

Chemistry 333

Examination #2

March 28, 2007

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.

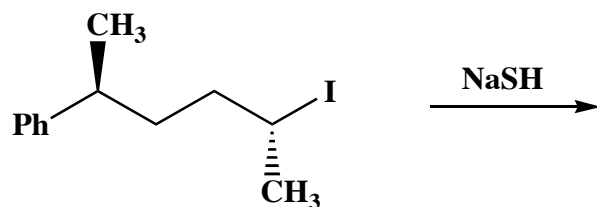
Molecular models are allowed for this examination. All electronic devices, including calculators, are unnecessary and are not allowed.

Name: _____

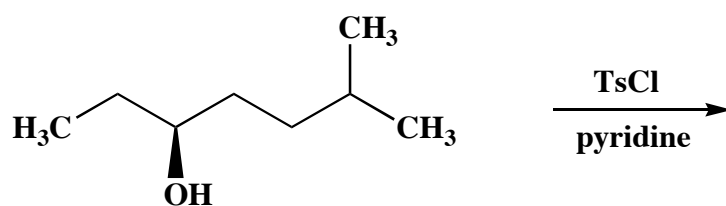
1. (25 points)

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

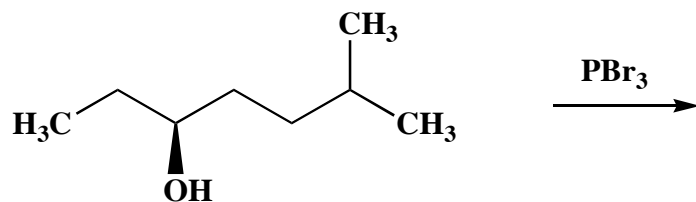
A.



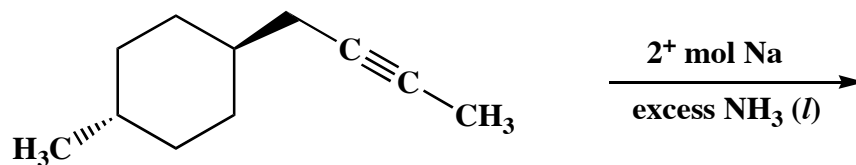
B.



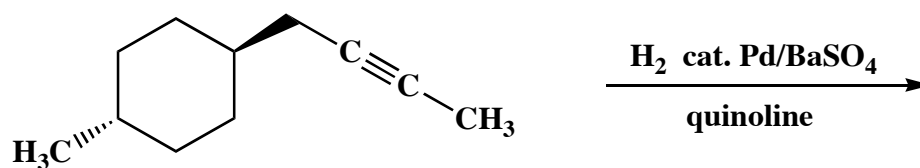
C.



D.



E.



Name: _____

2. (25 points)

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

A. If the concentration of an optically active compound is increased, its specific rotation will

1. increase
2. remain constant
3. decrease

B. S_N2 reactions proceed most rapidly in

1. polar, protic solvents
2. polar, aprotic solvents
3. nonpolar solvents with phase-transfer catalysts

C. S_N1 reactions are

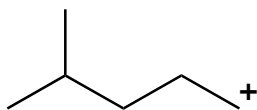
1. stereospecific
2. always nonstereoselective
3. partially or nonstereoselective

D. The hydrolysis of (+)-3-chloro-3-methylhexane has a reaction rate that is

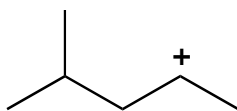
1. independent of [water]
2. first-order in [water]
3. second-order in [water]

E. Which carbocation is the least stable?

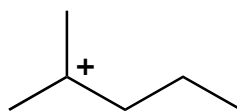
1.



2.



3.

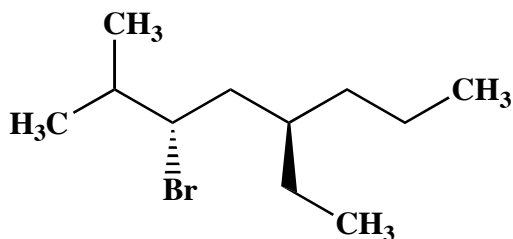


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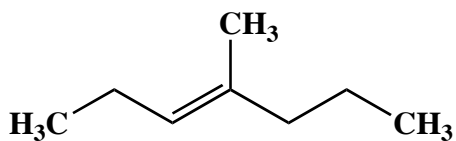
3. (10 points)

Use IUPAC nomenclature to write the systematic names of the following two (2) compounds.

A.

