

Chemistry 334

Examination #3

December 4, 2006

Professor Charonnat

Name: _____

Be certain that your examination has five (5) 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.

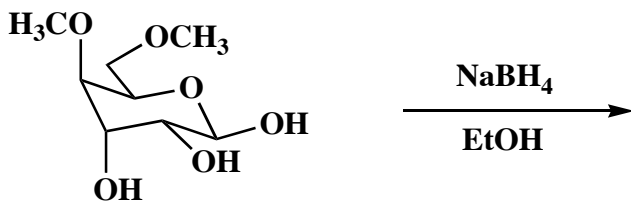
Molecular models are allowed for this examination. All electronic devices, including calculators, are unnecessary and are not allowed.

Name: _____

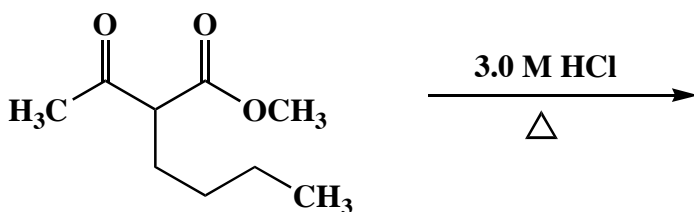
1. (25 points)

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

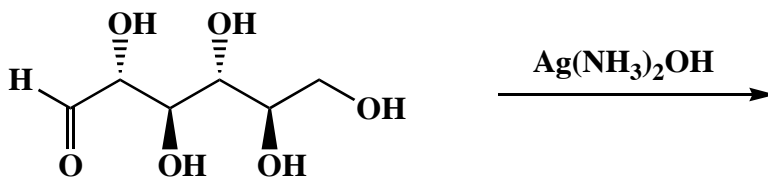
A.



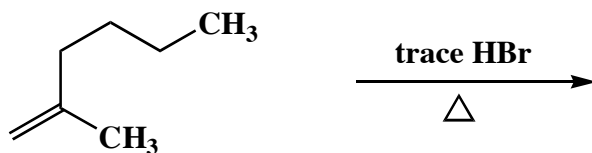
B.



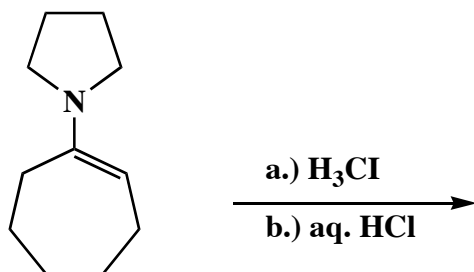
C.



D.



E.



Name: _____

2. (25 points)

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

A. Which base should one use when attempting to α -alkylate an ester?

1. sodium hydroxide
2. sodium methoxide
3. lithium diisopropylamide

B. Ketones are in equilibrium with the corresponding enols via tautomerism. At equilibrium

1. a ketone and its enol exist as a 1:1 mixture
2. there is significantly more ketone than enol
3. there is significantly more enol than ketone

C. Ziegler-Natta polymerization occurs via

1. a step-growth mechanism
2. a chain-growth mechanism
3. both processes

D. Fructose-1,6-bisphosphate is converted into dihydroxyacetone phosphate and glyceraldehyde-3-phosphate via

1. an S_N2 displacement
2. an aldol condensation
3. a retro-aldol condensation

E. D-Mannose and L-mannose are

1. enantiomers
2. diastereomers
3. regioisomers

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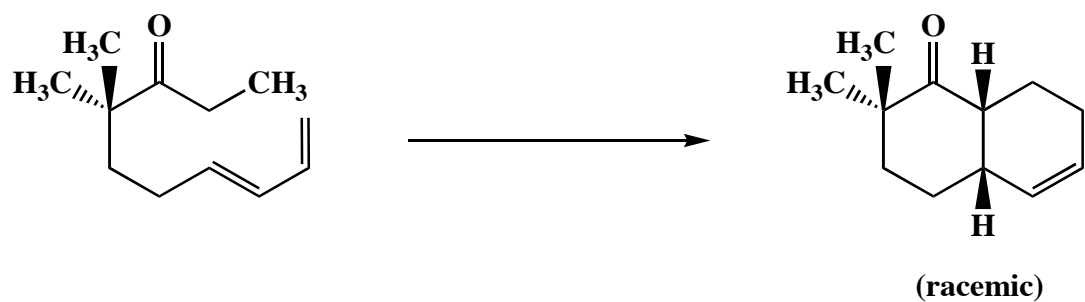
3. (25 points)

Draw the specific reagent(s) necessary to effect the transformation shown for both of the following two (2) questions. If more than one step is required, be certain to specify each step separately.

A.

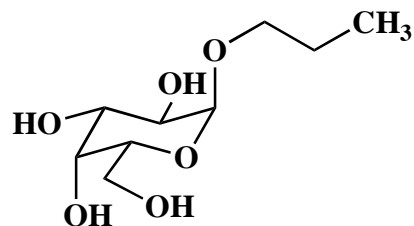


B.



4. (5 points)

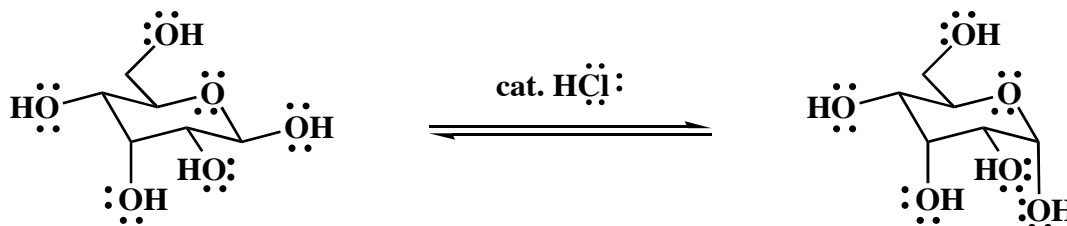
Write the general classification name for the following carbohydrate.



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5. (20 points)

The following equilibrium can be established by at least two distinct mechanisms. Draw the mechanism that does not involve opening the six-membered ring. Denote **all** intermediates, lone pairs, nonzero formal charges, countercharges, and reversibility or nonreversibility.



Congratulations!

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