

Chemistry 334

Examination #3

August 18, 2000

Professor Charonnat

Name: _____

Be certain that your examination has eight (8) pages including this one.

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

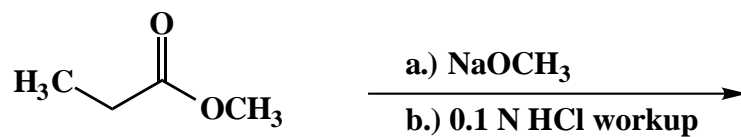
By putting your name on this examination booklet you agree to abide by California State University, Northridge policies of academic honesty and integrity.

Name: _____

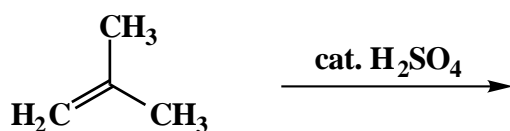
1. (25 points)

For each of the following five (5) questions, draw the structure of the expected major organic product. If relevant, explicitly specify absolute and/or relative stereochemistry.

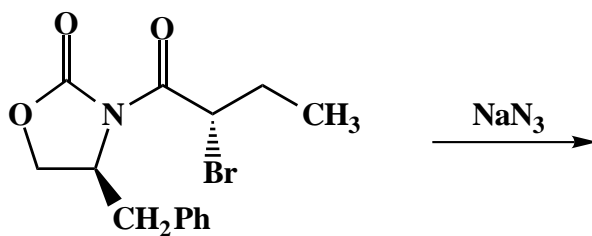
A.



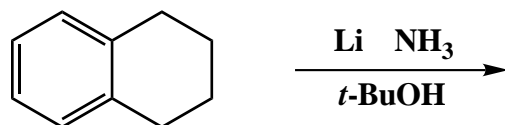
B.



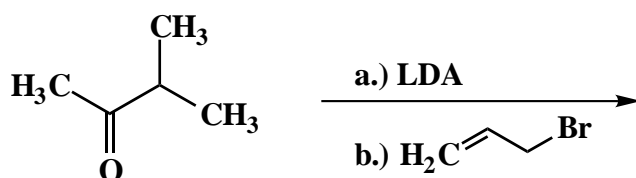
C.



D.



E.

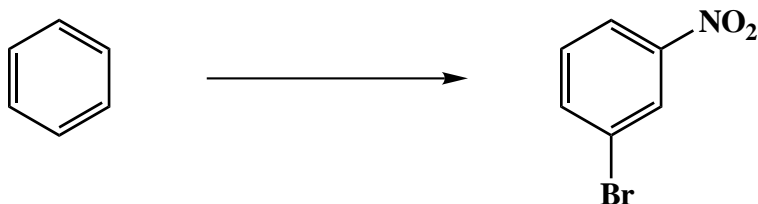


Name: _____

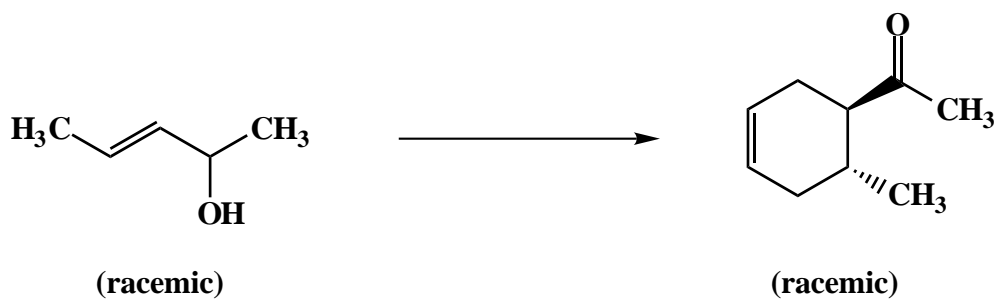
2. (25 points)

For each of the following five (5) questions, draw the specific reagent(s) necessary to effect the transformation shown. If more than one reaction is involved in an answer, be certain to distinguish the individual steps clearly.

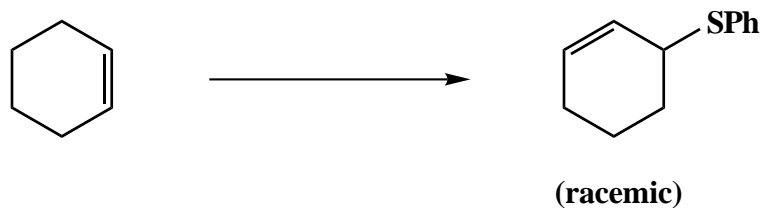
A.



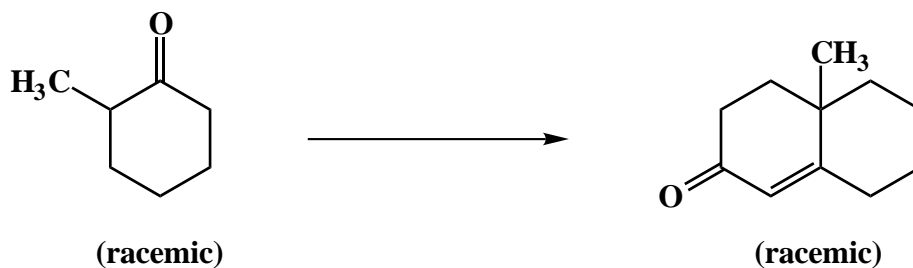
B.



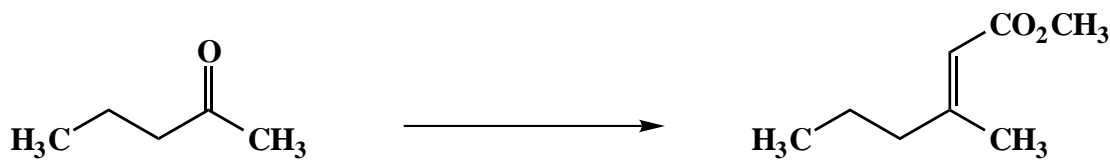
C.



