

Seat No. _____

Name _____
(Please print your name and **circle** your last name)

CHEMISTRY 331

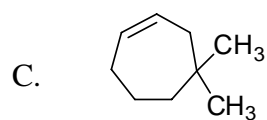
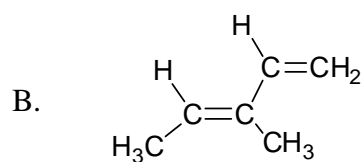
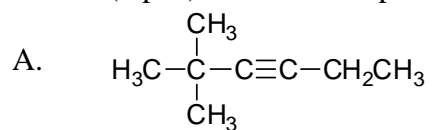
EXAM II

Tuesday, October 6, 2009

- I. (6 points) _____
- II. (6 points) _____
- III. (30 points) _____
- IV. (9 points) _____
- V. (4 points) _____
- VI. (8 points) _____
- VII. (10 points) _____
- VIII. (21 points) _____
- IX. (4 points) _____
- X. (2 points) _____

TOTAL(100 points) _____

I. (6 pts.) Provide acceptable names for each of the following compounds.



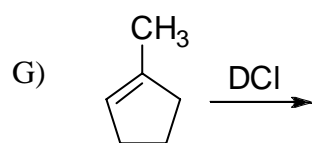
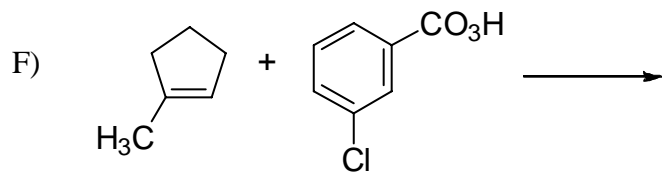
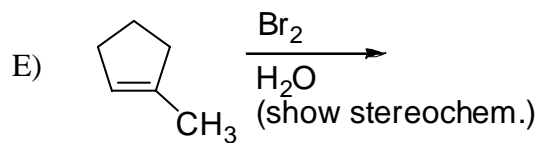
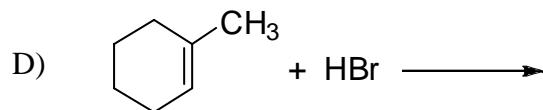
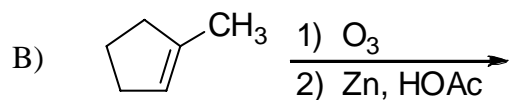
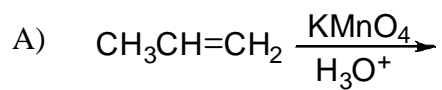
II. (6 pts.) Provide correct structures for the following names.

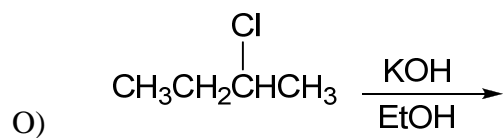
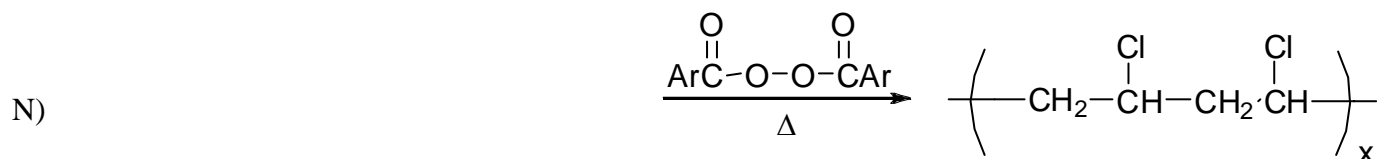
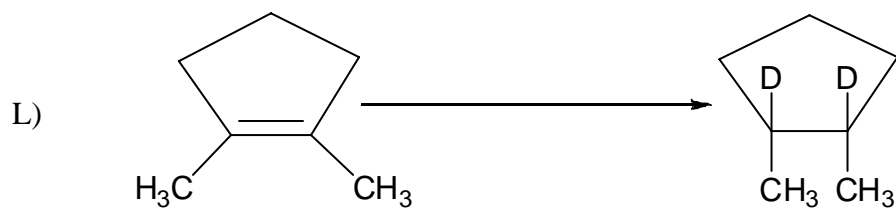
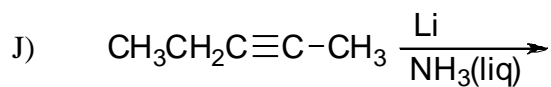
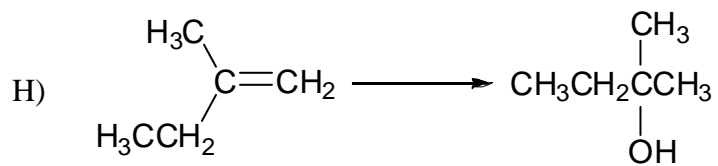
A) 3,4-diisopropyl-2,5-dimethyl-3-hexene

B) 3-chloro-1-pentyne

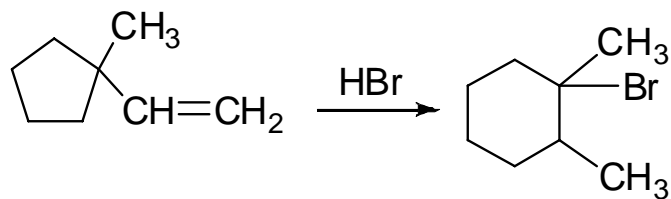
C) trans-3-hexene

III. (30 pts.) Complete the following reactions.

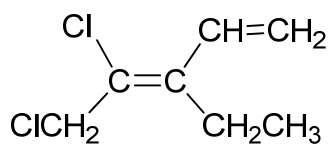


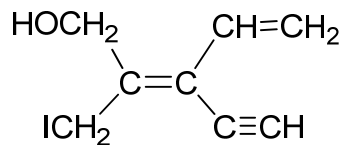


- IV. (9 pts.) Provide a detailed, stepwise mechanism for the following reaction. Show all e-pair movements w/curved arrows.



- V. (4 pts.) Assign E or Z configurations for the following alkenes.



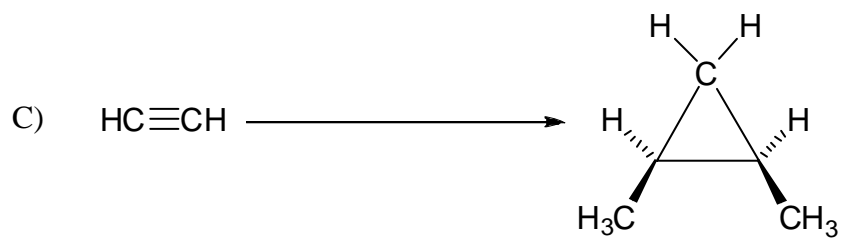
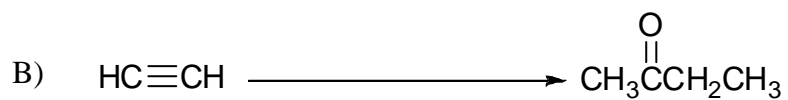
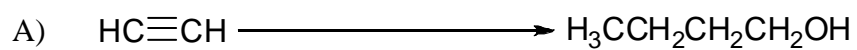


- VI. (8 pts.) Compound A, C_8H_{12} , reacts with 2 molar equivalents of H_2 . Reaction of compound A with ozone, followed by a reductive workup, affords only $H-\overset{O}{\parallel}CCH_2CH_2\overset{O}{\parallel}CH$. Draw the structure of "A".



- VII. (10 pts.) Hammond's postulate assumes that the more endergonic a reaction the more the transition state will resemble the _____ . A 3° carbocation is more stable than a 1° carbocation due to both _____ and _____ . Carbocation rearrangements occur so as to produce _____ carbocations. The hydrogenation of an acetylene can be stopped at the olefin stage by using _____ . The product of this hydrogenation will be a _____ olefin. The alkylation of acetylide anions is limited to _____ alkyl halides, since the acetylide anion can also act as a _____ . The reaction of BH_3 and an alkene proceeds via a _____ rather than a polar mechanism. The problem with synthesis of CH_3Cl from methane and chlorine is that the reaction doesn't _____ with monosubstitution.

VIII. (21 pts.) Show how you would perform the following transformations.



IX. (4 pts.) Calculate the degree of unsaturation for $C_8H_{14}BrN$ and draw one possible structure.

X. (2 pts.) Work two (or three) (or none) of the following problems.

A) If Jimmy cracked corn and no one cared, why did they write a song about it?

B) Why does Donald Duck wear a towel when he comes out of the shower, when he doesn't usually wear any pants?

C) When cows laugh too hard does milk come out of their noses?