

Chemistry 333

Examination #2

April 3, 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.

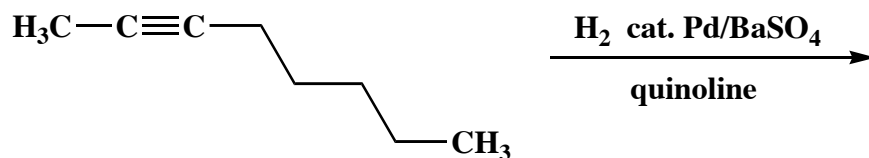
Molecular models are allowed for this examination. All electronic devices, including calculators, are unnecessary and are not allowed.

Name: _____

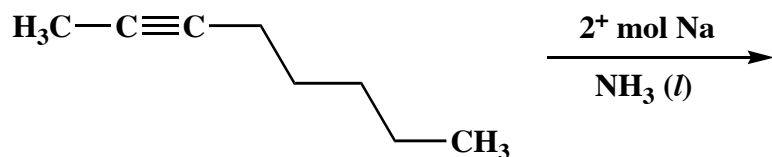
1. (25 points)

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

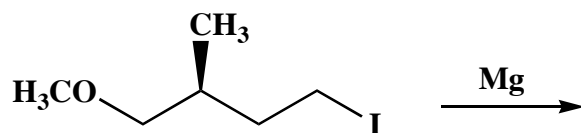
A.



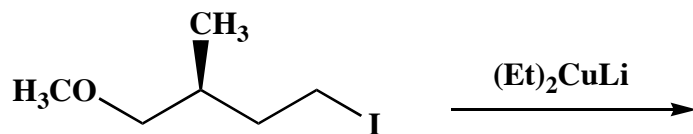
B.



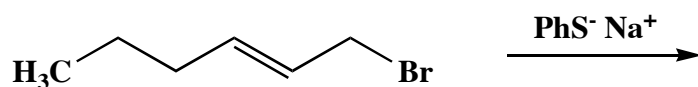
C.



D.



E.

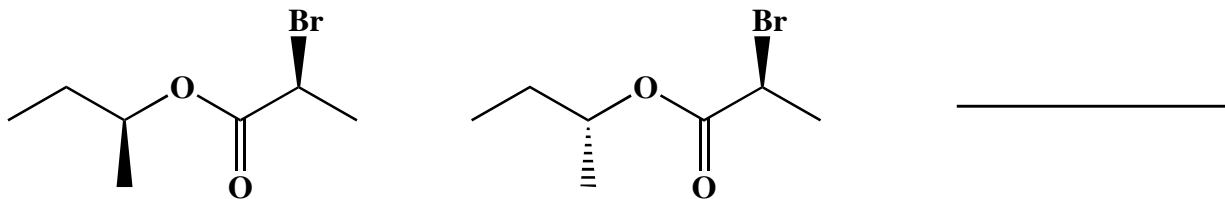


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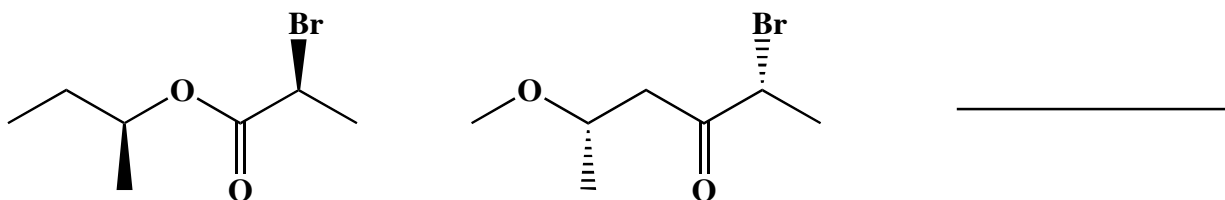
2. (25 points)

State the relationship between each of the following five (5) pairs of structures (identical, enantiomers, diastereomers, structural isomers, conformational isomers, or different compounds that are not isomeric).

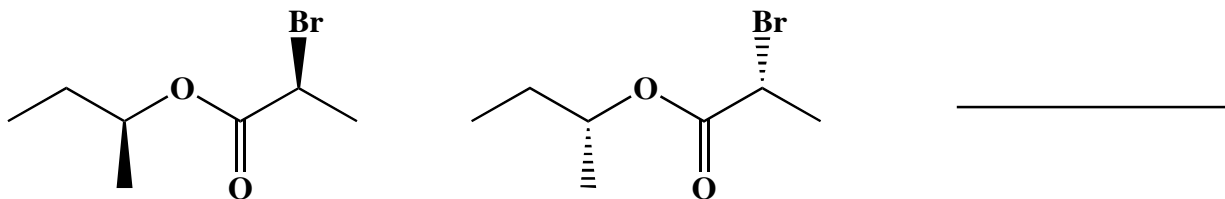
A.



