

Exam 4
Organic Chemistry C3444—Section 2
Prof. Nuckolls
May 6, 2002

- Write your name on every page.
 - You should have 6 pages including this one.
 - Turn off your cellular phones.
 - Do your own work.
 - Good Luck!

Name: _____

Columbia I.D. #: _____

Signature: _____

Grading:
Section A _____ /60 points

Section B _____ /20 points

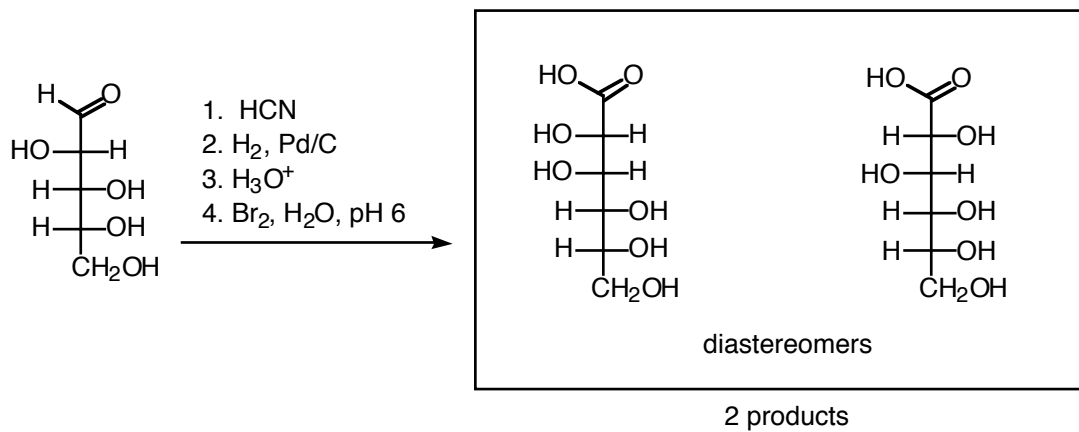
Section C _____ /20 points

Total _____ /100 points

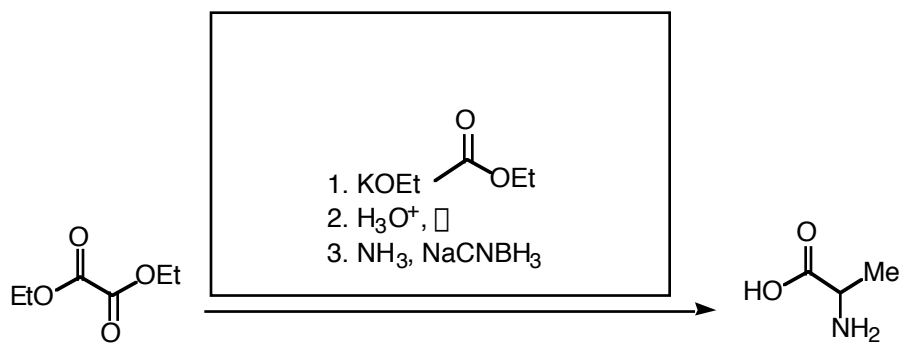
Section A. Answer only 4 out of 5 of the following question. Clearly mark with an "X" the one that is not to be graded. If you answer all of them, only the first four will be counted.

Write the answers to the questions below in the box provided. The syntheses may require multiple steps. To achieve partial credit for an *incorrect* answer you must show your work in the space below the equation. Mechanistic details are not necessary. (15 points each)

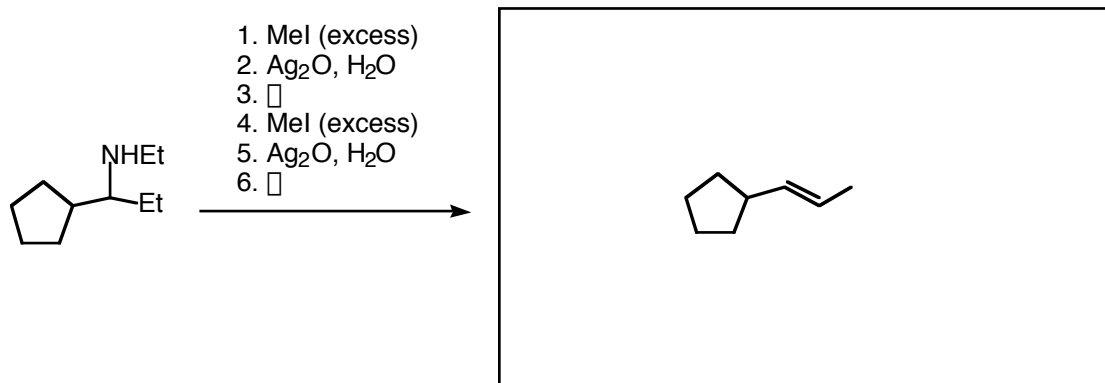
1. Draw the two products and *in a word* describe their stereochemical relationship.



