

Exam #2

Chemistry 334

Organic Chemistry II

Thursday November 5, 2009

Name: KEY .

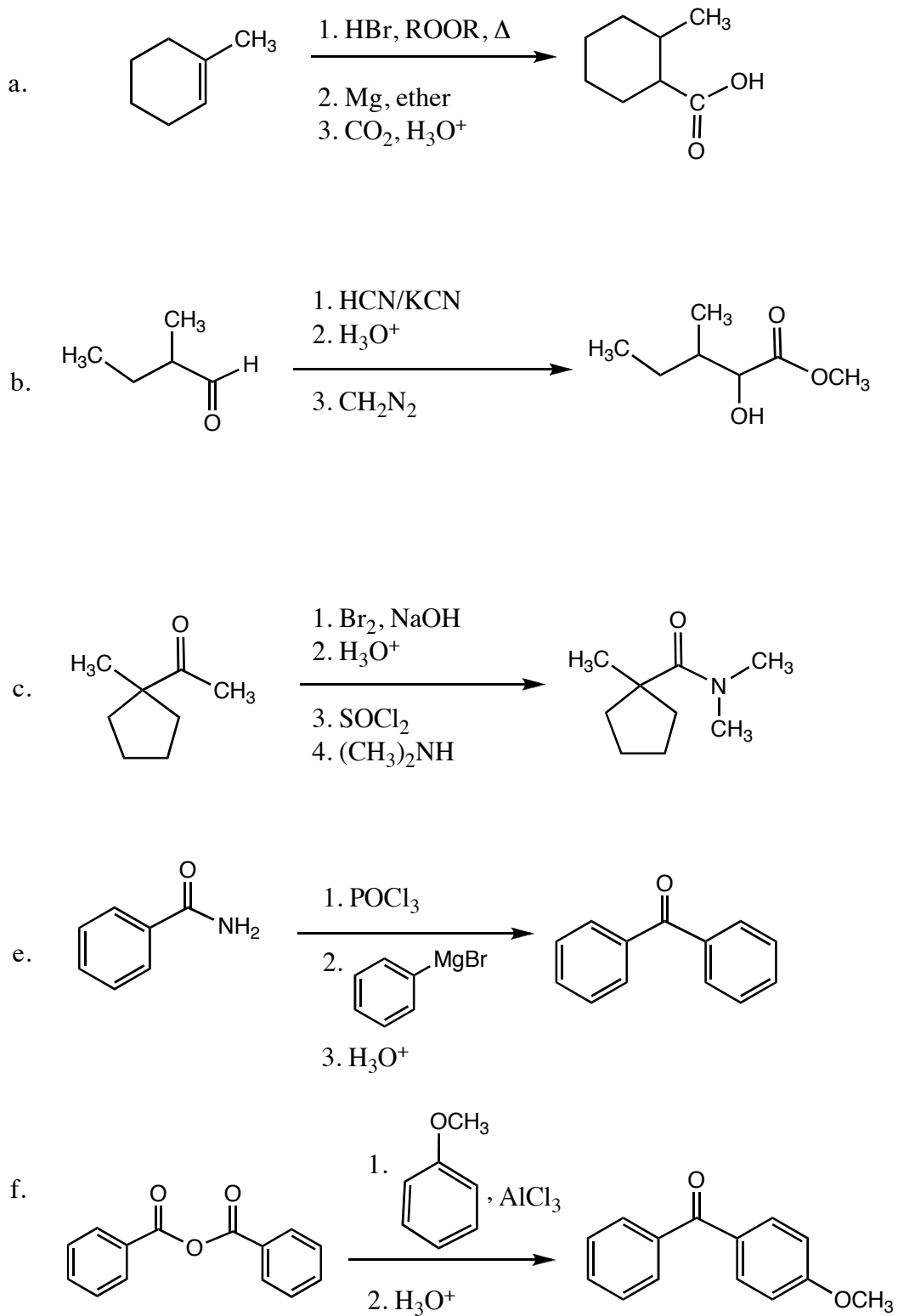
**The exam is worth a total of 100 points; there are six questions.
Please show all work to receive full credit for an answer.**

**By putting your name on this exam, you agree to abide by
California State University, Northridge policies of academic
honesty and integrity**

