

## 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.**

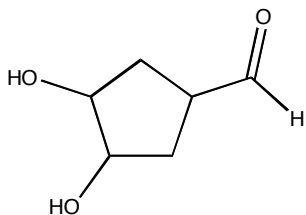
### Recitation Sections:

#	Day	Time	TA	SCORE:	
122	Monday	5 pm	Tom	Page 1 _____/11	Page 3 _____/20
121	Tuesday	8 am	Tom		
131	Tuesday	12 pm	Tom		
132	Tuesday	12 pm	Lee	Page 2 _____/24	Page 4 _____/20
161	Thursday	8 am	Tom		
171	Thursday	12 pm	Lee		Page 5 _____/25
					TOTAL _____/100

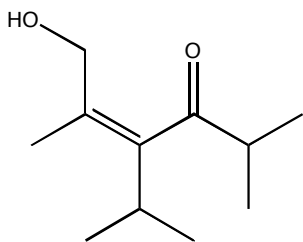
1. (5 pts) Explain why aldehydes are more reactive than ketones towards nucleophilic attack. Draw structures to support your argument.

2. (6 pts) Give the IUPAC name for each of the following compounds.

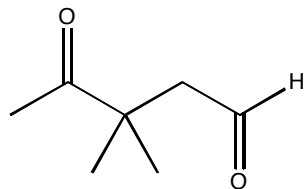
A.



B.

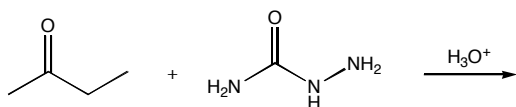


C.

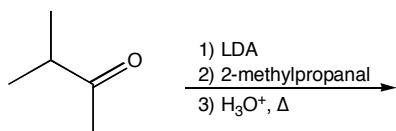


3. (24 pts) Fill in the missing reagents (more than one step may be required) or give the major organic product(s) of the following reactions. Write NR if no reaction occurs. Be sure to show stereochemistry if necessary.

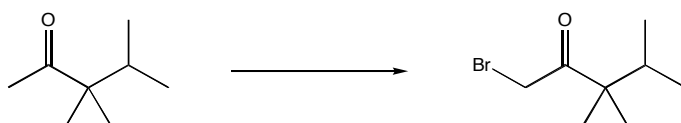
A.



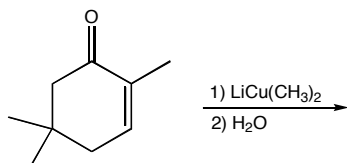
B.



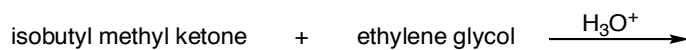
C.



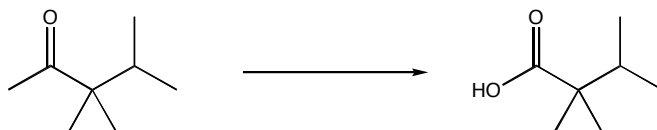
D.



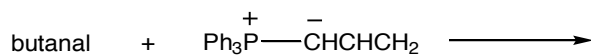
E.



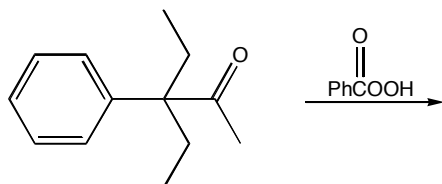
F.



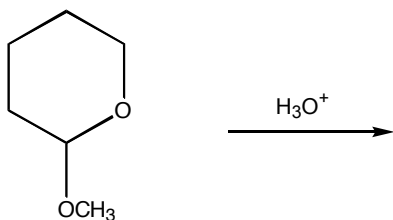
G.



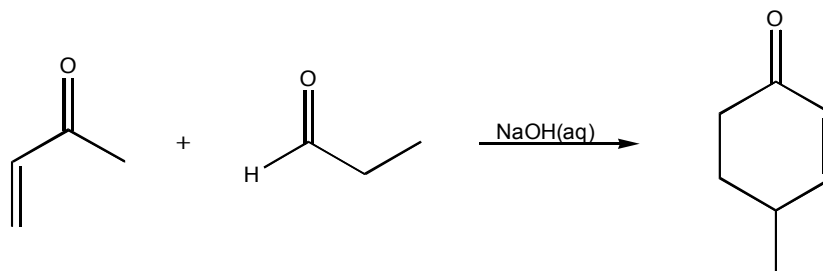
H.



4. (20 pts) Fill in the organic product(s) of the acid catalyzed hydrolysis of the compound shown below and draw a mechanism to account for its formation. In your mechanism be sure to show all inorganic products.

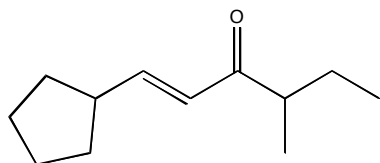


5. (20 pts) Using arrows to show the flow of electrons, draw a mechanism for the following reaction.



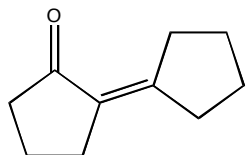
6. (25 pts) Propose an efficient synthesis for the following transformations.

A.



from any reagents containing 5 or fewer carbons

B.



from cyclopentanone and any necessary alcohols or inorganic reagents (Hint: this is not a self-condensation.)