Chem 332
Exam 4
May 24, 2006
Professor Fox

100 points
180 minutes

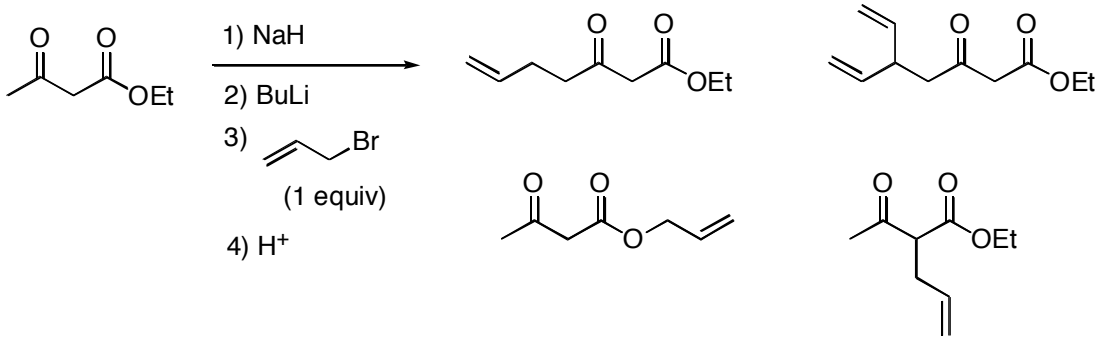
Your Name_____

Your Name_____

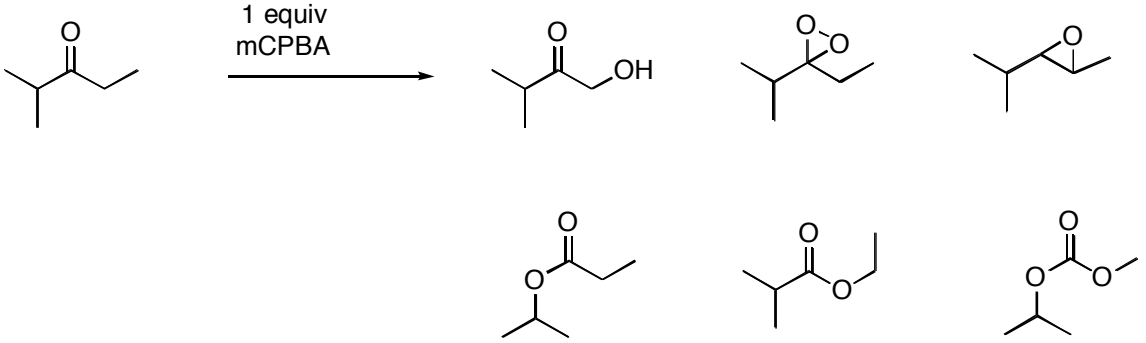
1. Circle the correct product. You do not need to explain your reasoning or provide mechanisms.

4 points each

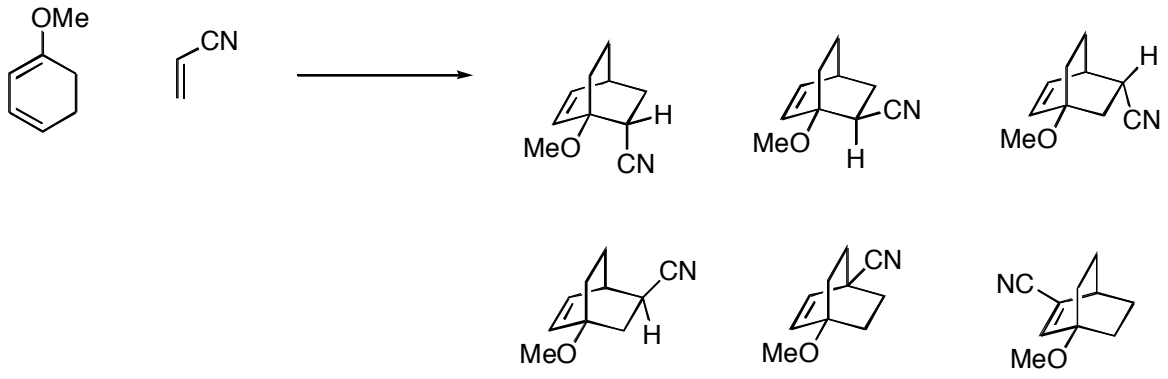
(a)



