

Chemistry 334

Hour Examination #3

May 3, 2000

Professor Charonnat

Name: _____

Be certain that your examination contains six (6) pages including this cover page.

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. Calculators are unnecessary and are not allowed.

Name: _____

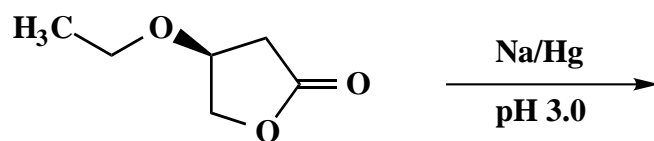
1. (25 points)

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

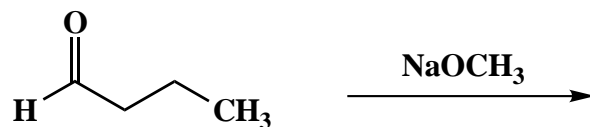
A.



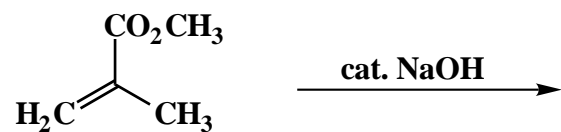
B.



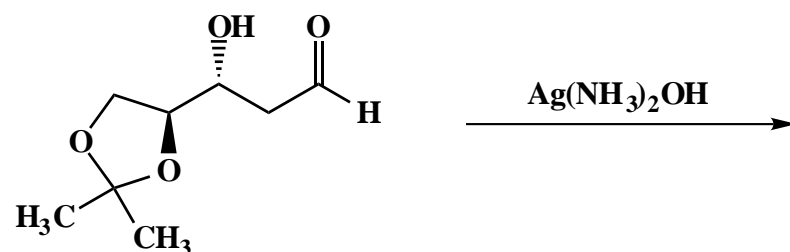
C.



D.



E.

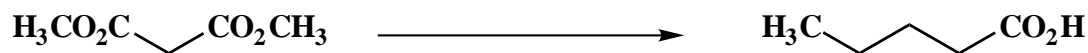


Name: _____

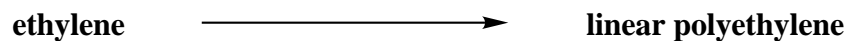
2. (25 points)

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.

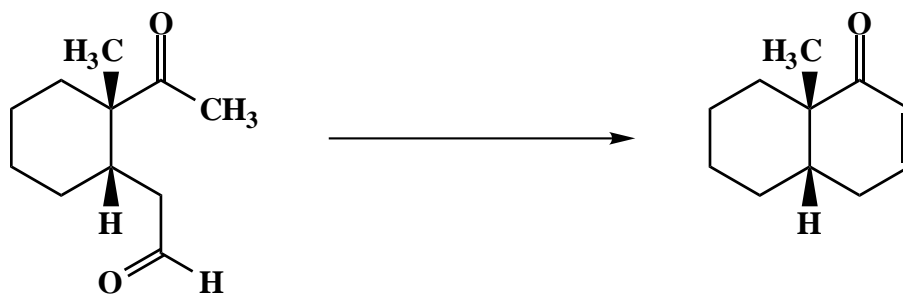
A.



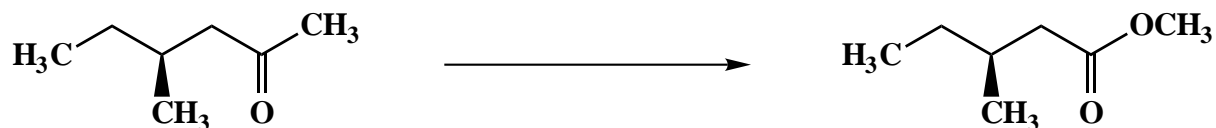
B.



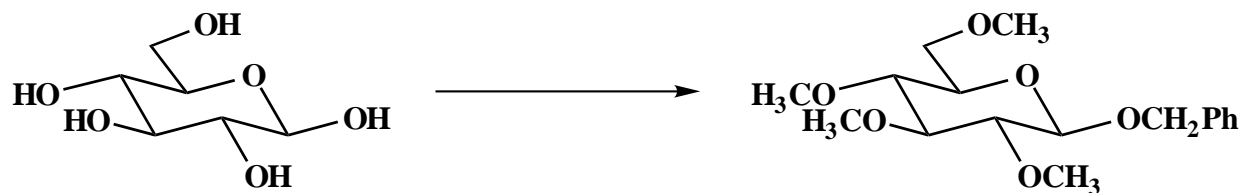
C.



D.



E.



Name: _____

3. (20 points)

For each of the following four (4) questions, circle the number that corresponds to the correct answer.

