

Exam 2

Professor R. Hoenigman

I pledge to uphold the CU Honor Code:

Signature _____

Name (printed) _____

Last four digits of your student ID number _____

Recitation TA _____

Recitation number, day, and time _____

You have 1 hour and 30 minutes to complete this exam.
No model kits or calculators allowed.
Periodic table and scratch paper are attached.

DO NOT TURN THIS PAGE UNTIL INSTRUCTED TO DO SO.

Recitation Sections:

#	Day	Time	TA	SCORE:	
122	Monday	5 pm	Ashley	Page 1 _____/10	Page 3 _____/27
121	Tuesday	8 am	Noel		
131	Tuesday	12 pm	Jin	Page 2 _____/20	Page 4 _____/23
132	Tuesday	12 pm	Ashley		
161	Thursday	8 am	Morin		Page 5 _____/20
171	Thursday	12 pm	Jin		
				TOTAL _____/100	

Extra Credit (5 pts)

A. What does the abbreviation THF stand for?

B. Draw THF

1. (5 pts) Crown ethers are polycyclic ethers with many uses.

A. Draw 18-crown-6

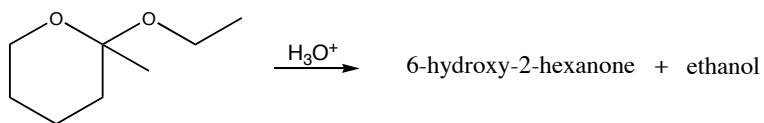
B. Give one use of 18-crown-6.

2. (5 pts) Methyllithium and LDA are two strong bases with many uses in organic synthesis.

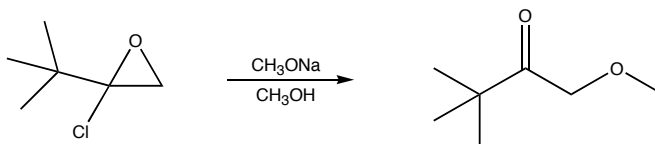
A. Draw LDA and methyllithium

B. Explain why methyllithium is not as good choice as LDA for converting a ketone to its enolate.

3. (10 pts) Using arrows to show the flow of electrons, propose a mechanism for the following transformation.



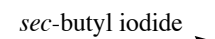
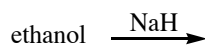
4. (10 pts) Using arrows to show the flow of electrons, propose a mechanism for the following transformation.



5. (27 pts) For each of the following sets of reactions, fill in the missing product(s) in the given box.

(3 points each box)

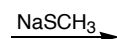
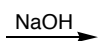
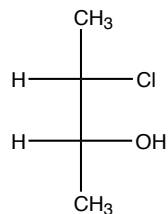
A.



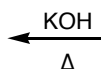
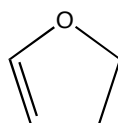
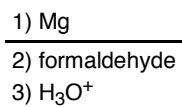
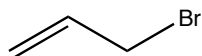
B.