(b)



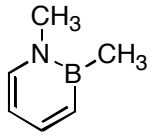
(c)

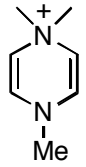


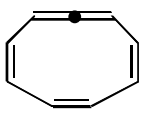
Your Name_____

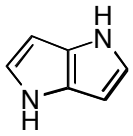
2 points each

2. Circle the molecules that are aromatic.





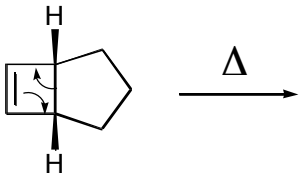




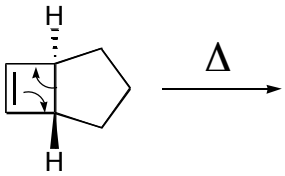
Your Name_____

3. Consider the thermal electrocyclic ring opening reactions displayed below. Which of these ring opening reactions is expected to proceed faster? Explain your reasoning using molecular orbital symmetry arguments, and draw the appropriate product in each case.

17 points



A

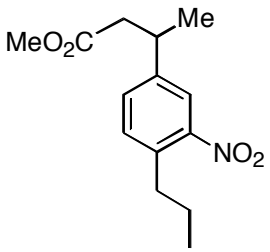


B

Your Name_____

4. Provide a synthesis starting from benzene and any other materials that contain less than 4 carbons.

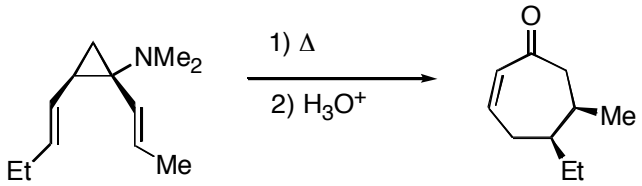
17 points



Your Name_____

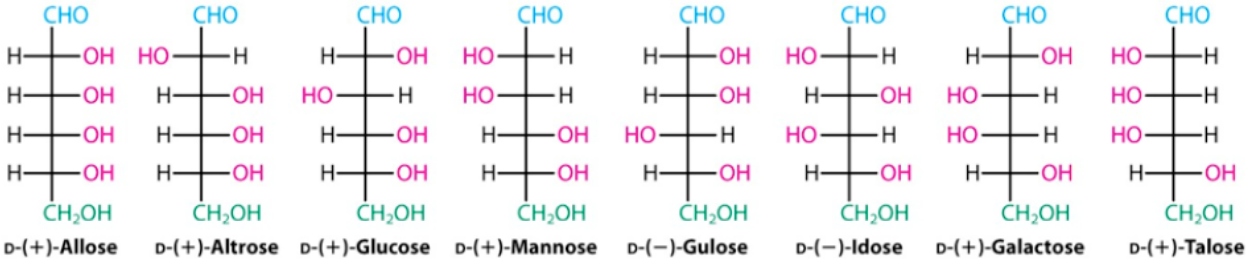
5. Provide a detailed arrow pushing mechanism

18 points



Your Name_____

6. Circle those sugars that give chiral diacids upon oxidation with HNO_3 1 point each

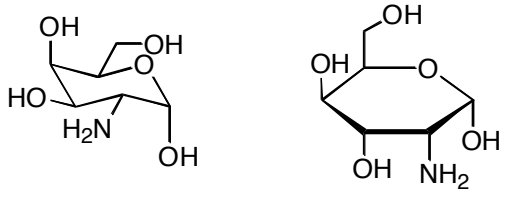


Your Name_____

3 points each

7. Identify each of the following pairs as being enantiomers, diasteromers, identical, or non-isomeric

(a)



