

Chemistry 333

Examination #2

April 16, 2004

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. Calculators are unnecessary and are not allowed.

Name: _____

1. (25 points)

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

A. Sodium/ammonia reduction of an internal alkyne affords a:

1. cis alkene, exclusively
2. trans alkene, exclusively
3. 1:1 mixture of cis and trans alkenes

B. S_N2 reactions proceed the fastest in:

1. polar, aprotic solvents
2. polar, protic solvents
3. the gas phase

C. Which of the following is the best leaving group?

1. fluoride
2. chloride
3. bromide

D. Which reactions show a primary kinetic isotope effect?

1. E1
2. E2
3. both

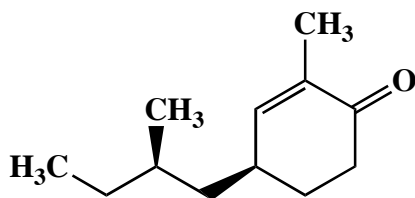
E. Which alkyl halides are the most reactive in E2 reactions?

1. primary alkyl halides
2. secondary alkyl halides
3. tertiary alkyl halides

Name: _____

2. (20 points)

- A. Put a star next to each stereocenter that is present in the ketone **1**.
Label each stereocenter as R or S.



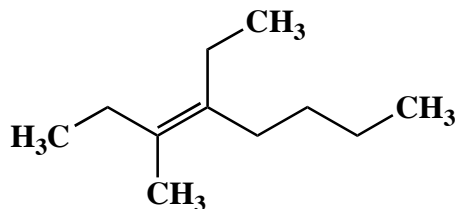
1

- B. Draw the enantiomer of the ketone **1**. Label each stereocenter as R or S.

- C. Draw a diastereomer of the ketone **1**. Label each stereocenter as R or S.

3. (10 points)

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

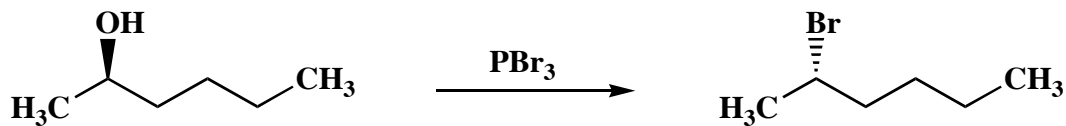


Name: _____

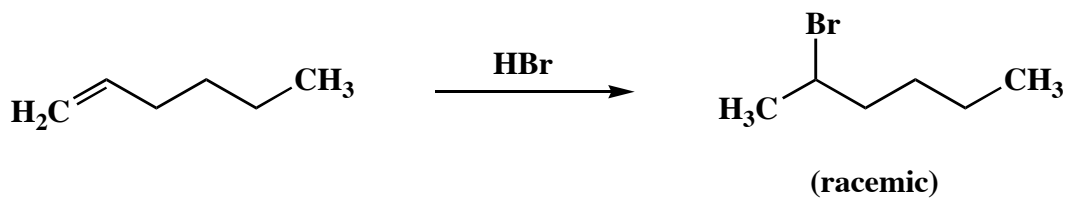
4. (30 points)

State whether each of the following three (3) reactions is nonstereoselective, partially stereoselective or completely stereoselective. Describe your reasoning clearly and succinctly.

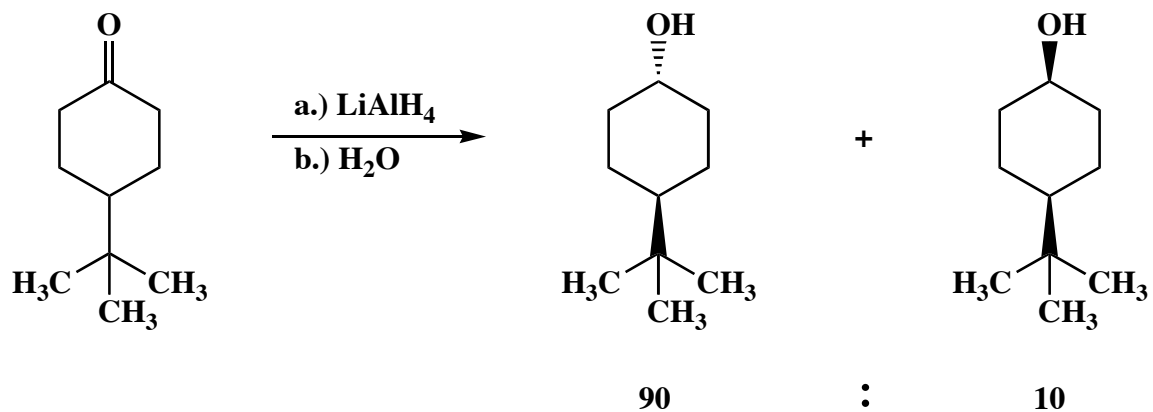
A.



B.



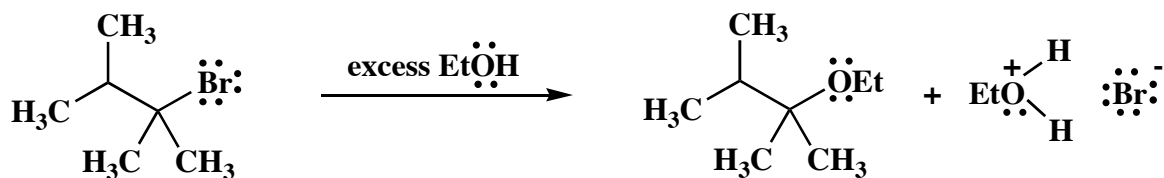
C.



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 and denote all lone pair electrons, formal charges and countercharges where appropriate.



Congratulations!

1	/25
2	/20
3	/10
4	/30
5	/15
<hr/> Total:	<hr/> /100