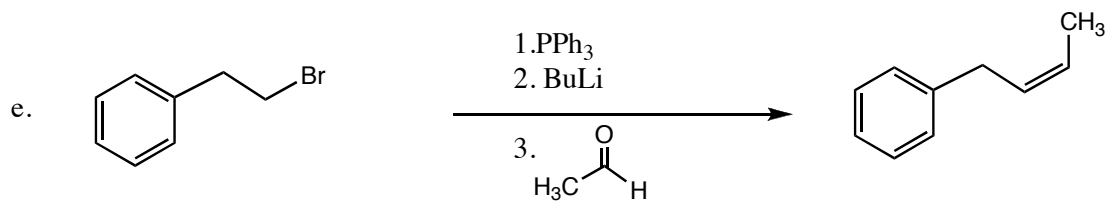
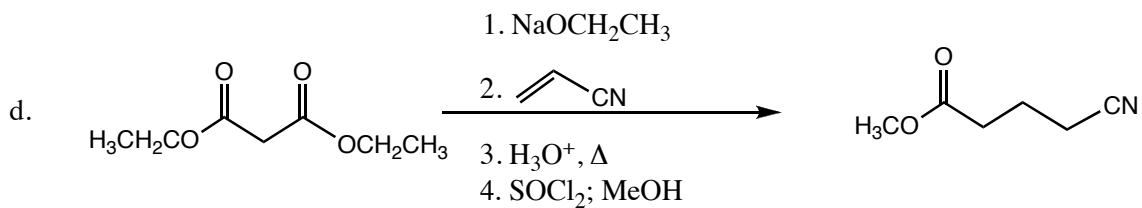
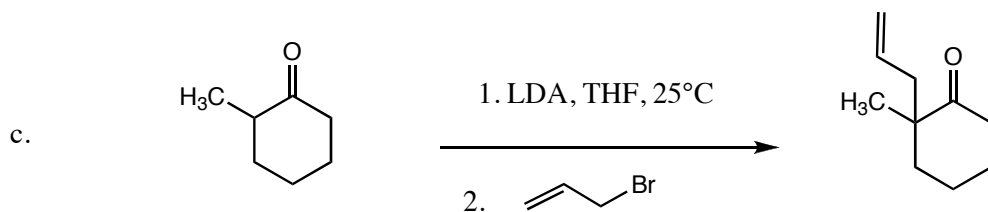
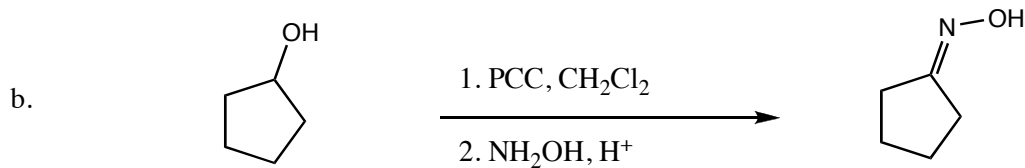
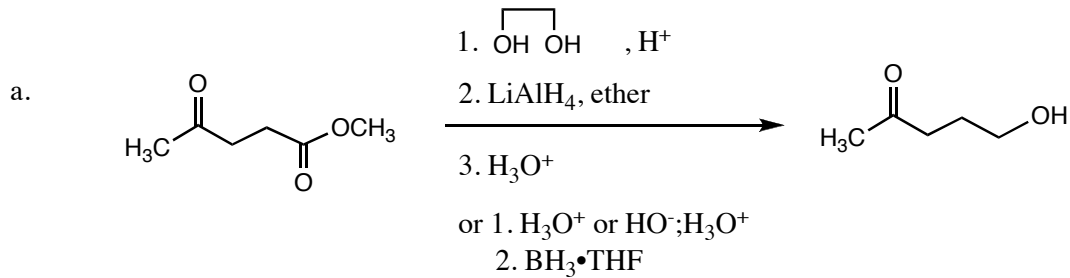
**Molecular models are allowed for this exam. Calculators are
not needed.**

Good Luck!