D.



E.



Name: _____

3. (25 points)

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

A. L- α amino acids:

1. always have a positive specific rotation
2. always have a negative specific rotation
3. can have either a positive or negative specific rotation

B. Cystine disulfide bonds:

1. increase the conformational mobility of proteins
2. decrease the conformational mobility of proteins
3. have no effect on the conformational mobility of proteins

C. Naturally-occurring waxes are:

1. alcohols
2. ketones
3. amides
4. esters

D. All steroids have certain:

1. biological functions that are similar
2. structural characteristics that are similar
3. chemical reactivities that are similar
4. physical properties that are similar

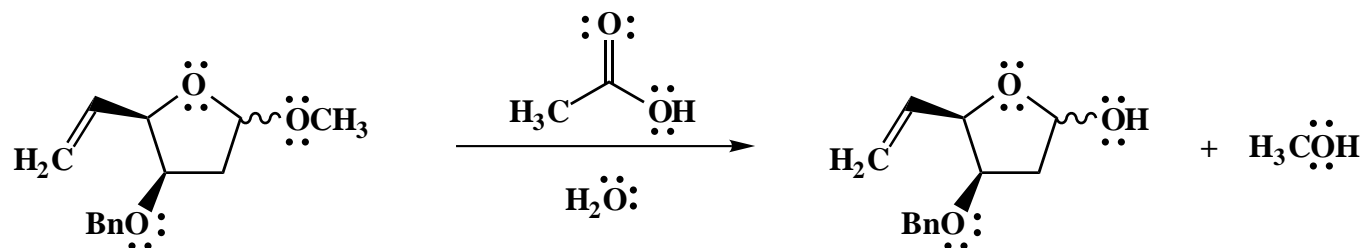
E. Triacylglycerols contain glycerol esterified to:

1. fatty acids
2. carbohydrates
3. α -amino acids
4. nucleic acids

Name: _____

4. (20 points)

The following reaction is a step in Fraser-Reid's synthesis of *exo*-brevicommin. Draw the mechanism of the reaction, using the curved-arrow notation to indicate the reorganization of electron density. Show **all** intermediates and denote **all** lone pair electrons, formal charges and countercharges where appropriate.



Name: _____

5. (20 points)

Draw the structure of a specific example for each of the following ten (10) categories.

A. any naturally-occurring, unsaturated fatty acid:

B. any naturally-occurring, saturated fatty acid:

C. any optically-active tertiary amine:

D. any condensation copolymer:

E. any steroid:

F. any prostaglandin:

G. any antiaromatic compound:

H. any naturally-occurring phospholipid:

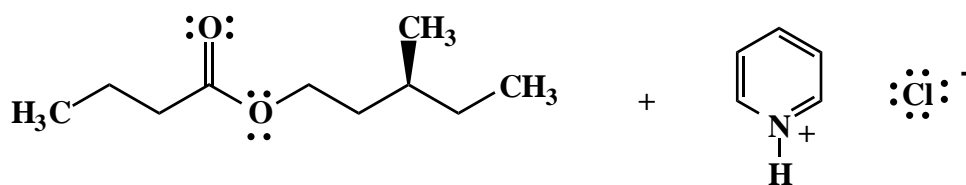
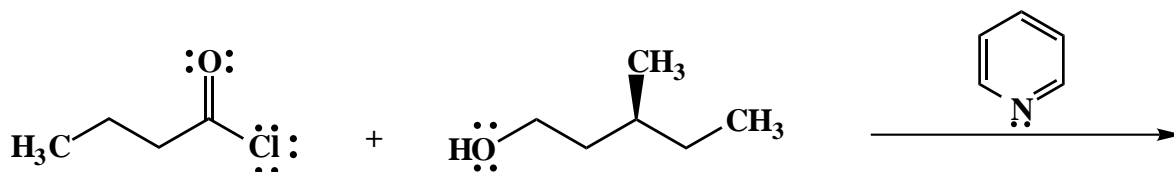
I. any disaccharide with a β -1,4'-glycosidic bond:

J. any disaccharide with an α -1,4'-glycosidic bond:

Name: _____

6. (15 points)

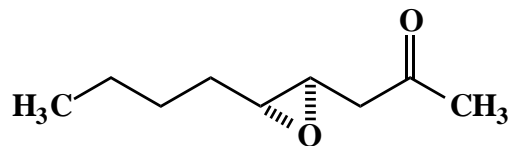
Draw the mechanism of the following reaction, using the curved-arrow notation to indicate the reorganization of electron density. Show **all** intermediates and denote **all** lone pair electrons, formal charges and countercharges where appropriate.



Name: _____

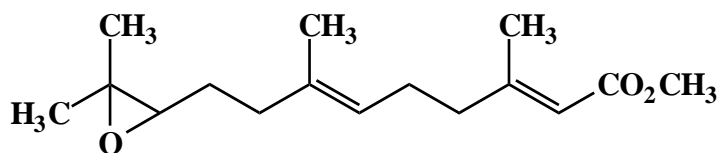
7. (10 points)

Use IUPAC nomenclature to write the systematic name of the following compound.



8. (10 points)

Circle the "isoprene" units in the following sesquiterpene. Clearly label the head (h) and tail (t) carbons of each "isoprene" unit.



juvenile hormone III

Congratulations!

1	/25
2	/25
3	/25
4	/20
5	/20
6	/15
7	/10
8	/10
Total:	/150

Overall course letter grade: