

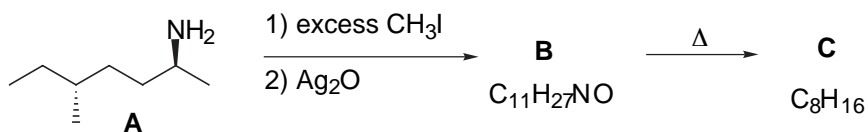
Chem 331
Exam 2
November 1, 2002
Prof. Fox
50 minutes

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)

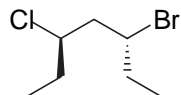
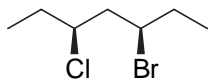
write the IUPAC name of **C** here (5 pts)

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

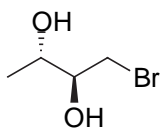
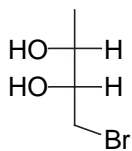
draw the structure of **C** here (9 pts)

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

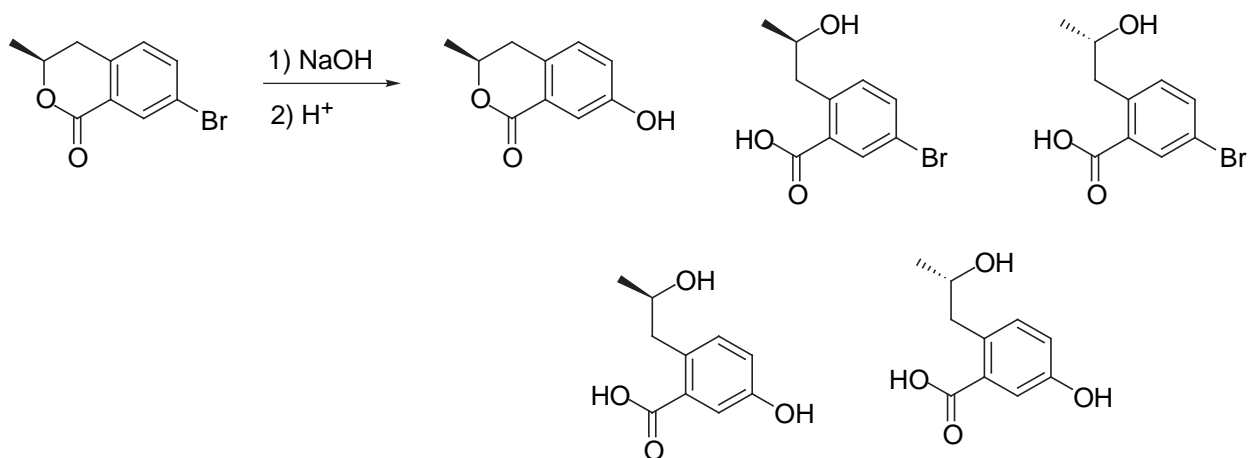
a)



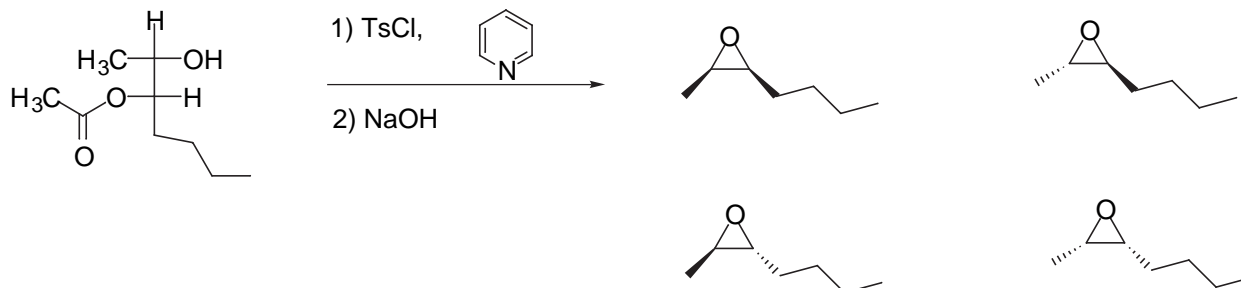
b)



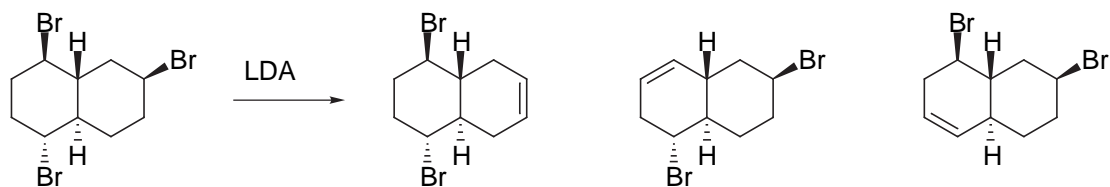
3) Circle the correct product. Give a detailed mechanism (with attention to stereochemical details) that explains your choice. (30 points)



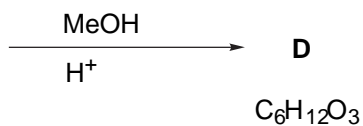
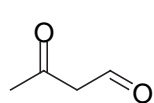
4) Circle the correct product. Give a detailed mechanism (with attention to stereochemical details) that explains your choice. (30 points).



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)



¹H 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)

¹³C 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)

