

Seat No. _____

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

CHEMISTRY 331A

EXAM II

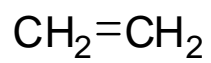
Monday, October 13, 2008

- I. (12 points) _____
- II. (8 points) _____
- III. (10 points) _____
- IV. (20 points) _____
- V. (6 points) _____
- VI. (4 points) _____
- VII. (24 points) _____
- VIII. (15 points) _____
- IX. (1 point) _____

TOTAL(100 points) _____

- I. (12 pts.) Write the mechanism for free radical monochlorination of ethane. Label the termination (one example), initiation and propagation steps, and use curved fishhooks to indicate electron movement.

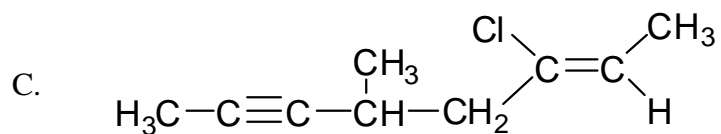
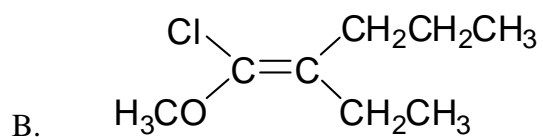
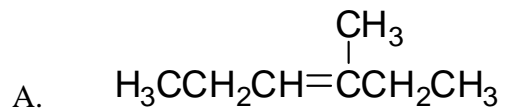
- II. (8 pts.) Circle the species which are likely to behave as nucleophiles



III. (10 pts.) Write the stepwise mechanism for the addition of HBr to propene.

IV. (20 pts.) Free radical reactions result in _____ cleavages of bonds. _____ is a measure of the difference in energy between reactants and the transition state (T.S.) and therefore controls the _____ of the reaction. Addition of Br₂ to a cycloalkene proceeds to give a _____ dibromide because the intermediate is a _____ ion. The T.S. of a strongly endergonic reaction is likely to most resemble the _____. The degree of unsaturation of C₂₀H₃₂ClN is _____. The more substituted is an alkene, the _____ stable it is. The more substituted is a carbocation, the _____ stable it is. The stability of carbocations is due to both inductive effects and _____.

V. (6 pts.) Provide complete and correct names for the following structures.

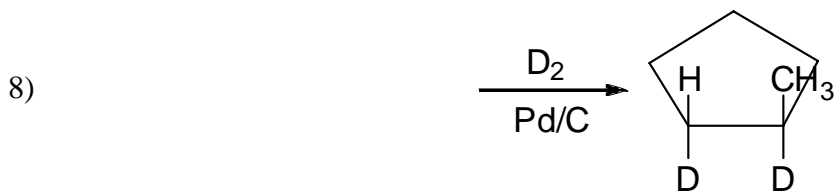
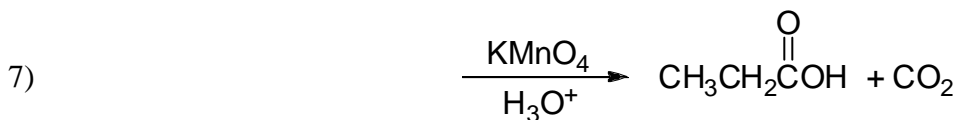
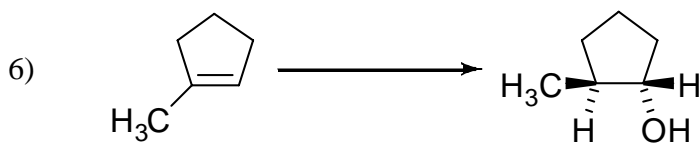
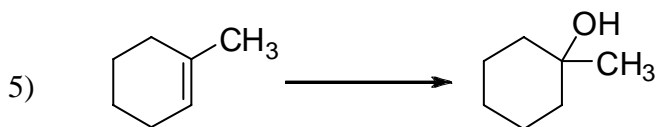
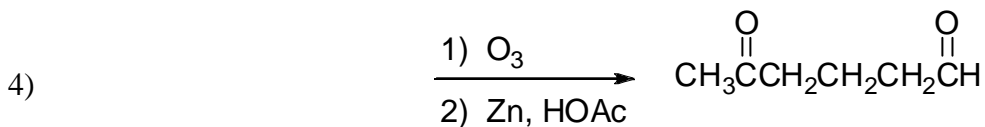
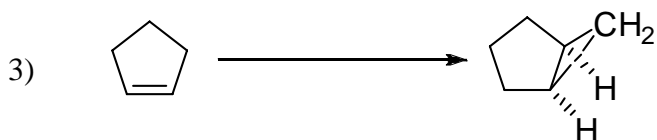
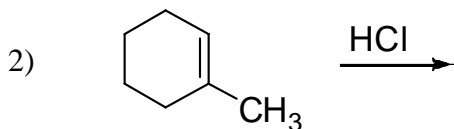
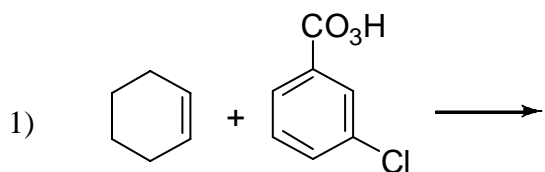


VI. (4 pts.) Provide complete and correct structures for the following names:

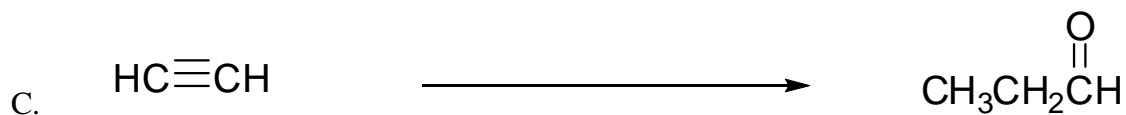
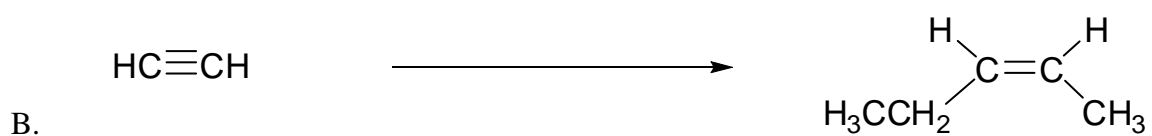
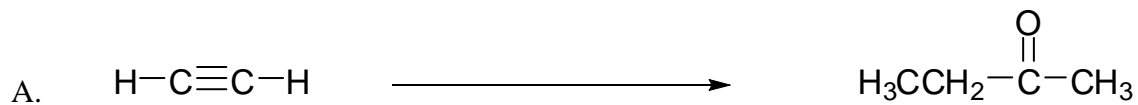
A. 3,3-dimethyl-4-optyne

B. (3E)-3-methyl-1,3-pentadiene

VII. (24 pts.) Complete the following reactions with any missing information (e.g. reactants, reagents, products).



VIII. (15 pts.) Show how you would perform 3 of the following transformation. Draw a bold "X" through the one you wish to omit or we will simply omit "A" for you.



IX. (1 pt.) ¿ What do you call a fish with no eyes?