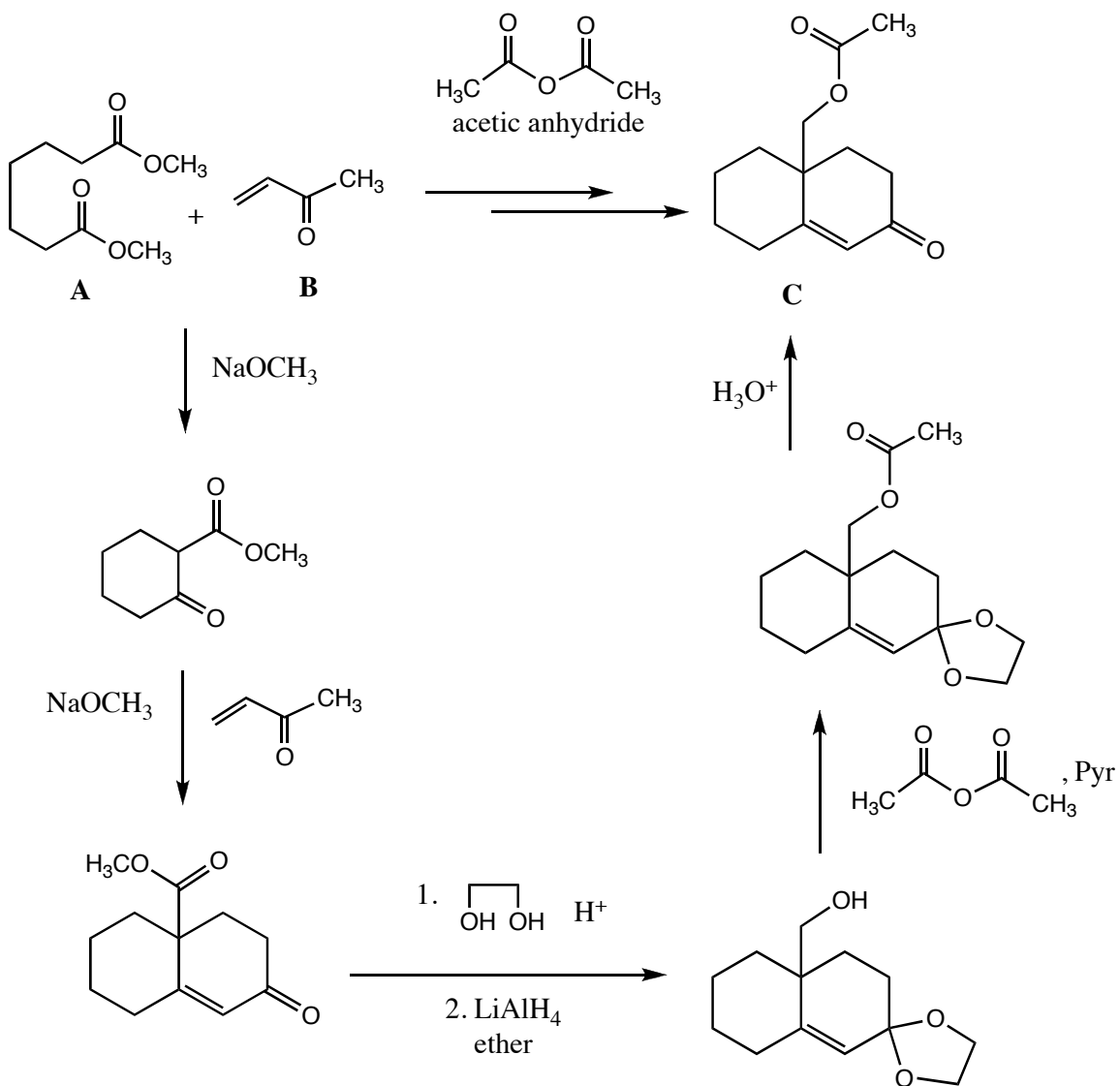
1. Predict the product(s) of the following reactions: (4 pts. each)