A. A ketone will be in equilibrium with its corresponding enol tautomer when it is exposed to

1. acidic conditions, only
2. basic conditions, only
3. acidic or basic conditions

B. Lactose differs from cellobiose due to the stereochemistry of

1. a glycoside functional group
2. an alcohol functional group
3. a hemiacetal functional group

C. Teflon is an example of

1. an addition polymer
2. an elimination polymer
3. a condensation polymer

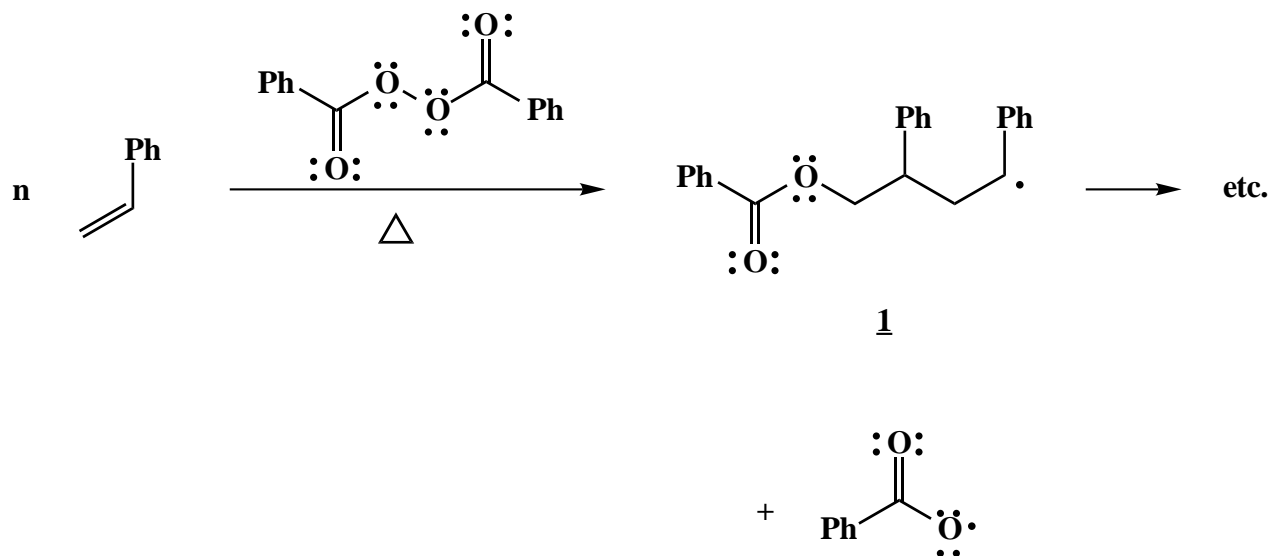
D. Citrate is biosynthesized by the

1. nucleophilic addition of the enolate of acetyl coenzyme A to oxaloacetate
2. nucleophilic addition of the enolate of oxaloacetate to acetyl coenzyme A
3. electrophilic addition of the enolate of oxaloacetate to acetyl coenzyme A

Name: _____

4. (15 points)

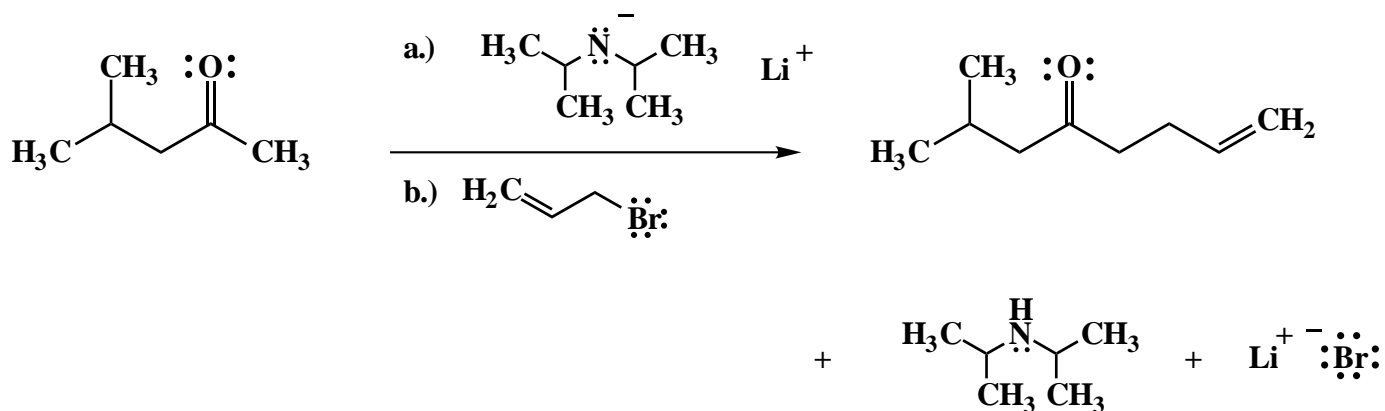
Polystyrene is formed when styrene is heated in the presence of benzoyl peroxide. Use the curved-arrow notation to draw the mechanism of formation of the intermediate 1. Clearly show each primary mechanistic step leading from styrene to 1, including all intermediates and unshared electrons.



Name: _____

5. (15 points)

Draw the mechanism of the following reaction, using the curved-arrow notation to indicate the reorganization of electron density. Show all intermediates, unshared electrons, formal charges and countercharges. Specify reversibility or irreversibility for each primary mechanistic step. Finally, explain in one sentence why the observed regiochemical result is obtained.



Congratulations!

1	/25
2	/25
3	/20
4	/15
5	/15
Total:	/100