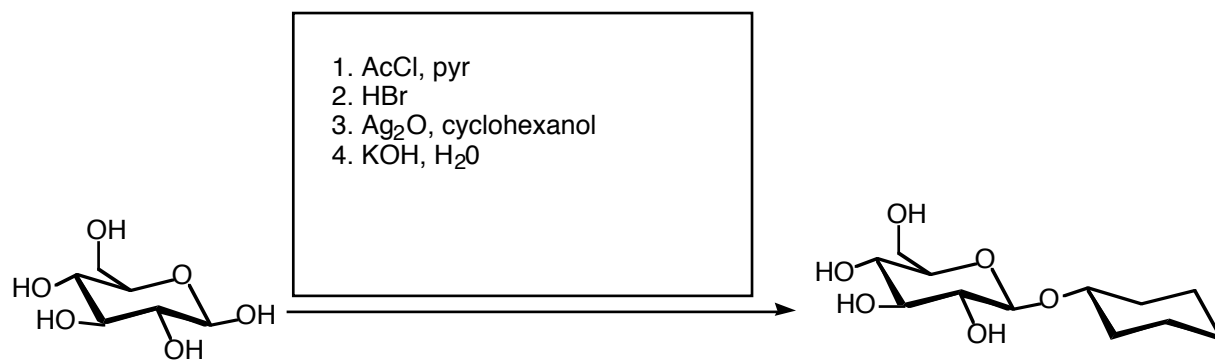
2.



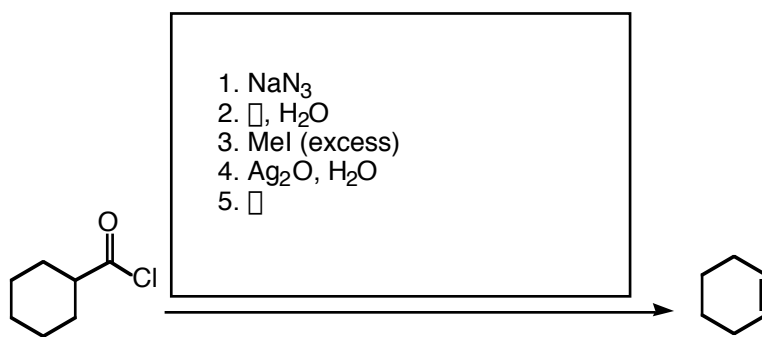
3.



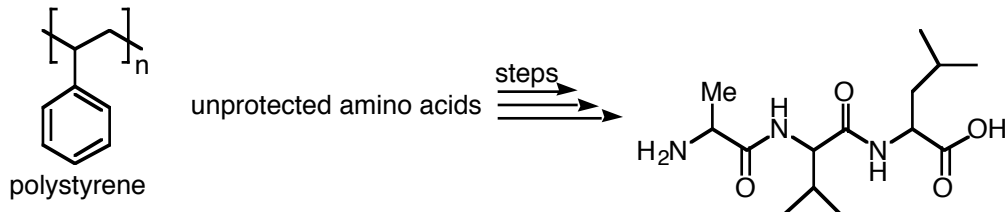
4.



