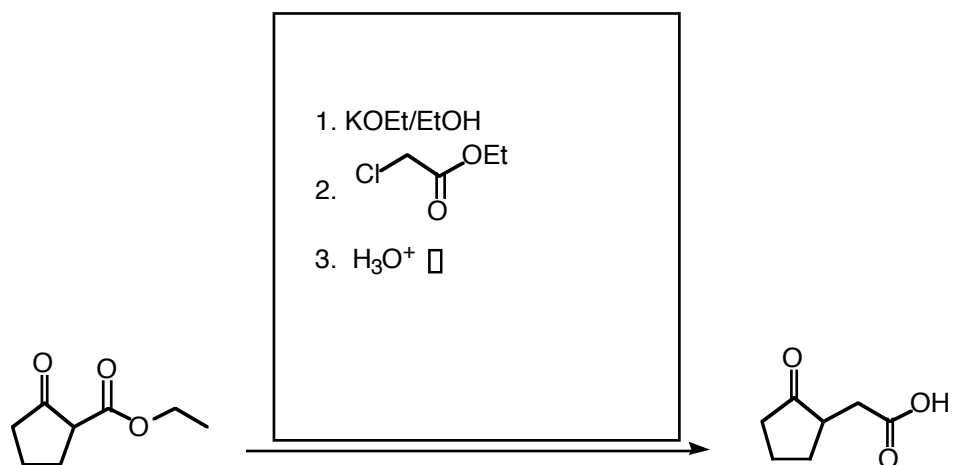
3.



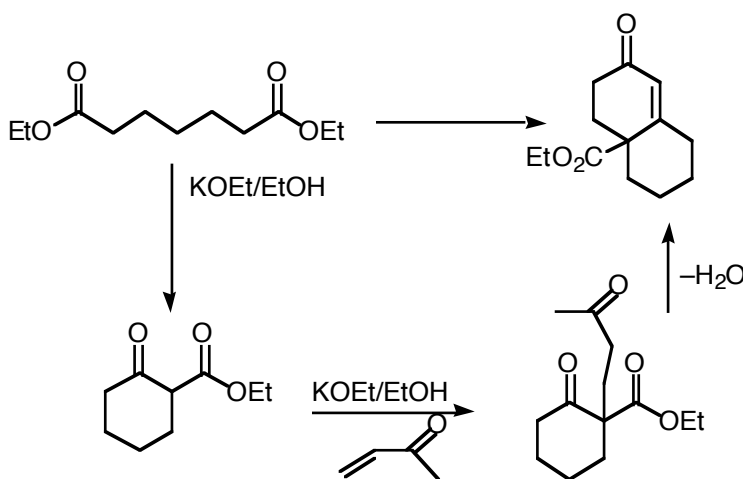
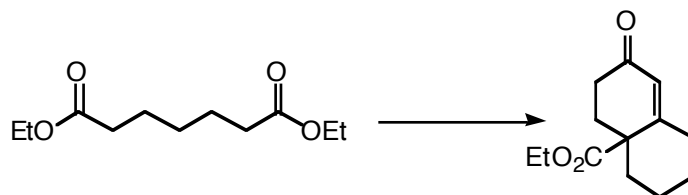
4.



5.



**Section B. Show the step-by-step detail of how to achieve the following transformation. Mechanistic details are not required. In addition to the starting materials, you may use any *acyclic molecules required* (20 points).**



Section C. Consider the reaction below. Write a detailed mechanism showing how the transformation occurs. (20 points)

