

Chemistry 117 Sec. A (7:50-8:50)
Exam No. 3
“Ketones, Aldehydes, and Enolate Chemistry”
April 1, 2005

Instructions: You have until 8:50 a.m. to complete the exam. At that time, all remaining test takers must cease writing, turn their exams over, and pass them to their rightmost isle. If you finish before 8:50 a.m. you may turn in the exam at the front of the room prior to leaving. If you finish within the final 5 min. of class, please turn your exam over and remain seated until the call for the remaining exams has been made. *In fairness to all, anyone still working on the exam after “time” is called will receive a grade of zero!*

Be sure to read the instructions for each question. It may be helpful to skim the entire exam and solve the easier questions first.

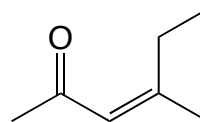
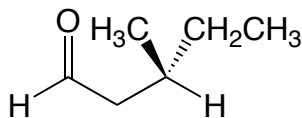
Exam Agreement: I, _____, have read and agree
(Please print)
to abide by the instructions above. On my honor, I have neither given nor accepted any help during this exam.

Signature: _____

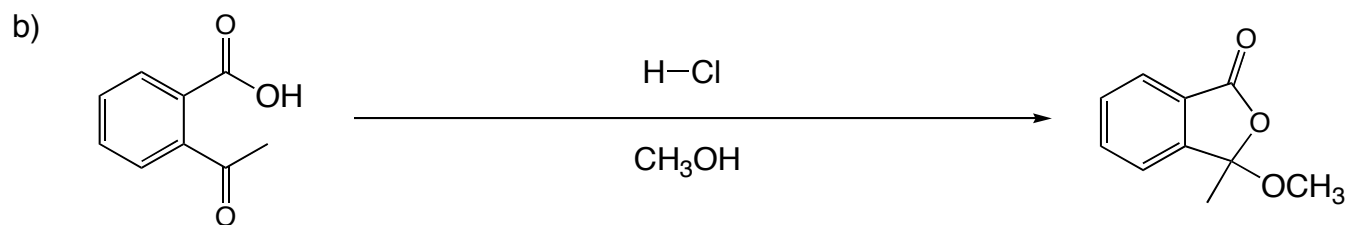
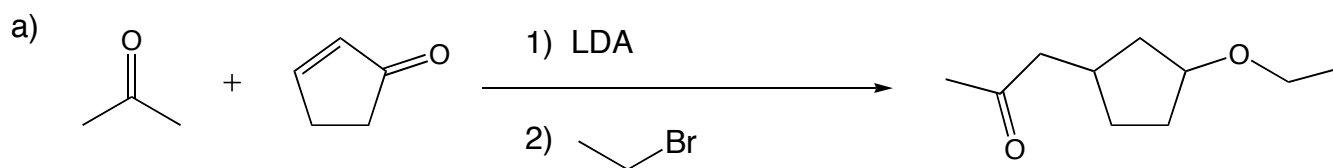
College: _____

**DO NOT OPEN THIS EXAM UNTIL
INSTRUCTED TO DO SO**

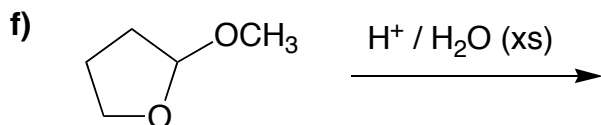
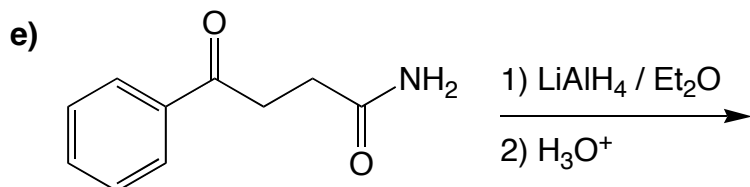
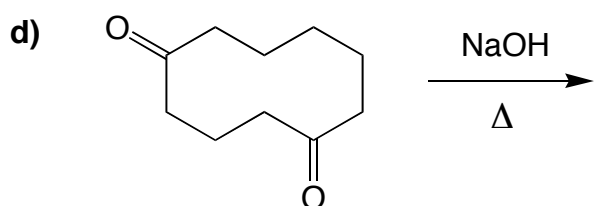
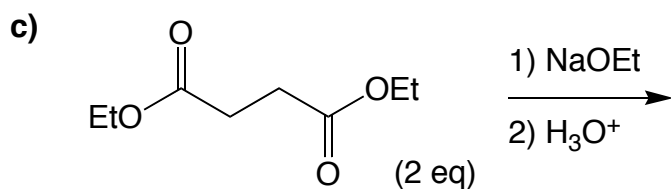
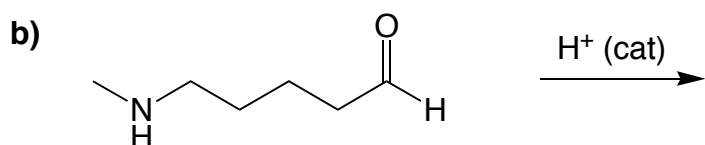
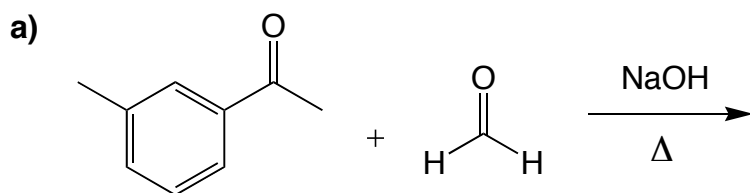
1. Provide an unambiguous name (IUPAC or common) for each of the following molecules. (12 points)