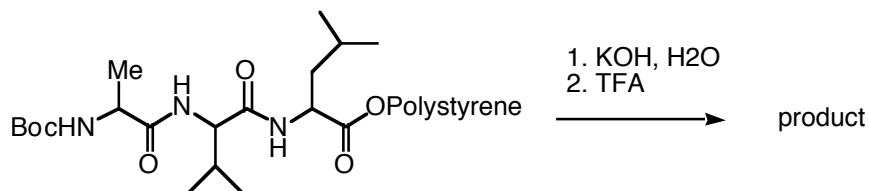
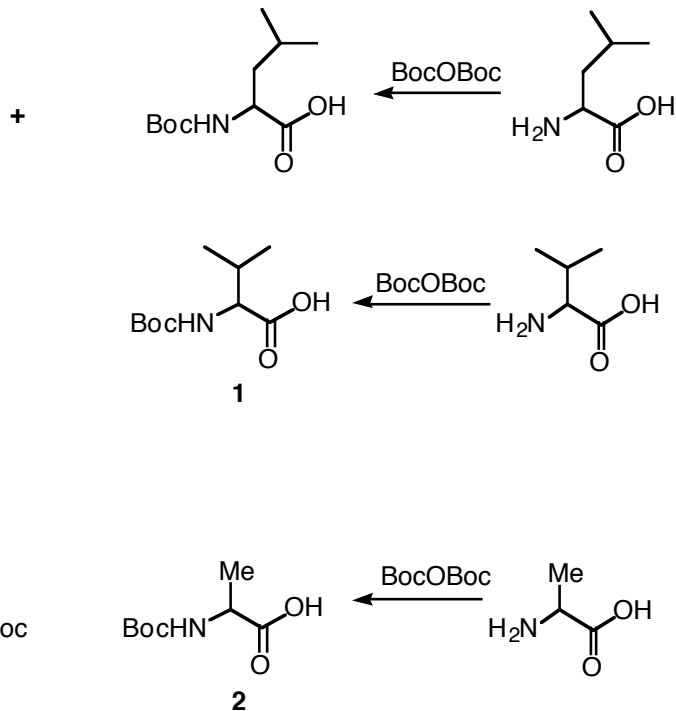
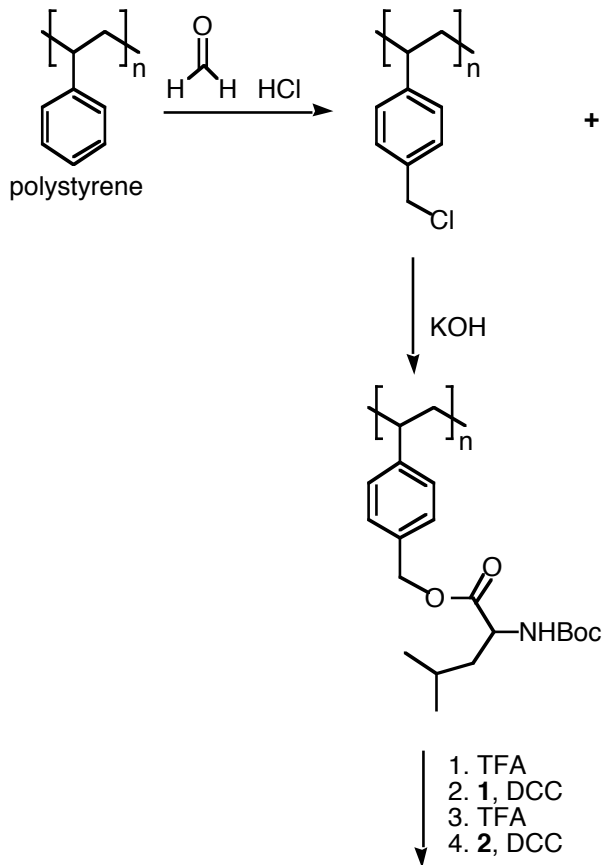
5.



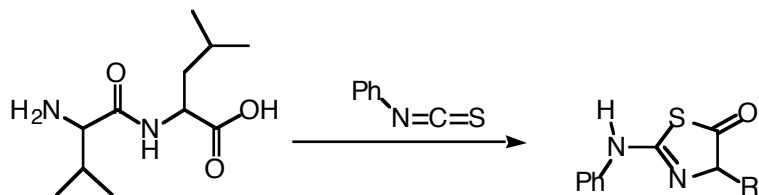
Section B. Show the steps to achieve the following transformation. Mechanistic details are not required. Begin by appropriately derivatizing polystyrene. You must also begin with unprotected monomeric amino acids as the building blocks (20 points).



Answer



Section C. The product below is an intermediate in the Edman degradation of peptides. Write a detailed mechanism showing how the transformation occurs. Also specify what the R-group is in the product (20 points)



See page 1091 of McMurry