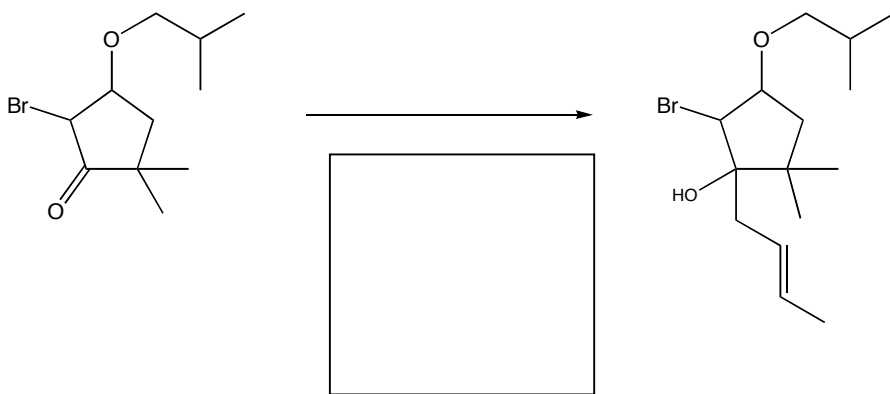
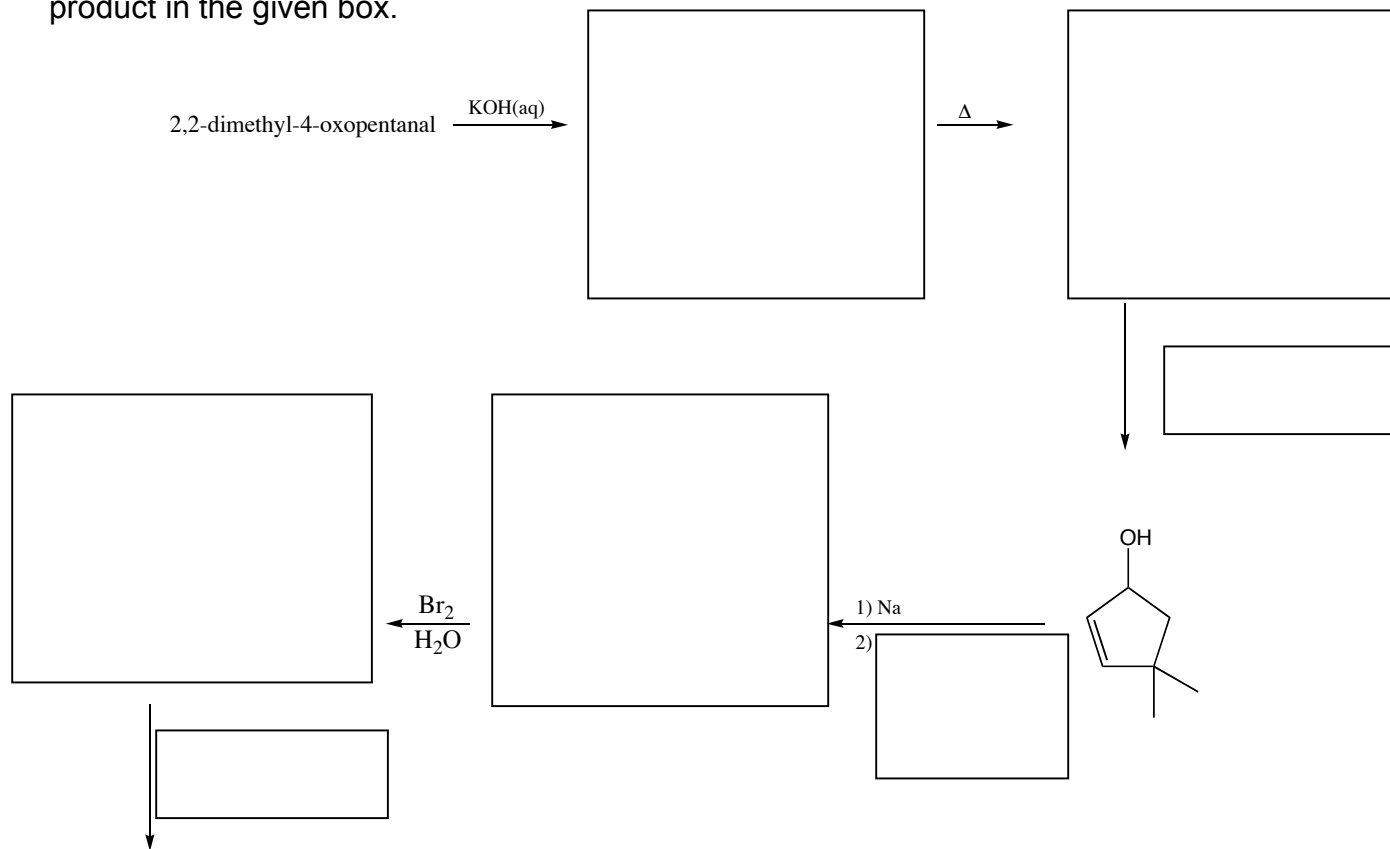
C.



D.

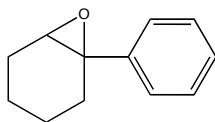


6. (23 pts) For the following transformation, provide the missing reagent or product in the given box.



7. (20 pts) Propose an efficient synthesis for the following transformations. You may use any reagents you like, but must use the given starting material. (10 points each)

A.



starting from

bromobenzene
and
cyclohexanol

B. 2-butanone

all carbons must come from acetic acid ($\text{CH}_3\text{CO}_2\text{H}$)