Name _____ Slayter Box _____

Examination III Retake December 7, 2012

Intermediate Organic Chemistry (CHEM 251-03)

Dr. Fantini

OPTIONAL RETAKE EXAM 3

Please do not open until instructed

You have two hours to complete this examination.

Intermediate Organic Chemistry (CHEM 251-03)
Dr. Fantini

Examination III December 7, 2012

OPTIONAL RETAKE EXAM 3

Notes:

• This exam consists of **5 questions**. Please check to make sure that you have a complete copy of the exam.

• Please do not simply give me answers. Give me well-supported answers. Answers that are not backed by explanations will receive minimal credit.

• Please write clearly; if I can't read your answer, I can't give you credit for your answer.
• Please note that different questions are worth different numbers of points. Plan your time accordingly.
• Remember to include units and significant figures where appropriate.
• No books or notes are to be used on this exam.
• Please do NOT share calculators; if you need a calculator but do not have one, please let me know!

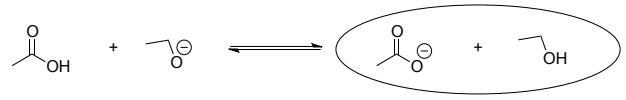
• *If you feel that you would be better able to answer **any** question if you had additional information, please do not hesitate to ask for it*. I will happily provide any information that I feel will help you answer the question without compromising the efficacy and fairness of the test.

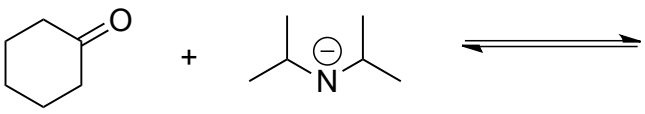
Question	Possible	Score
1	6	
2	10	
3	40	
4	20	
5	24	
TOTAL	100	
	Approx. Letter:	

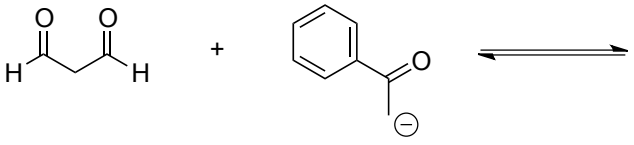
6 1. Nomenclature. Please give name for structure or structure for name.

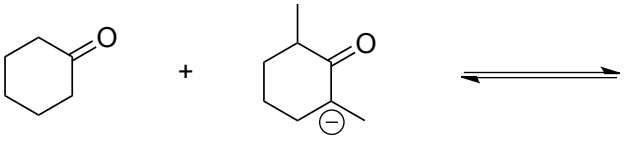
acetic anhydride	isopropyl propionate

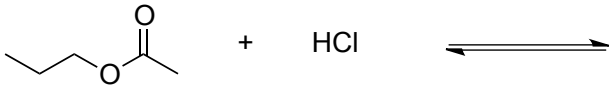
10 2. Complete these reactions (the example and the first three are proton transfers) and ***CIRCLE*** the side (products or reactants) that are favored at equilibrium.

