

\*II-1a \_\_\_\_ C \_\_\_\_ NC  
\*\*II-2a \_\_\_\_ C \_\_\_\_ NC  
\*\*\*II-2b \_\_\_\_ C \_\_\_\_ NC  
\*\*\*\* II-2c \_\_\_\_ C \_\_\_\_ NC

\*\*\*\*\* II-3d \_\_\_\_ C \_\_\_\_ NC  
\*\*\*\*\* III-2 \_\_\_\_ C \_\_\_\_ NC  
\*\*\*\*\* V-1 \_\_\_\_ C \_\_\_\_ NC

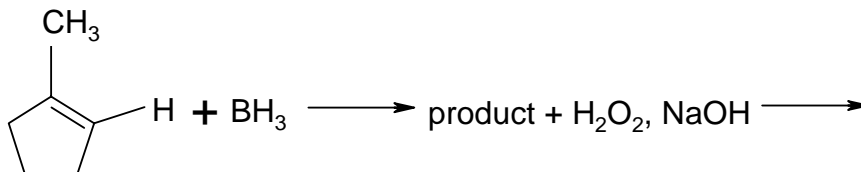
**Chemistry 251**  
**Worksheet 7**

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

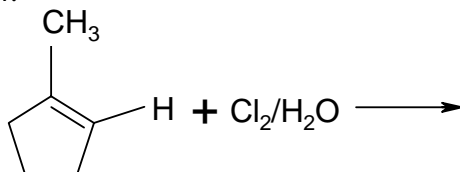
A. (2.0 pts.) Predict the major organic product(s) for each of the following reactions. Be sure to consider regioselectivity and stereoselectivity where appropriate.



3.



\*\*\*\*\*4.



B. (3.0 pts.) Outline a synthesis for each of the following, starting with 2-propanol and any needed inorganic reagents.

\*\*1. propane

\*\*\*2. 2-chloropropane

\*\*\*\* 3.  $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$

\*\*\*\*\*C. (2.0 pts.) Give the mechanism to account for the product in the following reaction.



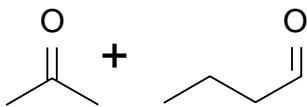
D. (1.0 pts.) Give a simple chemical test that could be used to distinguish between the members of each of the following compounds. Give the reagent used and observations for each compound of the pair.

\*\*\*\*\* 1. cyclohexane and cyclohexene

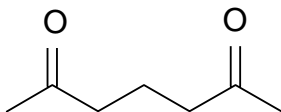
2. 2-butanol and 2-butene

E. (1.0 pts.) Ozonolysis of an alkene followed by treatment with dimethyl sulfide yields the following product(s). Give the structure of the original alkene.

1.



2.



F. (1.0 pts.) Give the product(s) expected for the ozonolysis of each of the following alkenes.

1.  $(\text{CH}_3)_2\text{C}=\text{CHCH}_2\text{CH}_3$

2.  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}=\text{CHCH}_3$

Bonus (1.0 pts.) Account for the stereoselectivity in the following reaction.

1,2-dimethylcyclohexene +  $\text{H}_2/\text{Pt}$   $\rightarrow$  cis-1,2-dimethylcyclohexane