Chemistry 333

Examination #3

April 30, 2007 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.

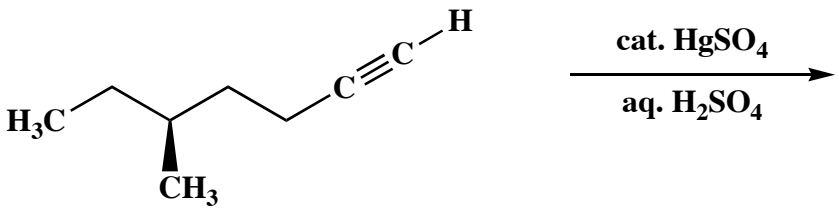
Molecular models are allowed for this examination. All electronic devices, including calculators, are unnecessary and are not allowed.

Name: _____

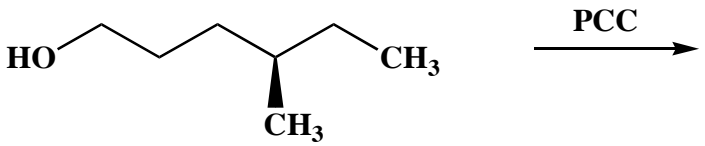
1. (25 points)

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

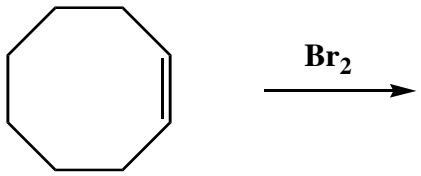
A.



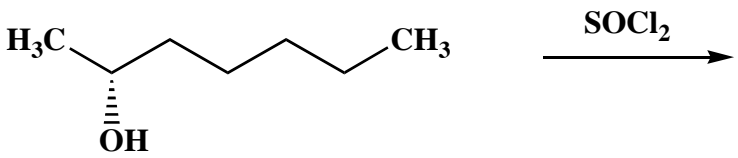
B.



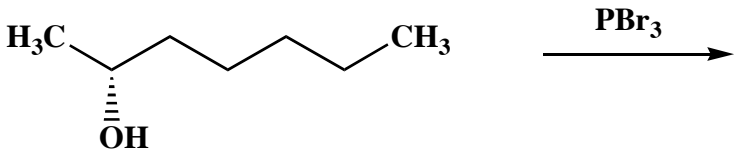
C.



D.



E.



Name: _____

2. (25 points)

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

A. Singlet carbenes have

1. no unpaired electrons
2. one unpaired electron
3. two unpaired electrons

B. Bromohydrin formation occurs via an

1. S_N1 mechanism
2. S_N2 mechanism
3. S_N2 mechanism with S_N1 character

C. Which of the following hydrocarbons is the most acidic?

1. 2-pentyne
2. 1-pentene
3. 1-pentyne

D. Which of the following reactions is completely stereoselective?

1. reaction of potassium *tert*-butoxide and bromoform with *trans*-2-heptene
2. reaction of anhydrous hydrogen bromide with *trans*-2-heptene
3. reaction of anhydrous hydrogen bromide with *trans*-2-heptene, in the presence of peroxides

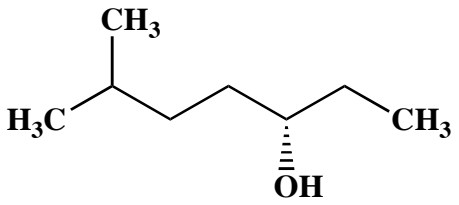
E. Oxymercuration/demercuration is preferred to aqueous sulfuric acid for alkene hydration because

1. fewer steps are involved in the mechanism
2. no carbocation intermediates are involved
3. the reagents are less toxic

Name: _____

3. (10 points)

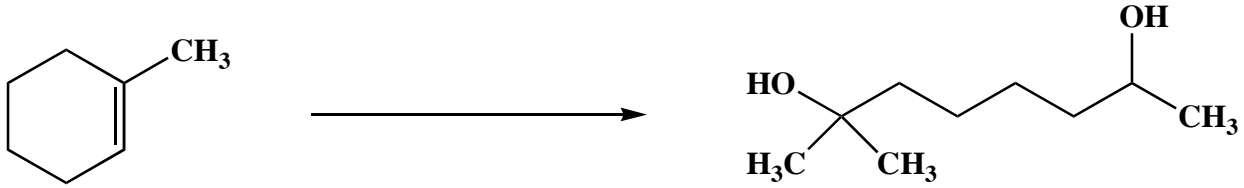
Use IUPAC nomenclature to write the systematic name for the following alcohol.



4. (20 points)

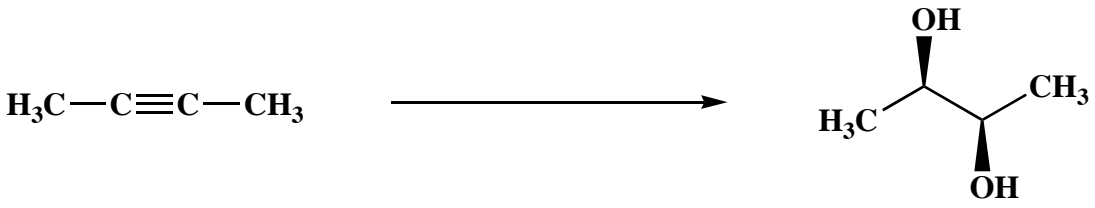
Draw the specific reagent(s) necessary to effect the following two (2) transformations. If more than one reaction is involved in an answer, be certain to distinguish the individual steps clearly.

A.



(racemic)

B.

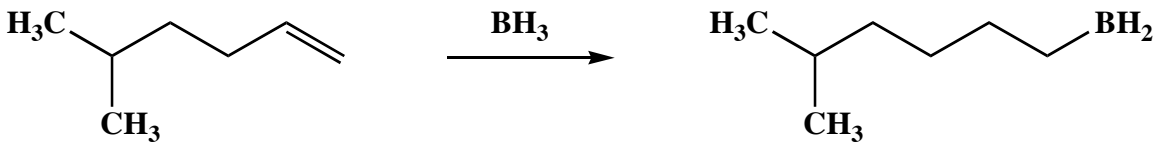


(racemic)

Name: _____

5. (20 points)

Use the curved-arrow notation to draw the mechanism of the following primary mechanistic step. Draw and discuss transition states to explain why this hydroboration primarily affords the organoborane that is shown, not the corresponding regioisomer.



Congratulations!

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