example 

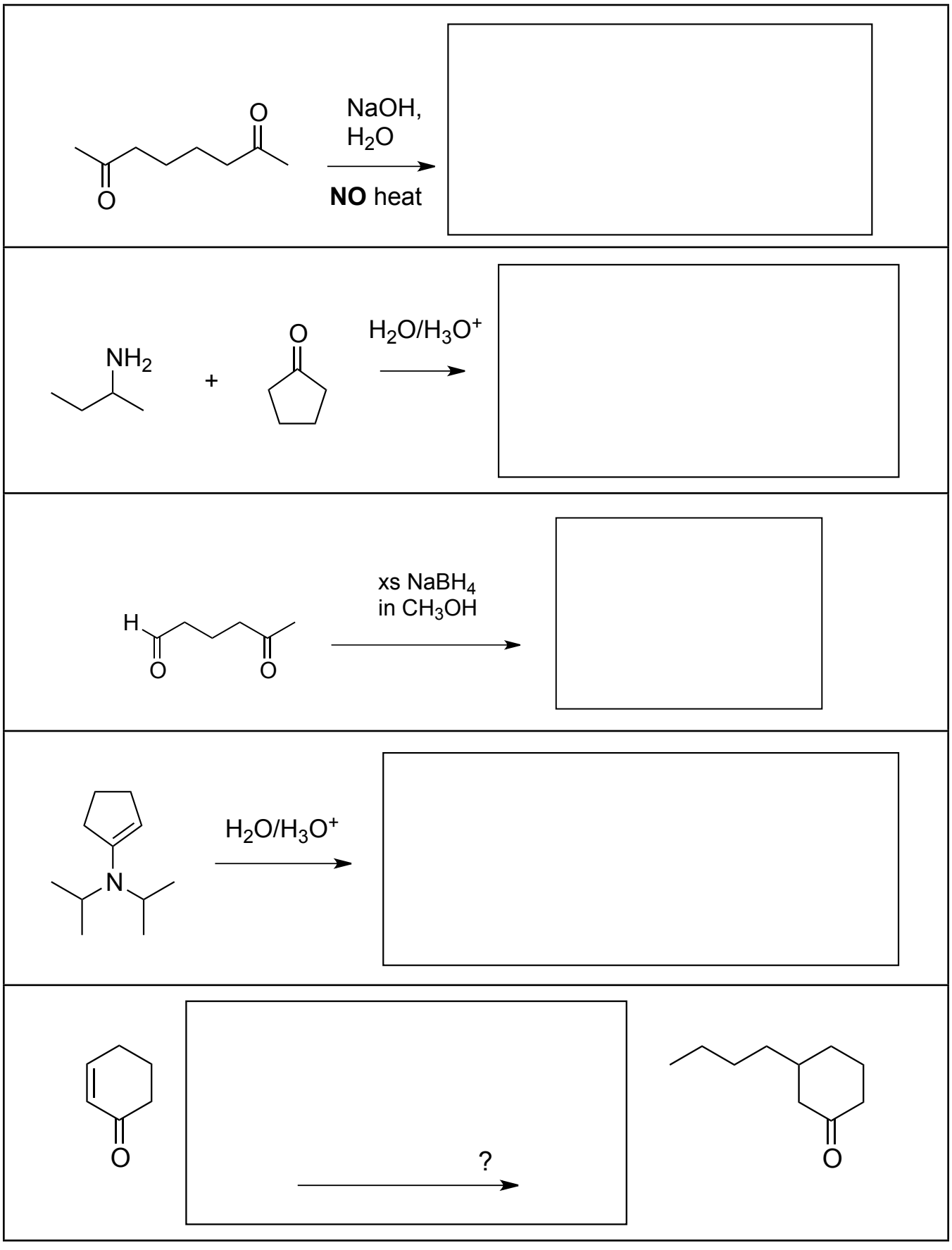




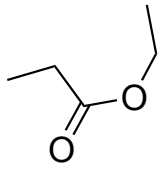




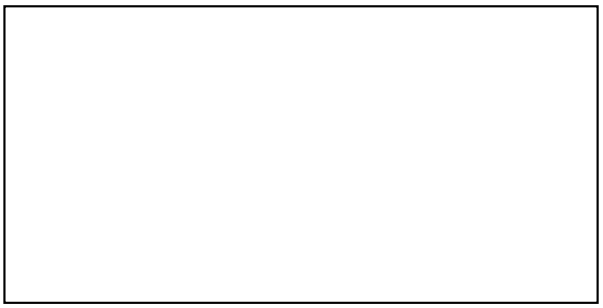
403. Fill in any of the missing starting material(s), reagent(s), and/or dominant ***organic*** product(s) for each single reaction. Please specifically denote all stereochemistry.

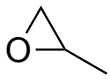


Question 3 continued.

