

Chemistry 333

Second Hour Examination

October 27, 1997

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.

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1. (10 points)

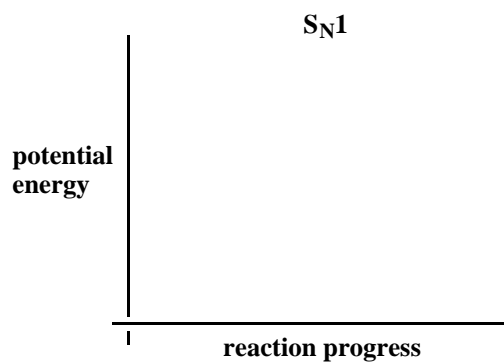
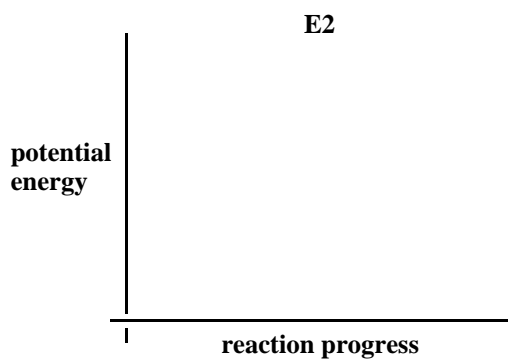
Define each of the following two (2) terms precisely, succinctly and with correct grammar. Give specific examples for each term.

A. enantiomers

B. diastereomers

2. (20 points)

Draw labeled potential energy curves for a typical E2 reaction and a typical S_N1 reaction.



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3. (20 points)

Answer each of the following two (2) questions precisely, succinctly and with correct grammar.

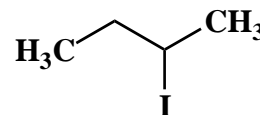
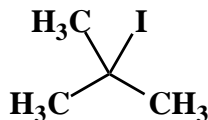
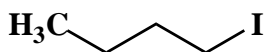
A. Why is a racemic mixture optically inactive?

B. Why are S_N2 reactions completely stereoselective?

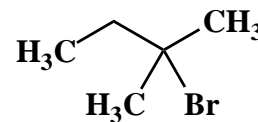
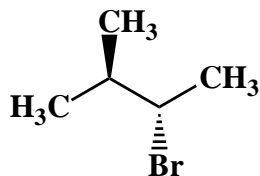
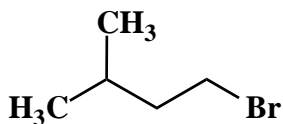
4. (10 points)

Circle the appropriate compound for each of the following two (2) questions. For each question, describe your reasoning with a one-sentence statement.

A. Which of the following compounds is the best S_N2 substrate?



B. Which of the following compounds is the best S_N1 substrate?

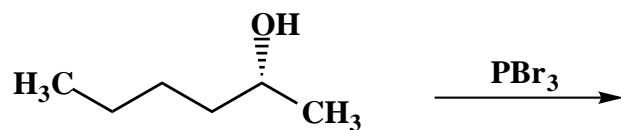


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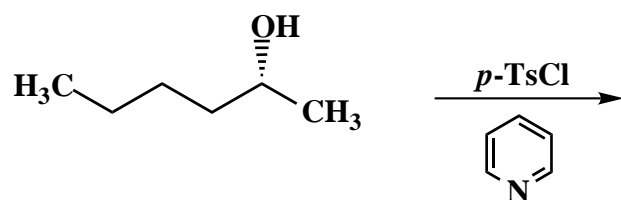
5. (20 points)

For each of the following four (4) questions denote the major organic product.

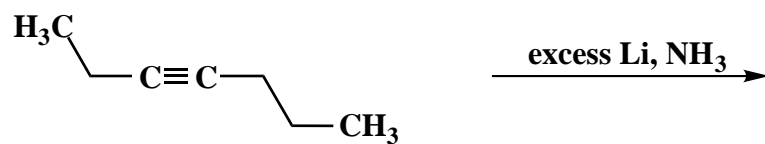
A.



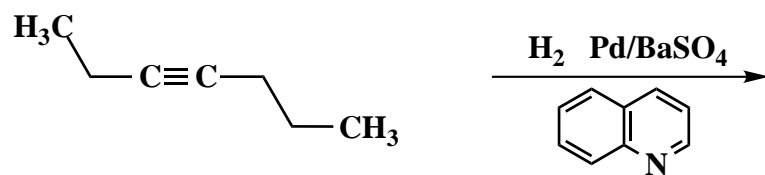
B.



C.



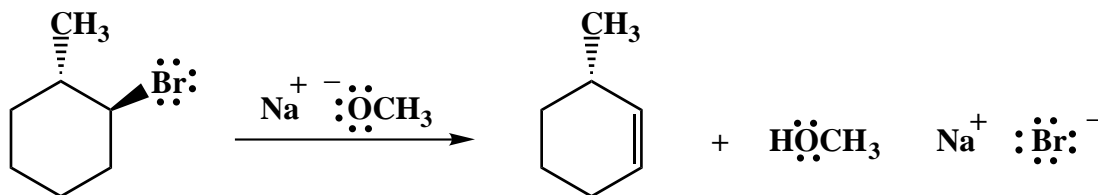
D.



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6. (20 points)

Use a three-dimensional drawing and the curved-arrow notation to depict the mechanism of the following elimination reaction. Denote **all** lone pair electrons, formal charges and countercharges. (Hint: Remember cyclohexane conformational analysis.)



Congratulations!

1	/10
2	/20
3	/20
4	/10
5	/20
6	/20
<hr/> Total:	<hr/> /100