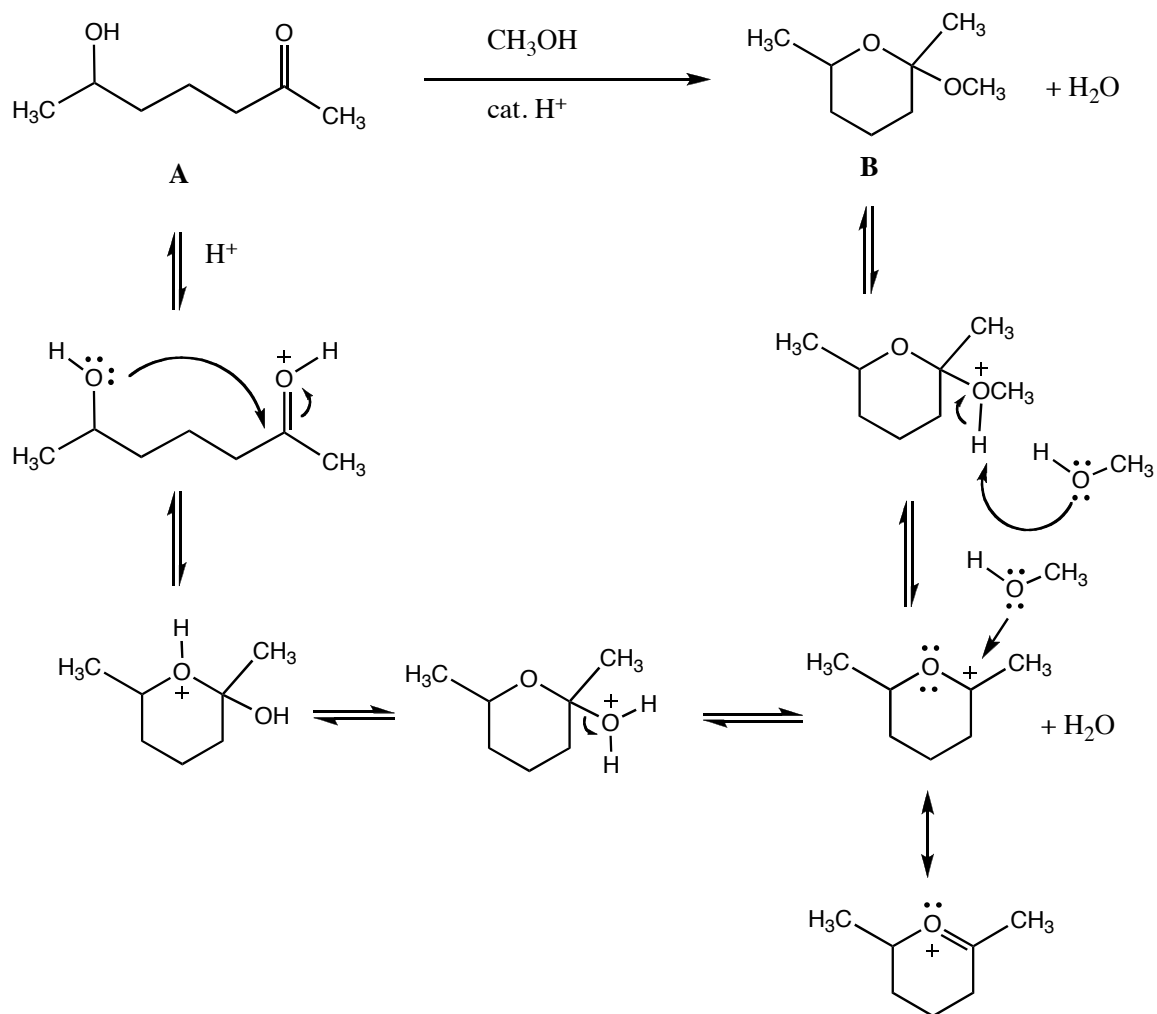
2. Indicate reagents to accomplish the following transformations.(20 pts)



