CHEM 330

Exam 1
October 22, 2004

Your name: _____

This a closed-notes, closed-book exam

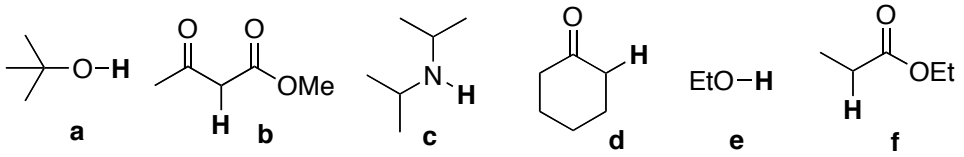
The use of molecular models is allowed

Time: 50 min

1.	_____	/ 12
2.	_____	/ 20
3.	_____	/ 24
4.	_____	/ 16
5.	_____	/ 28
TOTAL	_____	/100

This exam counts for 15% of your CHEM 330 final grade

1. (12 pts.) Arrange the following compounds in order of increasing Bronsted acidity (= least acidic to most acidic) of the protons in boldface. Write your answer in the boxes provided below.



least acidic ☐ ☐ ☐ ☐ ☐ ☐ most acidic

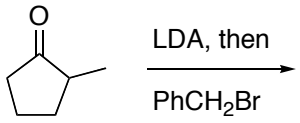
2. (20 pts) Write a chemical equation to show an example of each of the following named reactions (**do not** write mechanisms – just the reactions).

(a) Yonemitsu reaction:

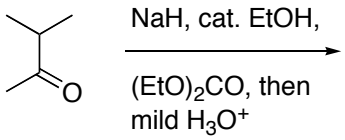
(b) Krapcho reaction

3. (24 pts.) Predict the structure of the major product expected from each of the following reactions:

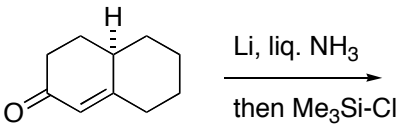
a



b



c



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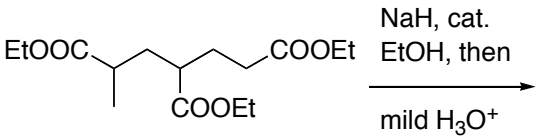

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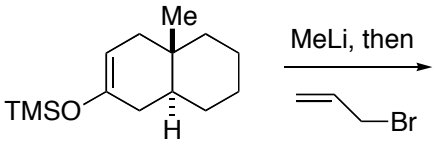
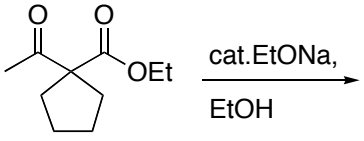
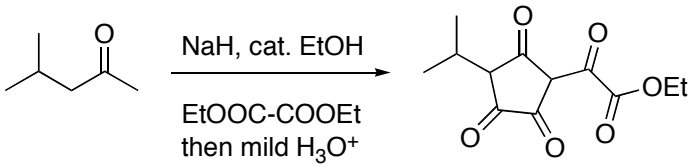


f

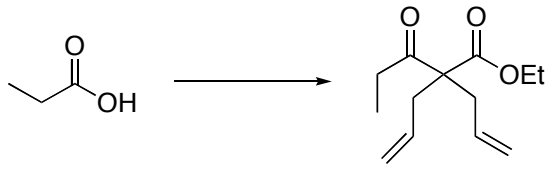


4. (16 pts.) Write an accurate mechanism for the following known reaction:



5. (28 pts.) Indicate a method to accomplish the transformations shown below. In each case, a multistep sequence (= not just one reaction, but several) may be required. Assume the availability of all reagents needed to convert the starting material into the product (e.g, bases, alkyl halides, etc.). Present your answer as a flowchart. **It is not necessary to draw mechanisms**.

a



b