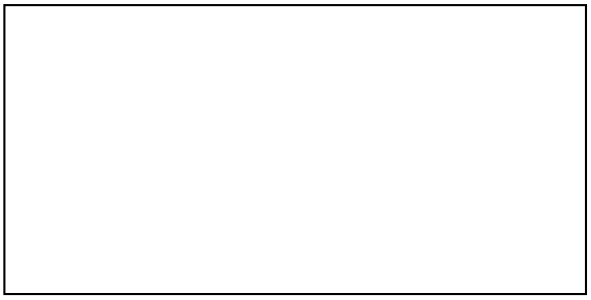


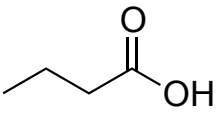
1. 2 CH_3Li
2. H_2O/H_3O^+

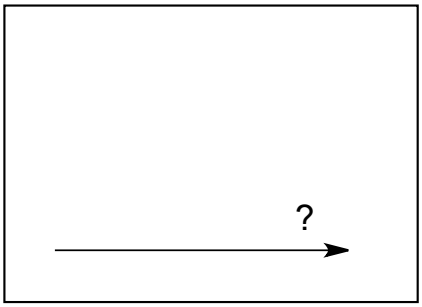


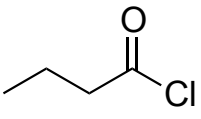


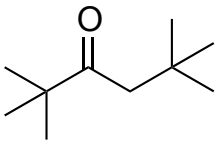
1. $LiAlH_4$
2. H_2O/H_3O^+

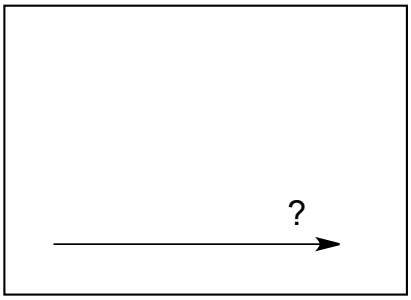


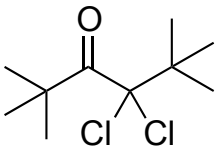


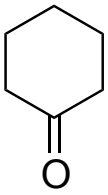




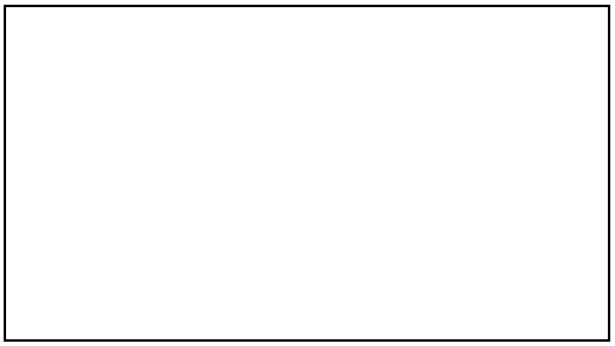




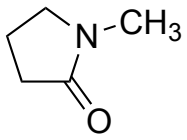




1. $LiNHiPr_2$ ("LDA")
2. $(CH_3)_2CHCH_2CH_2Cl$

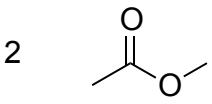


Question 3 continued.

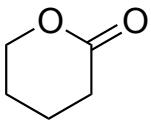


1. $LiAlH_4$

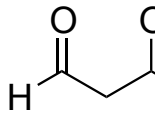
2. H_2O/H_3O^+



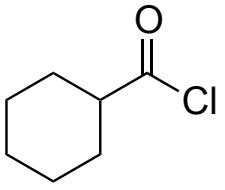
1. $NaOCH_3$
2. H_3O^+



H_2O/H_3O^+

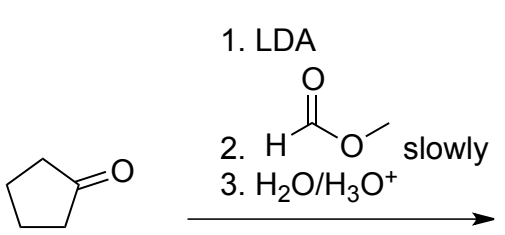


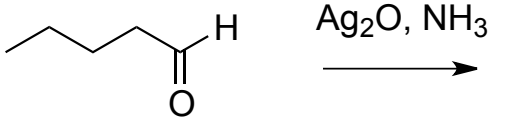
xs H_2CrO_4

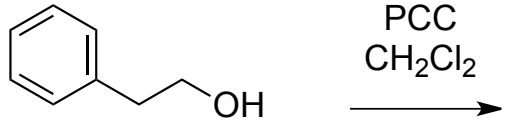


1. xs CH_3MgBr
2. H_2O/H_3O^+

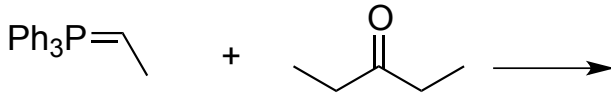
Question 3 continued.

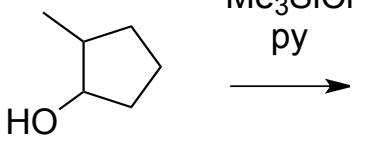






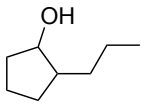
PCC = pyridinium chlorochromate



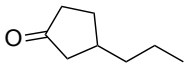


*20*4. Short syntheses.

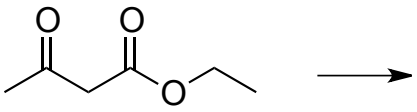
(a) Propose a synthesis of this compound from ***cyclopentanone***.

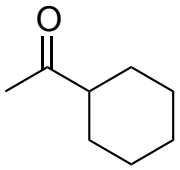


(b) Propose a synthesis of this compound from ***cyclopentanone***.



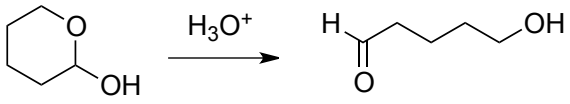
(c) Synthesize the product shown at right by the ***acetoacetic ester synthesis***.

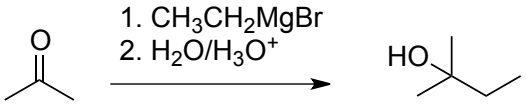




(d) Use a ***protecting-group strategy*** to accomplish this synthesis:

245. Please draw a stepwise electron pushing mechanism for the reactions shown below.





Problem 5, continued.