

Chemistry 333

Examination #2

October 25, 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. All electronic devices, including 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. Other factors being equal, a more electronegative leaving group makes an  $S_N1$  reaction proceed at

1. a faster rate
2. a slower rate
3. the same rate

B. E1 reactions proceed via a mechanism that involves

1. only one step
2. only two steps
3. two or more steps

C. Which reaction is completely stereoselective?

1. E1
2.  $S_N1$
3.  $S_N2$

D. Other factors being equal, a stronger base makes an E2 reaction proceed at

1. a faster rate
2. a slower rate
3. the same rate

E. Which of the following alkyl halides is the least reactive in  $S_N2$  reactions?

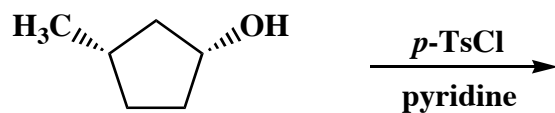
1. 2-bromopentane
2. 2-methyl-2-bromopentane
3. 3-bromopentane

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

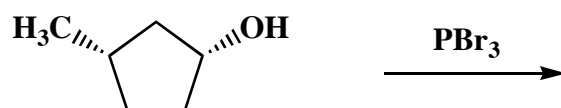
2. (25 points)

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

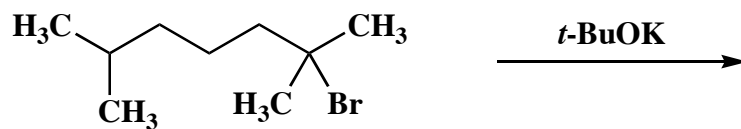
A.



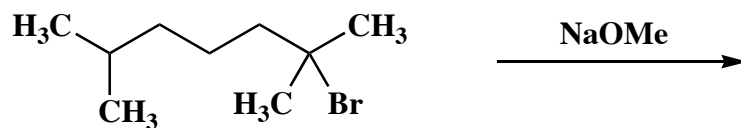
B.



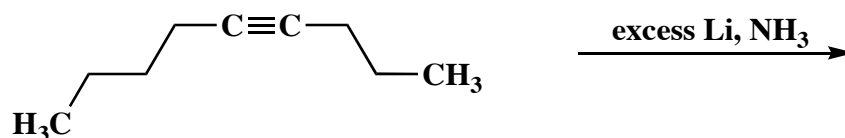
C.



D.



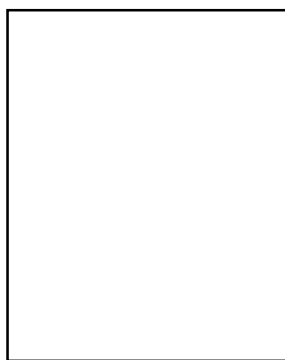
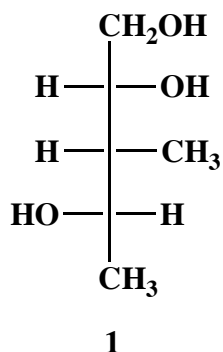
E.



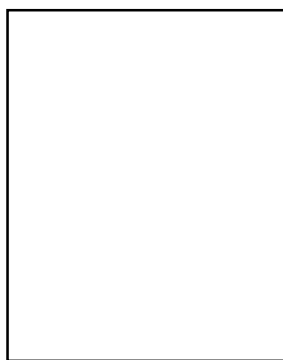
Name: \_\_\_\_\_

3. (15 points)

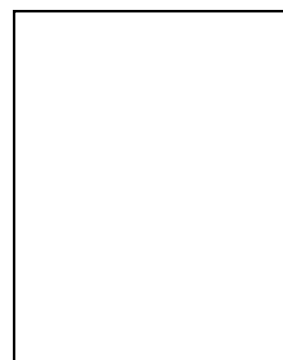
Draw a Fischer projection for each of the following three (3) isomers of the triol **1**.



the enantiomer



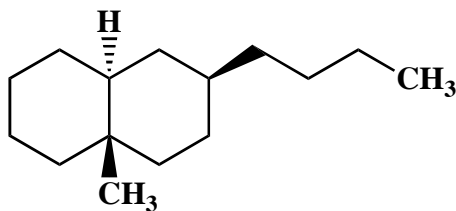
a diastereomer



a structural isomer

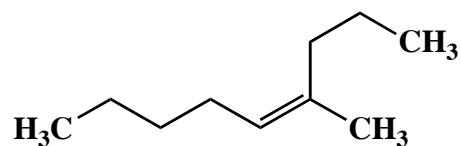
4. (10 points)

A. Put a star next to each stereocenter that is present in the following alkane. Label each stereocenter as R or S. Show your logic.



5. (5 points)

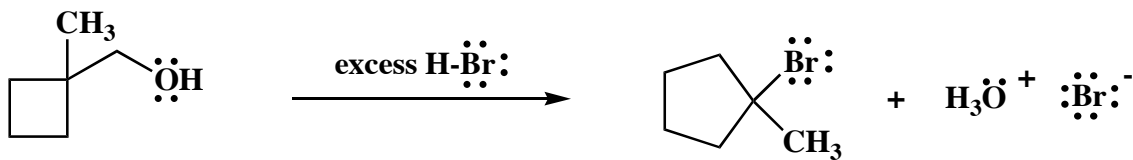
Use IUPAC nomenclature to write the systematic name of the following alkene.



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

6. (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.



**Congratulations!**

1	/25
2	/25
3	/15
4	/10
5	/5
6	/20
Total:	/100