

Chemistry 333

Hour Examination #3

April 24, 1998

Professor Charonnat

Name: \_\_\_\_\_

Be certain that your examination has five (5) pages including this one.

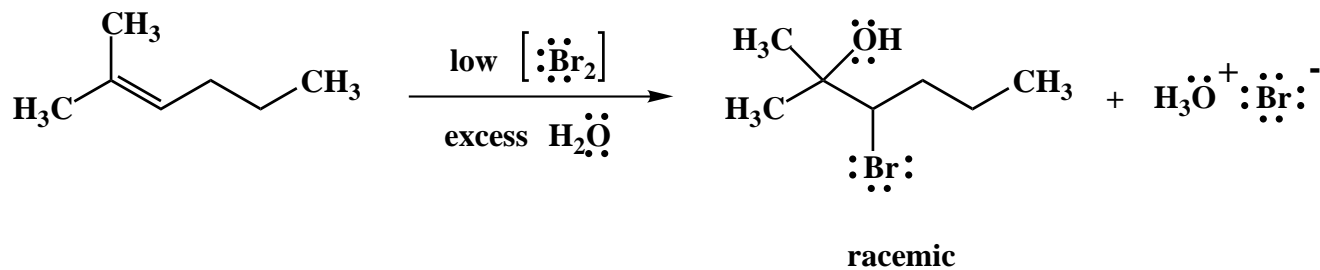
Put your name on **each** page of this examination booklet.

By putting your name on this examination booklet you agree to abide by California State University, Northridge policies of academic honesty and integrity.

Name: \_\_\_\_\_

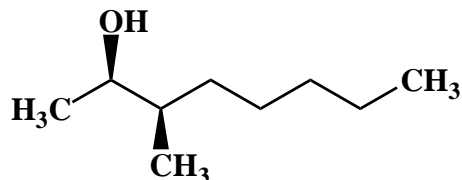
1. (20 points)

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 unshared electrons, formal charges and countercharges where appropriate. Clearly denote reversibility or irreversibility for each primary mechanistic step. Explain in one sentence why a racemic mixture is obtained.



2. (10 points)

Use IUPAC nomenclature to write the systematic name for the following secondary alcohol.

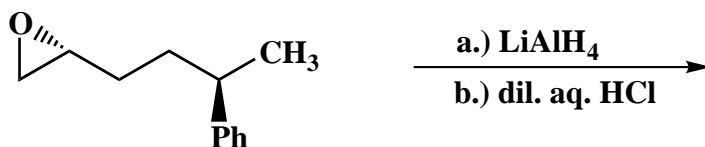


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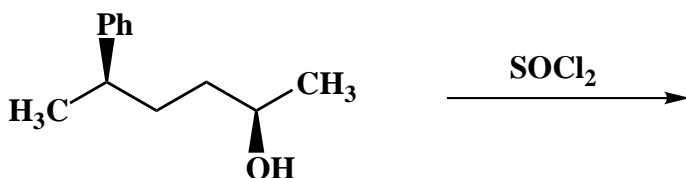
3. (25 points)

For each of the following five (5) questions draw the structure of the expected major organic product. If relevant, **explicitly** specify absolute and/or relative stereochemistry.

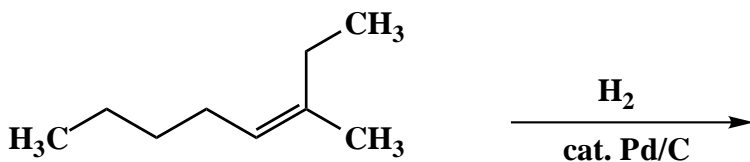
A.



B.



C.



D.



E.

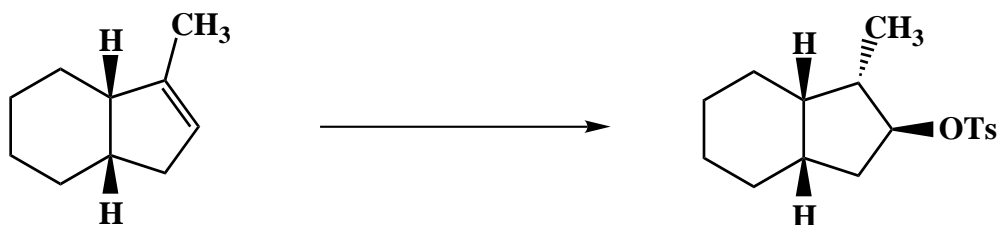


Name: \_\_\_\_\_

4. (25 points)

For each of the following five (5) questions write the reagent (or sequence of reagents) that will effect the desired transformation. More than one reaction may be required to achieve the conversion.

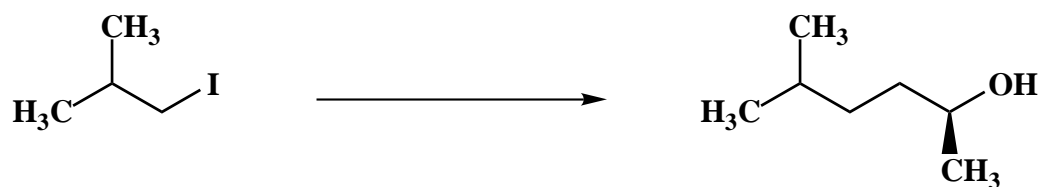
A.



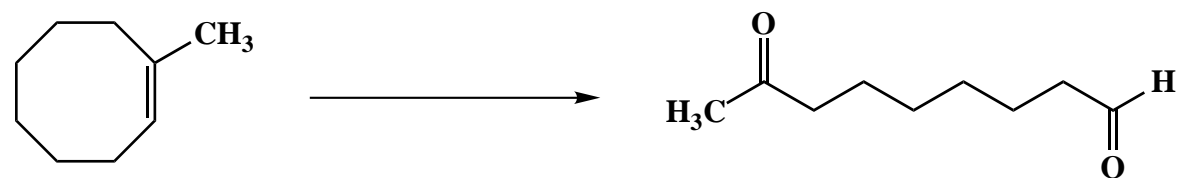
B.



C.



D.



E.



Name: \_\_\_\_\_

5. (20 points)

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

A. Why does hydrogen bromide/benzoyl peroxide give "anti-Markovnikov" addition of HBr to unsymmetrical alkenes? Draw appropriate structures to clarify your answer.

B. Why is 4-methylmorpholine *N*-oxide (NMO) used for osmium tetroxide *syn*-dihydroxylation of alkenes?

**Congratulations!**

1	/20
2	/10
3	/25
4	/25
5	/20
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Total:	/100