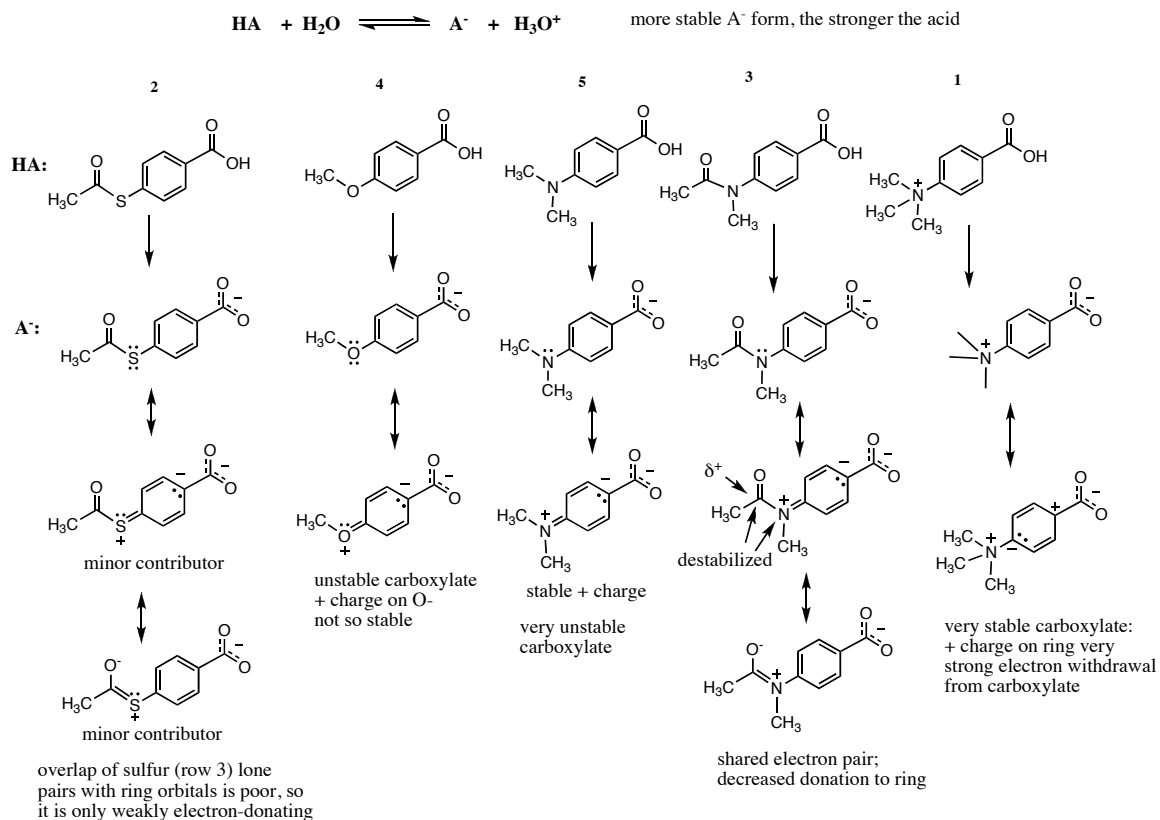
3. Indicate a sequence of synthetic steps to prepare enone **C** from diester **A** and enone **B** using the following reagents: LiAlH_4 , NaOCH_3 , $\text{HOCH}_2\text{CH}_2\text{OH}$, H^+ , H_3O^+ , acetic anhydride, pyridine (20 pts).



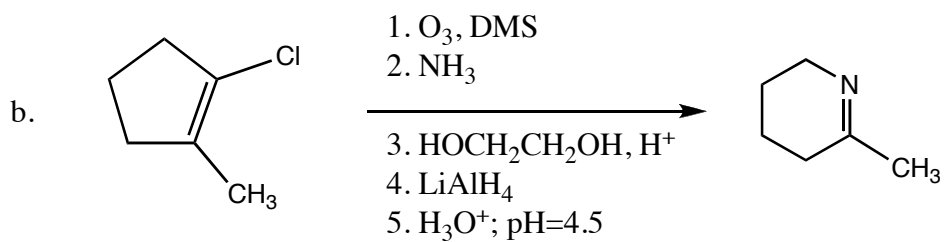
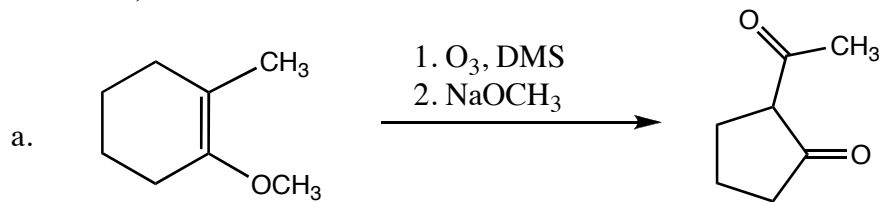
4. Treatment of keto alcohol **A** with a catalytic amount of acid in methanol leads to ketal **B** and water. Using the curved arrow notation, devise a step-by step mechanism for the transformation of **A** into **B**, denoting all formal charges and lone pairs on heteroatoms. (20 pts)



5. Rank the following carboxylic acids in terms of their acidity from least (5) to greatest (1) and provide a rationale for your ordering *based on the relative stability of the resonance forms for the corresponding carboxylate ions* (20 pts)



6. (Bonus) Provide a set of reagents to accomplish the following transformation (5 points each)



Congratulations!

Score:

1. _____ /20

2. _____ /20

3. _____ /20

4. _____ /20

5. _____ /20

Bonus. _____ /10

Total: _____ /100

