CHM 3343 Homework Set 1

TUD Department of Chemistry
Spring 2017

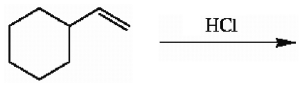
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) Consider molecules with the formula $C_{10}H_{16}$. Which of the following structural features are *not* possible within this set of molecules? 1) _____
   A) 2 triple bonds
   B) 1 ring and 1 triple bond
   C) 2 rings and 1 double bond
   D) 2 double bonds and 1 ring
   E) 3 double bonds

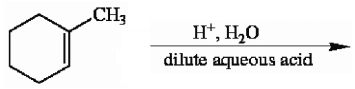
2) What synthetic goal is achieved by subjecting an alkene to an oxymercuration–demercuration sequence? 2) _____
   A) Markovnikov addition of H_2O wherein skeletal rearrangement is promoted
   B) Markovnikov addition of H_2O wherein skeletal rearrangement is prevented
   C) anti–Markovnikov addition of H_2O wherein skeletal rearrangement is promoted
   D) anti–Markovnikov addition of H_2O wherein skeletal rearrangement is prevented
   E) syn–hydroxylation

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

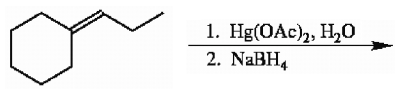
3) Draw the major organic product generated in the reaction below. Pay particular attention to regio– and stereochemical detail.



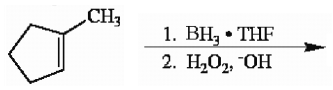
4) Draw the major organic product generated in the reaction below. Pay particular attention to regio– and stereochemical detail.



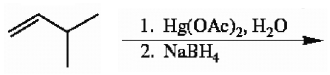
5) Draw the major organic product generated in the reaction below. Pay particular attention to regio– and stereochemical detail.



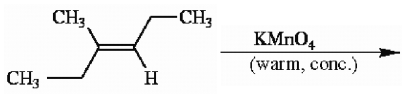
6) Draw the major organic product generated in the reaction below. Pay particular attention to regio– and stereochemical detail.



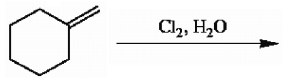
7) Draw the major organic product generated in the reaction below. Pay particular attention to regio– and stereochemical detail.



8) Draw the major organic product generated in the reaction below. Pay particular attention to regio– and stereochemical detail.



9) Draw the major organic product generated in the reaction below. Pay particular attention to regio– and stereochemical detail.



SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

10) Give the structure of the alkene which would yield the following products upon ozonolysis–reduction. 10) _____

$CH_3CH_2CH_2CH_2CHO + CH_2O$