

Chemistry 334

Examination #2

November 6, 2006

Professor Charonnat

Name: _____

Be certain that your examination has four (4) pages including this one.

Put your name on **each** page of this examination booklet.

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

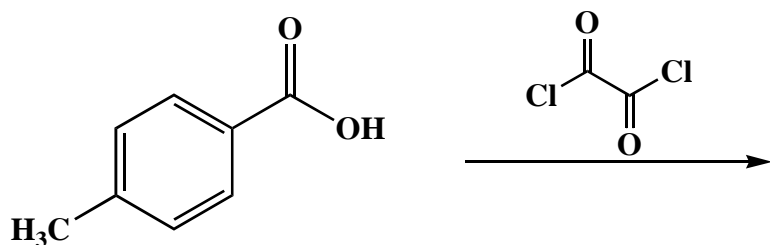
Molecular models are allowed for this examination. All electronic devices, including calculators, are unnecessary and are not allowed.

Name: _____

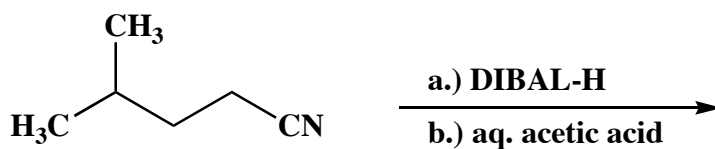
1. (25 points)

Draw the structure of the expected major organic product for each of the following five (5) questions. Clearly specify stereochemistry, if relevant.

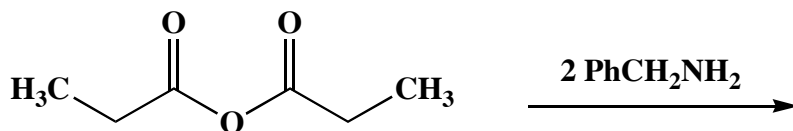
A.



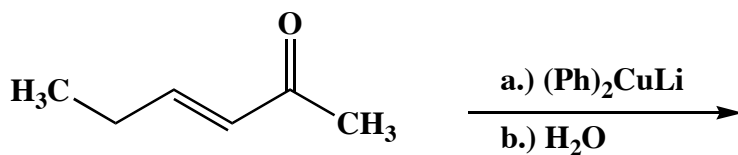
B.



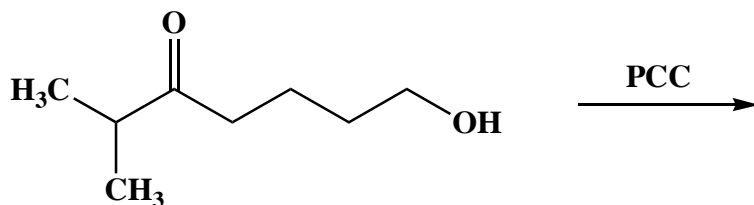
C.



D.



E.



Name: _____

2. (25 points)

Circle the number that corresponds to the correct answer for each of the following five (5) questions.

A. The reaction of a primary amide with thionyl chloride affords

1. a ketone
2. a nitrile
3. an amine

B. Acid chlorides can be hydrolyzed with

1. aqueous acid
2. aqueous base
3. either

C. The reaction of a ketone with a secondary amine affords an

1. enamine
2. amide
3. imine

D. "Salt-free" Wittig reactions

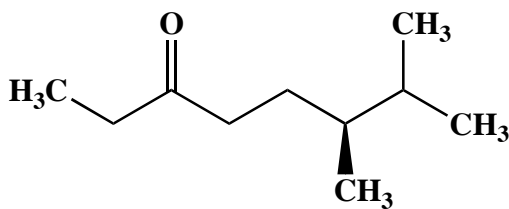
1. yield *cis*-alkenes primarily
2. yield *trans*-alkenes primarily
3. yield a 1:1 mixture of *cis*- and *trans*-alkenes

E. Which of the following compounds is the most acidic?

1. 6-chloroheptanoic acid
2. 4-chloroheptanoic acid
3. 2-chloroheptanoic acid

3. (10 points)

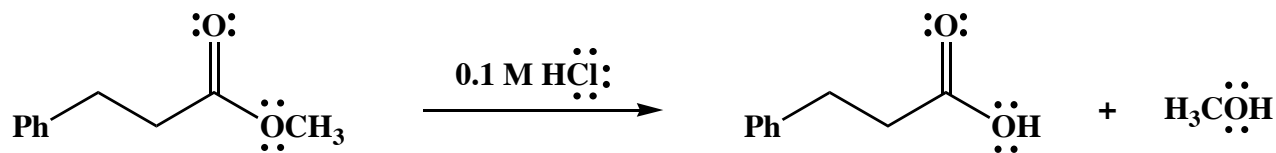
Use IUPAC nomenclature to write the systematic name for the following carbonyl compound.



Name: _____

4. (30 points)

Draw the mechanism of the following reaction, using the curved-arrow notation to indicate the reorganization of electron density. Denote **all** intermediates, lone pairs, nonzero formal charges, countercharges, and reversibility or nonreversibility.



5. (10 points)

How can one use ^1H NMR spectroscopy to distinguish between hexanal and hexanoic acid?

Congratulations!

1	/25
2	/25
3	/10
4	/30
5	/10
Total:	/100