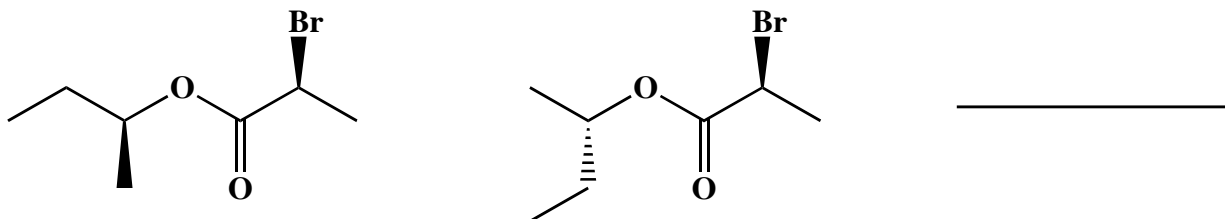
B.



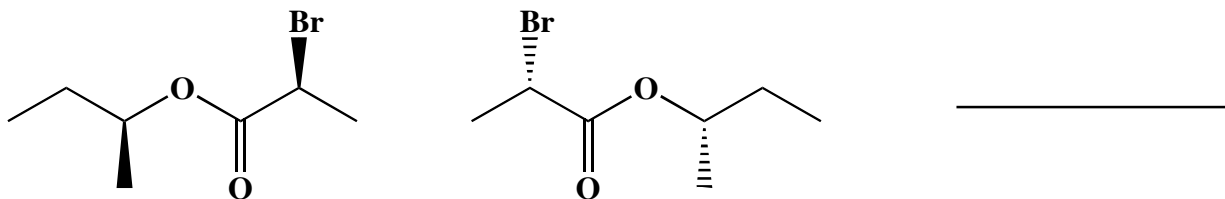
C.



D.



E.



Name: _____

3. (25 points)

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

A. The alkene, (*E*)-pent-2-ene, contains

1. no stereocenters
2. one stereocenter
3. two stereocenters

B. Compounds which contain asymmetric (chiral) carbons

1. always are chiral
2. usually are chiral
3. never are chiral

C. Which reagent contains the most nucleophilic species?

1. potassium iodide
2. tetrabutylammonium iodide
3. potassium *tert*-butoxide

D. Wagner-Meerwein rearrangements can occur during

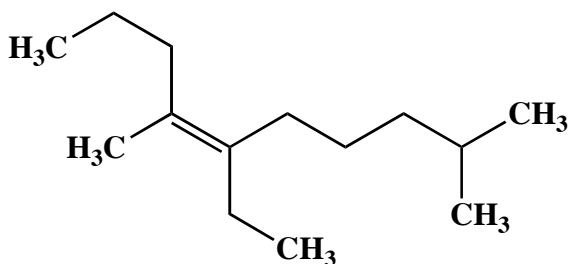
1. S_N1 and E1 reactions
2. S_N1 and E2 reactions
3. S_N1 and S_N2 reactions

E. S_N2 reactions of (*R*)-3-iodononane are

1. nonstereoselective
2. partially stereoselective
3. completely stereoselective

4. (10 points)

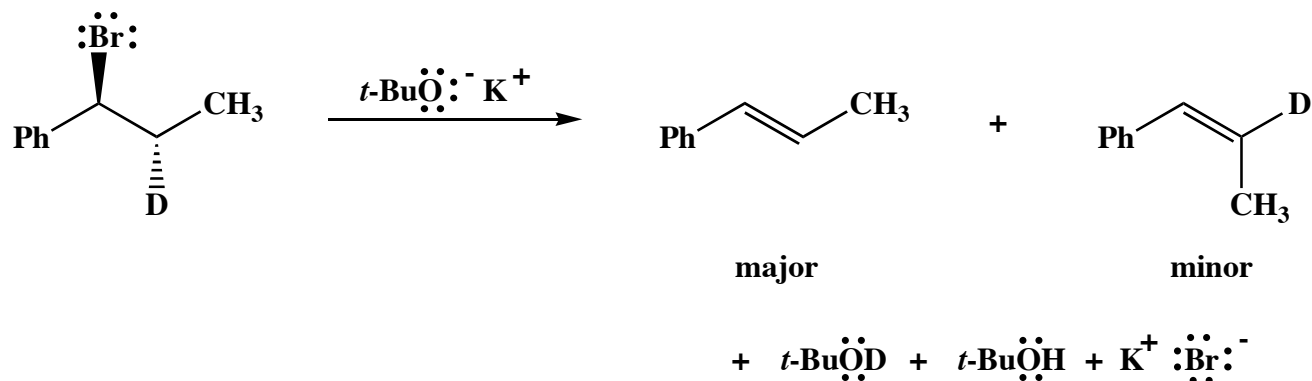
Use IUPAC nomenclature to write the systematic name of the following alkene.



Name: _____

5. (15 points)

Draw the mechanism of the following reaction, using the curved-arrow notation to indicate the reorganization of electron density. Denote **all** lone pairs, nonzero formal charges and countercharges. Draw three-dimensional conformations to show how the two alkenes are formed. Finally, explain the mechanistic basis for the product distribution.



Congratulations!

1	/25
2	/25
3	/25
4	/10
5	/15
Total:	/100