2. Provide a mechanism for each of the following reactions. You must show the products of each step and all formal charges for full credit. (15 points)

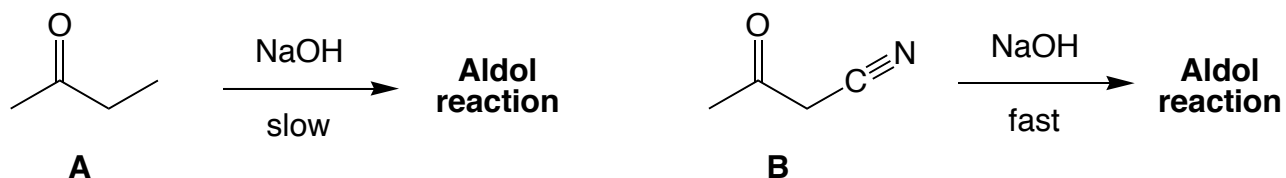


3. Predict the *major* organic product of each of the following reactions. You may draw other products for partial credit, however if you do, you must *circle* the major product for full credit. (30 pts)

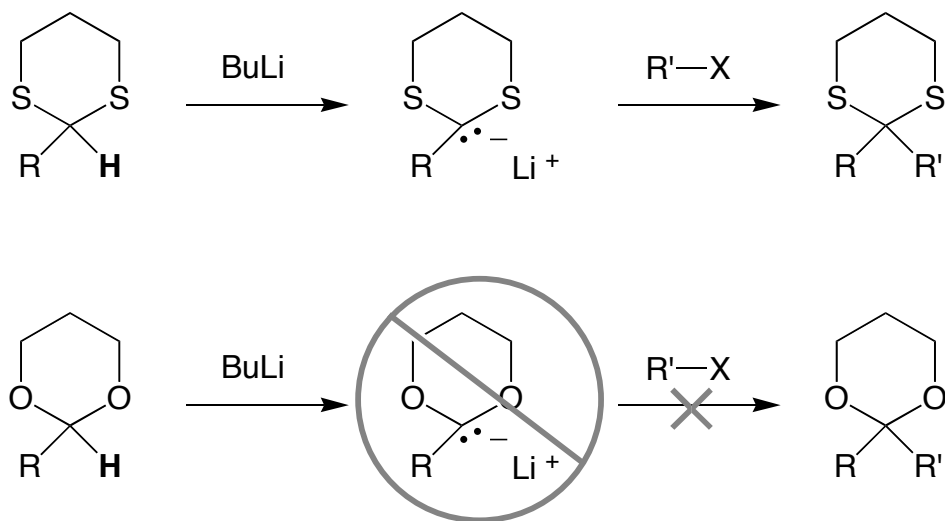


show all products that contain carbon

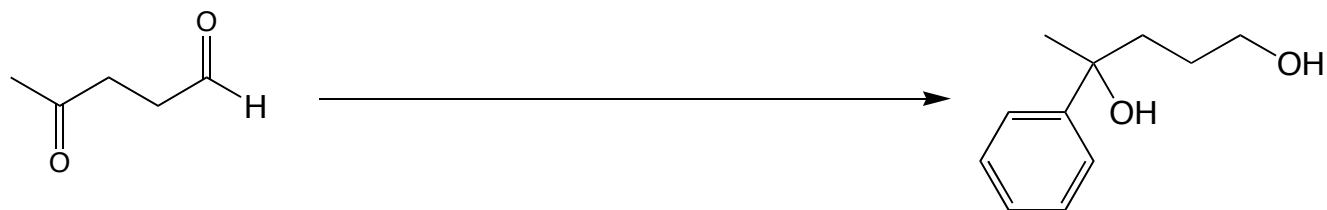
4. The Aldol reaction of **A** proceeds slowly, while that of **B** proceeds much faster. Provide an explanation for the rate difference. Note: you must use pictures and words in your answer for full credit. (10 pts)



5. The thioacetal proton is much more acidic than the acetal proton. This allows thioacetals to be used as nucleophiles after deprotonation as shown below. Provide an explanation for the difference in acidity between these protons. (9 pts)



6. Propose a synthesis for each of the following transformations. Provide the products of each step for full credit. (24 pts)



Grading Summary

Page	Point Value	Points Earned
1	27	
2	30	
3	19	
4	24	
	Total Score =	