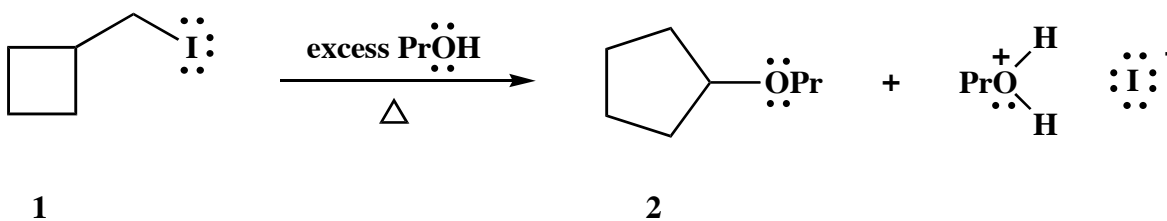


B.



4. (15 points)

When the alkyl iodide **1** is heated in *n*-propanol, a number of products are formed, including the ether **2**. Draw the mechanism of this reaction, using the curved-arrow notation to indicate the reorganization of electron density. Denote **all** lone pairs, nonzero formal charges and countercharges. Denote reversibility or nonreversibility as appropriate.

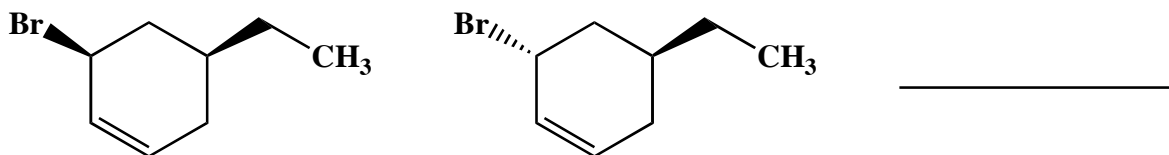


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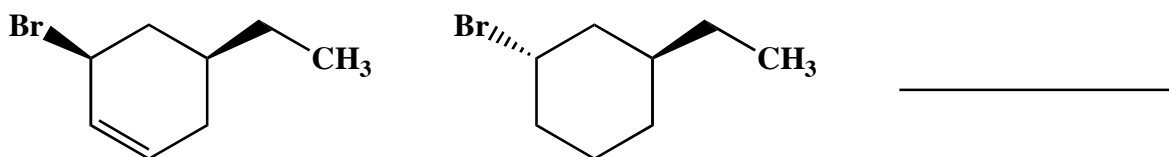
5. (25 points)

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).

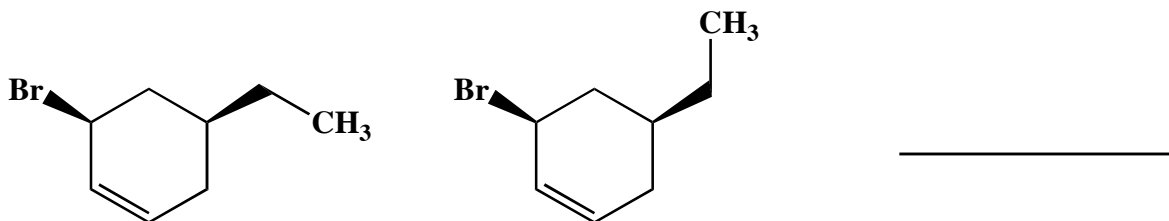
A.



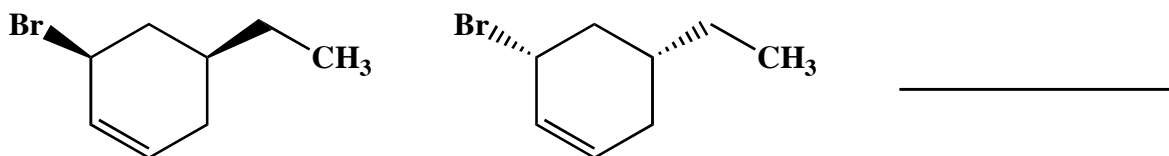
B.



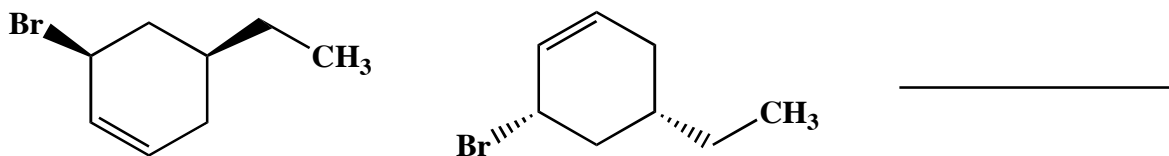
C.



D.



E.



Congratulations!

1	/25
2	/25
3	/10
4	/15
5	/25
total	/100