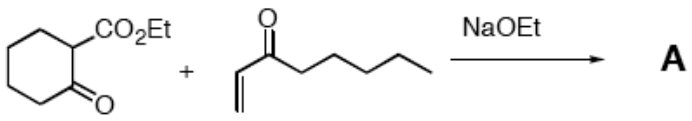
Chem 332, 2005, exam 2 Your Name_____

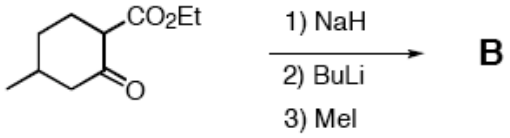
1. Provide structures of the products. Mechanisms are not needed. (5 points each)

a



A

b

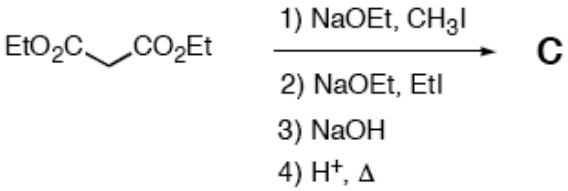


B

Your Name_____

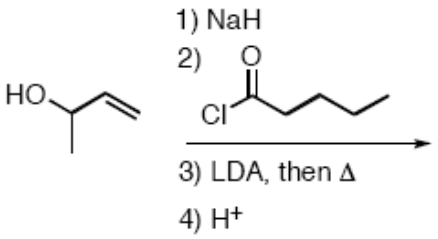
1 (continued) Provide structures of the products. Mechanisms are not needed.

c



C

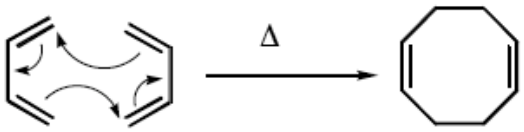
d



D

Your Name_____

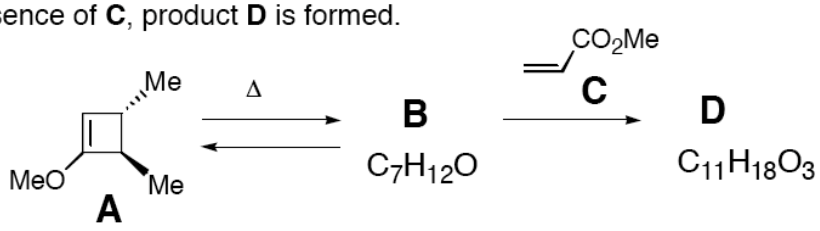
2. Consider the thermal dimerization of butadiene: (25 pts)



Would you expect this to be a concerted process under thermal conditions? Explain in detail using an argument based in molecular orbital theory.

 Your Name_____

3. When heated, compound **A** reversibly isomerizes to **B**. When this process is carried out In the presence of **C**, product **D** is formed.



a. Provide the structure of **B** and an arrow pushiing mechanism for its formation. In addition, use molecular orbital theory to explain the double bond stereochemistry. (15 pts)

b. Provide a structure for **D**, and an arrow pushing mechanism for its formation. Regiochemistry and stereochemistry are important! Do NOT use molecular orbitals to explain your answer (15 pts)

 Your Name_____

4. Provide a detailed arrow pushing mechanism (25 pts)