

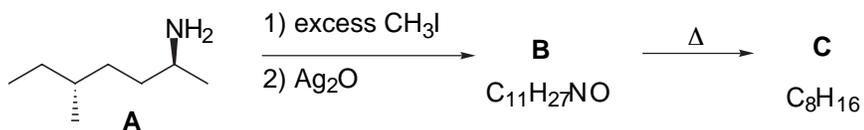
Chem 331  
Exam 2  
November 1, 2002  
Prof. Fox  
50 minutes

The exam is open book,  
Open notes. Models are permitted  
Show your work in detail

WRITE YOUR NAME ON EVERY PAGE

NAME \_\_\_\_\_

- 1) Deduce the structures of **B** and **C**. Give the correct IUPAC names of **A** and **C**. You do not need to provide mechanisms. (25 points).



\_\_\_\_\_

write the IUPAC name of **A** here (5 pts)

\_\_\_\_\_

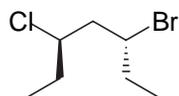
write the IUPAC name of **C** here (5 pts)

draw the structure of **B** here (6 pts)

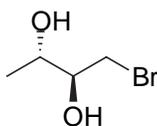
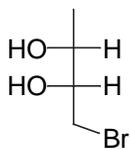
draw the structure of **C** here (9 pts)

2) For each pair, indicate if the compounds are enantiomers, diastereomers, or meso (10 pts each).

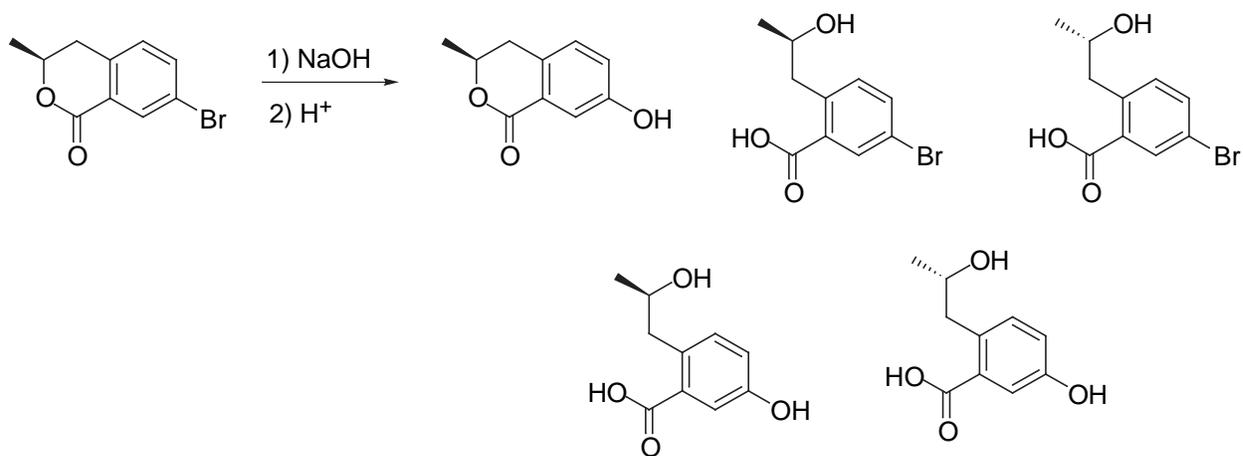
a)



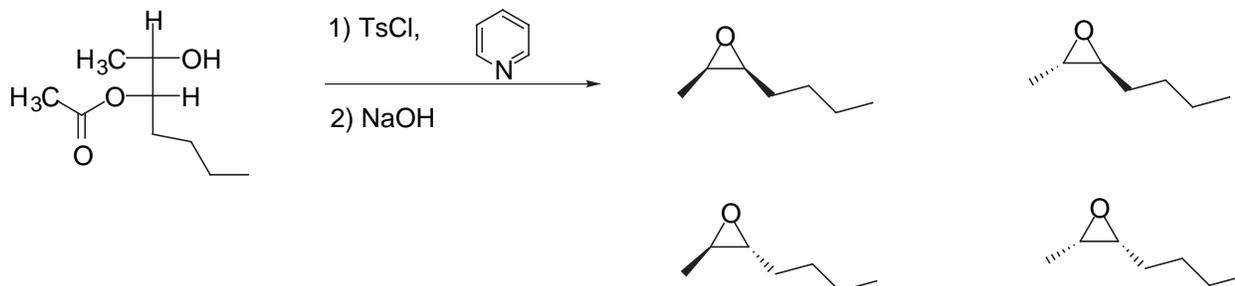
b)



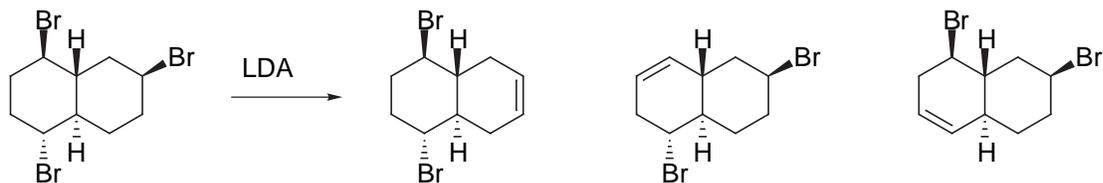
3) Circle the correct product. Give a detailed mechanism (with attention to stereochemical details) that explains your choice. (30 points)



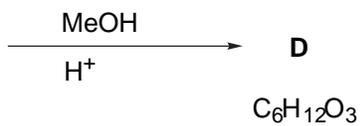
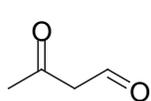
4) Circle the correct product. Give a detailed mechanism (with attention to stereochemical details) that explains your choice. (30 points).



5) Circle the correct product. Give a detailed mechanism (with attention to stereochemical details) that explains your choice. (30 points). Substantial points will be deducted if you do not draw an accurate 3-D representation of the trans-decalin framework (i.e. you must draw the chairs)



6) Deduce the structure of **D**, and draw a detailed arrow pushing mechanism for its formation. (30 pts)



<sup>1</sup>H NMR:

2.08 (s, 3H)  
2.58, (d, 2H, *J*=5.6 Hz)  
3.27, (s, 6H)  
4.65, (t, 1H, *J*=5.6 Hz)

<sup>13</sup>C NMR:

205.2 (s)  
101.5 (d)  
53.8 (q, 2 carbons)  
47.3 (t)  
31.0 (q)

7) Provide a detailed arrow pushing mechanism. (35 pts)