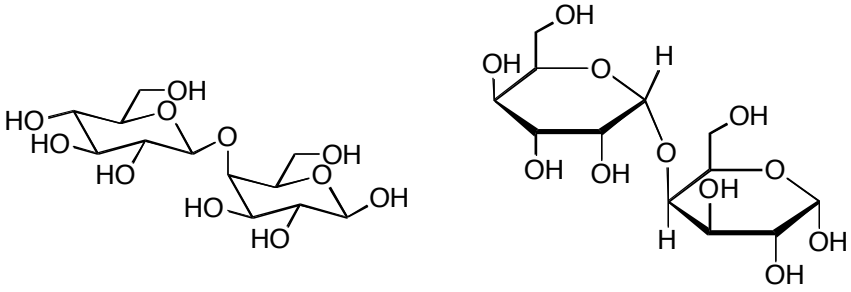
enantiomers

diasteromers

identical

non isomeric

(b)



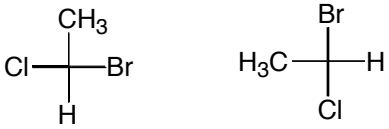
enantiomers

diasteromers

identical

non isomeric

(c)



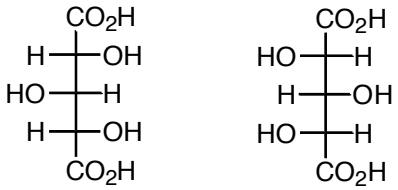
enantiomers

diasteromers

identical

non isomeric

(d)



enantiomers

diasteromers

identical

non isomeric

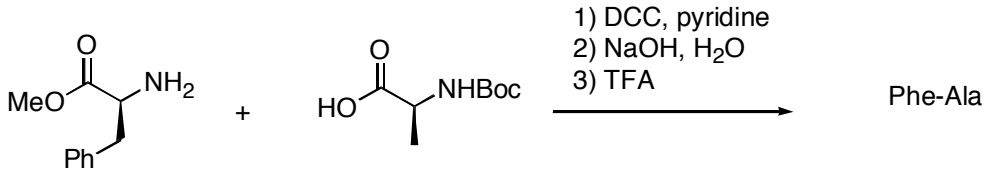
Your Name_____

8, Indicate if each of the following reactions would proceed in high yield as shown. Provide a rationale and indicate if alternative or side products will be formed.

Note: if you anticipate that a side product will be formed, then you should circle "would not proceed as written".

5 points each

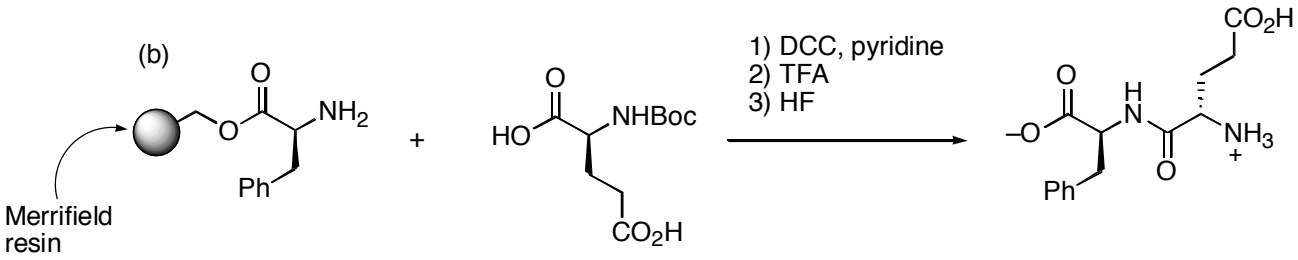
(a)



would proceed as written

would not proceed as written

(b)



would proceed as written

would not proceed as written

Scratch paper

Scratch paper

Scratch paper