

# ORGANIC CHEMISTRY 30A

(Prof. Yves Rubin)

UCLA, FALL 2003

## MIDTERM EXAM II

On my honor, I have neither given nor received any aid on this exam (**Please sign in ink**, this page only):

\_\_\_\_\_  
Signature

\_\_\_\_\_  
I. D. Number

\_\_\_\_\_  
Full Name (**Please Print !**)

Question	Points
1 (25)	
2 (25)	
3 (25)	
4 (25)	

Total (100)

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**!!! Regrades will be allowed *only* for exams written in *INK* (not pencil!) !!!**

**I. NOMENCLATURE AND THEORY**

1. (25 total pts) a) (12 points) Give the correct structure for the following compounds:

(*trans*)-3-bromo-4-chlorocyclohexene

ozone (full Lewis structure)

(*S*)-3-methyl-1-hexene

1,4-cyclohexadiene

b) (6 points) Provide a **brief explanation with graphics** (10 words at most!) for the fact that tertiary halides do not undergo  $S_N2$  reactions.

c) (7 points) Similarly, **predict** and **explain** the regioselectivity (i.e. the sense of addition) of borane addition to  $R-CH=CH_2$ .

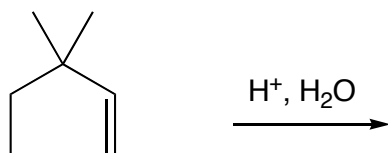
## II. REACTIONS AND SYNTHESSES

2. (25 points) Draw the **major product** for the following reactions (if there are 2 enantiomers formed, show only one):

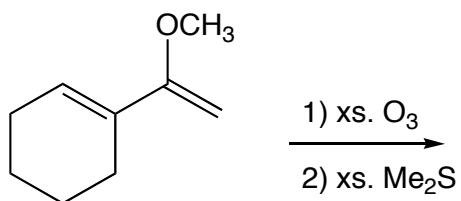
a)



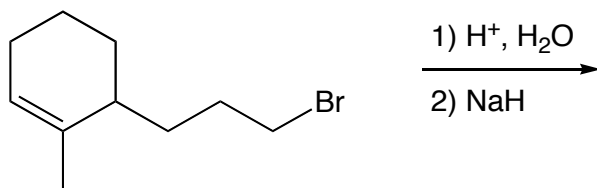
b)



c)



d)



3. (25 points) Draw the **major product** for the following reactions (if there are 2 enantiomers formed, show only one):

a)



(please draw product only in this flattened ring representation)

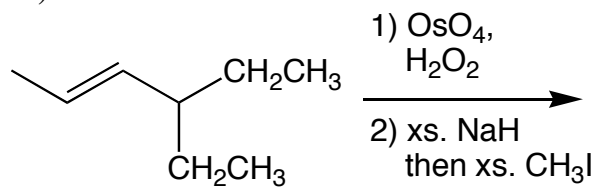
b)



c)



d)



### III. MECHANISM

4. (25 points) Provide a complete, detailed mechanism with curved arrow formalism for the following reaction. **Each step must be explicitly written down**, i.e. every attack of reagent, bond breaking and bond forming steps must be shown.

