

Chemistry 333

Examination #2

April 2, 2003

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.

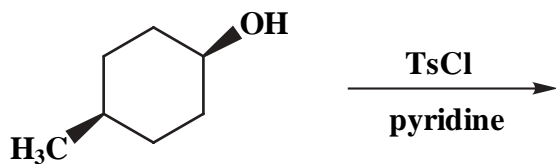
Molecular models are allowed for this examination. Calculators are unnecessary and are not allowed.

Name: _____

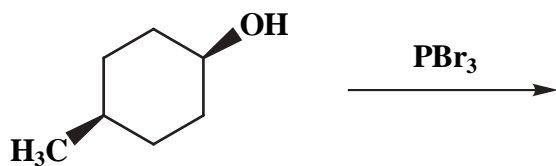
1. (25 points)

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

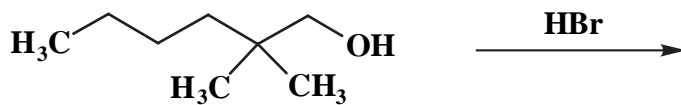
A.



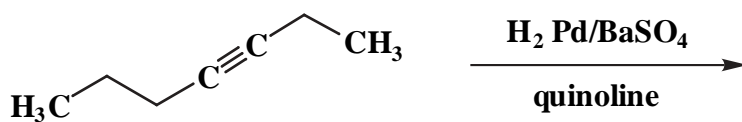
B.



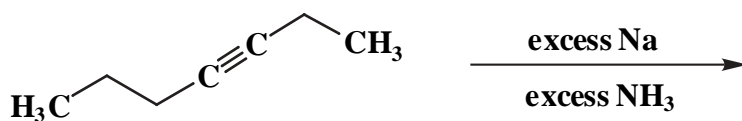
C.



D.



E.



Name: _____

2. (30 points)

Answer the following three (3) questions precisely, succinctly and with correct grammar.

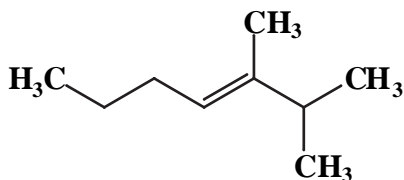
A. How does phase-transfer catalysis facilitate S_N2 reactions?

B. What is the minimum number of primary mechanistic steps in an S_N1 reaction?
Which of these steps is the rate-determining step?

C. What is meant by the term, "chiral?"

3. (10 points)

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

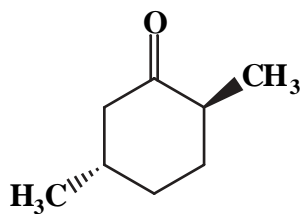
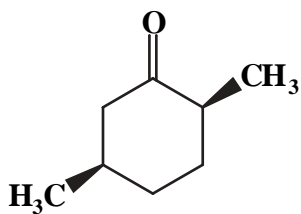


Name: _____

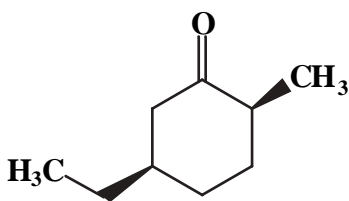
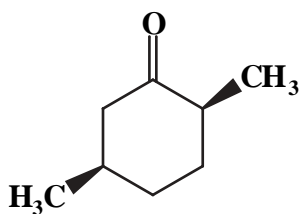
4. (25 points)

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

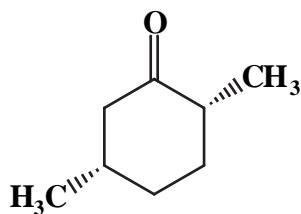
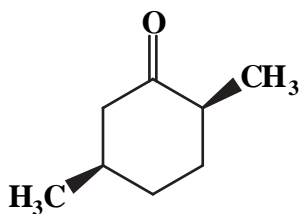
A.



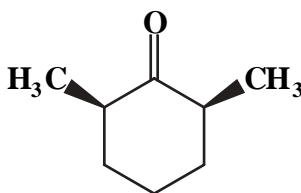
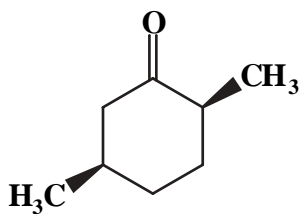
B.



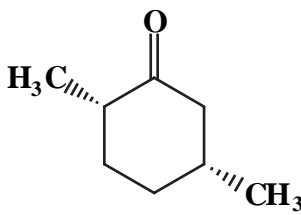
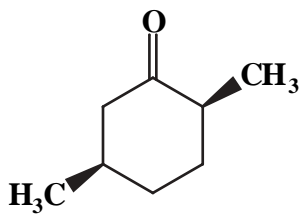
C.



D.



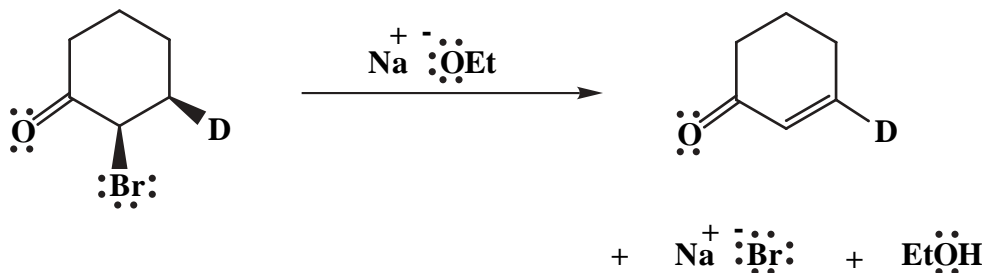
E.



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5. (10 points)

Draw the mechanism of the following reaction, using the curved-arrow notation to indicate the reorganization of electron density. Show all unshared electrons, formal charges and countercharges. Draw a three-dimensional picture to show clearly why the deuterium atom is retained in the product.



Congratulations!

1	/25
2	/30
3	/10
4	/25
5	/10
Total:	/100