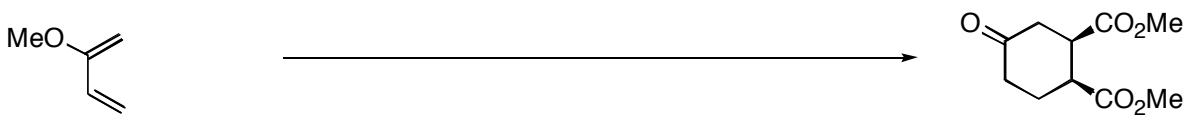
Chem 332
Exam 4
May 21, 2007
Professor Fox

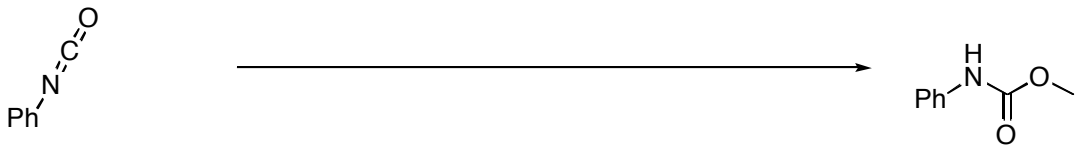
100 points
120 minutes

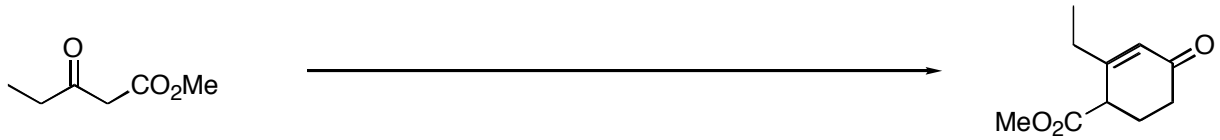
Your Name_____

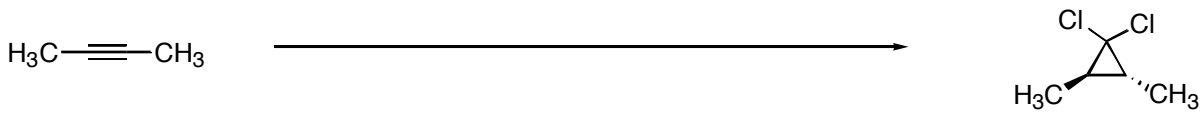
Your Name_____ 3 points each

1. Provide reagents. More than one step may be necessary. You do not need to provide mechanisms



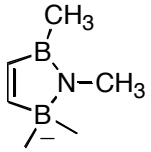


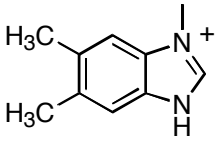


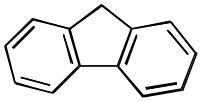


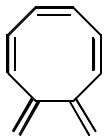
Your Name_____

2. Circle the molecules that are aromatic. 2 points each



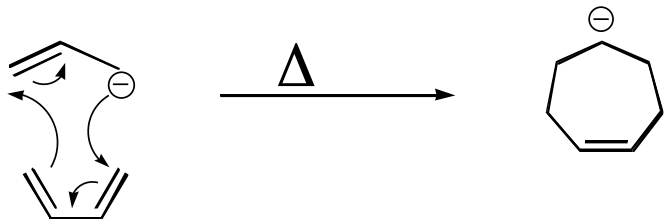






Your Name_____

3 Consider the thermal reaction below



18 points

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_____

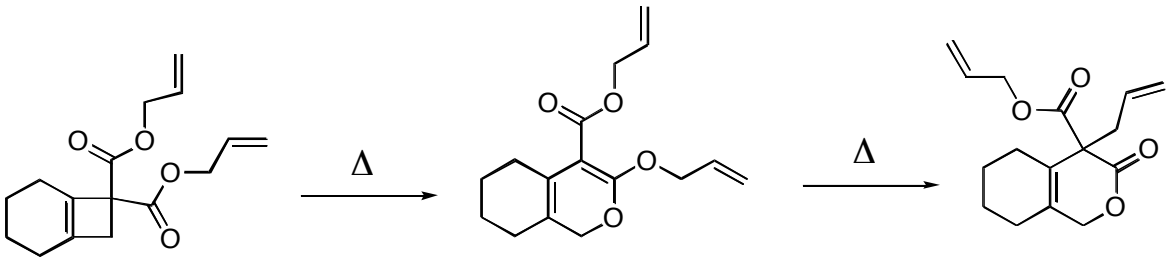
4. Provide a synthesis starting from **1**, benzene and any other materials that contain less than 4 carbons. You may also use BOC-protected amino acids as starting materials.

23 points

1

Your Name_____

5. Provide a detailed arrow pushing mechanism for the formation of **A** and **B**. 22 points

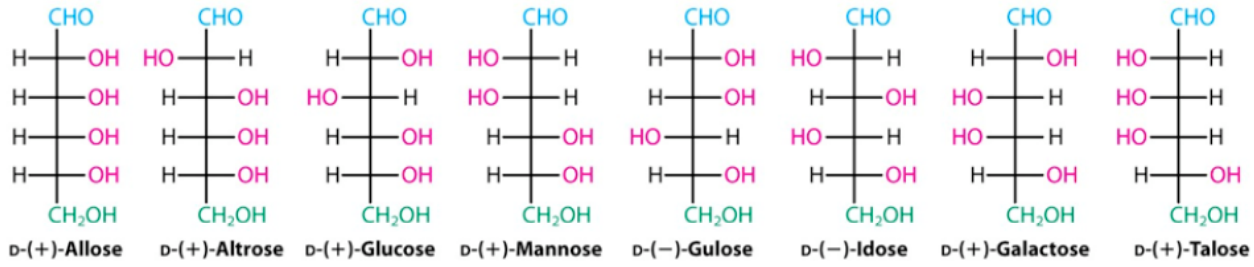


A **B**

Your Name_____

8 points

6. Non-natural L-(–)-glucose (the enantiomer of D-(+)-glucose) is oxidized by HNO3 to give an optically active diacid. Circle the naturally occuring D-aldohexose that would give that same diacid upon HNO3 oxidation.

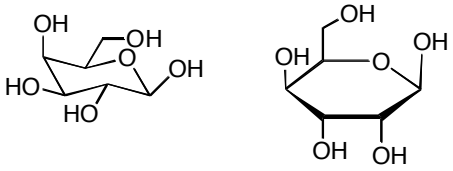


Your Name_____

3 points each

7. Identify each of the following pairs as being idential, meso, enantiomers, anomers, or non-anomeric diasteromers

(a)



identical

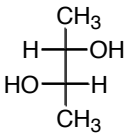
meso

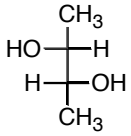
enantiomers

anomers

non-anomeric diastereomers

(b)





identical

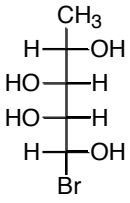
meso

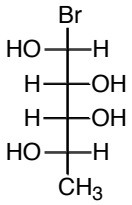
enantiomers

anomers

non-anomeric diastereomers

(c)





identical

meso

enantiomers

anomers

non-anomeric diastereomers

Scratch paper