

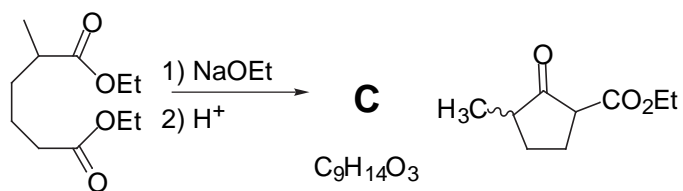
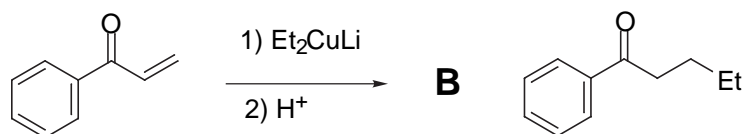
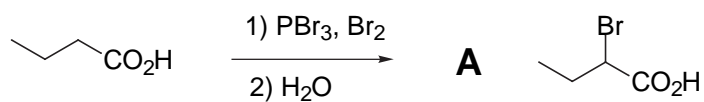
Chem 332
Exam 2
April 9, 2003
Prof. Fox
50 minutes
250 points

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

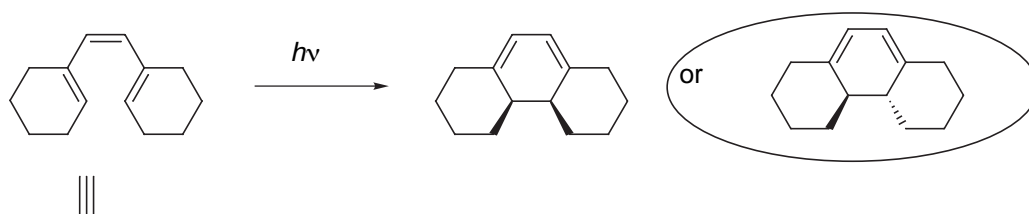
WRITE YOUR NAME ON EVERY PAGE

NAME _____

1. Provide structures of **A**, **B**, and **C**. 10 points for each correct answer (total 30 pts)

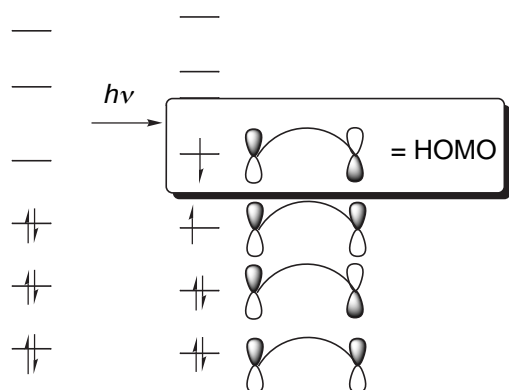


2 (50 points)



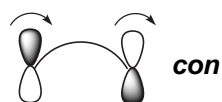
6 pi electrons; 6 MO's

step 1. Draw the
MO energy levels and
fill in the electrons

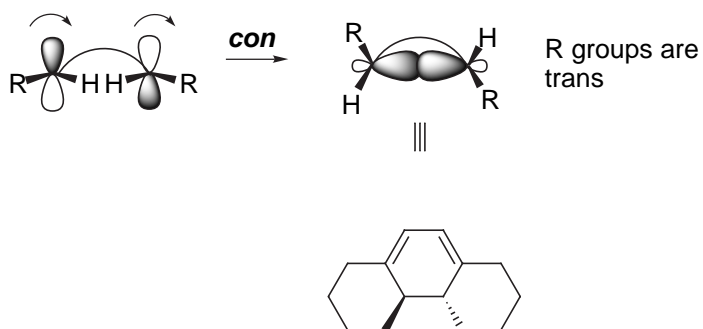


step 2. Determine the
symmetry of the Highest
Occupied Molecular Orbital
(HOMO)

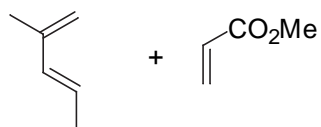
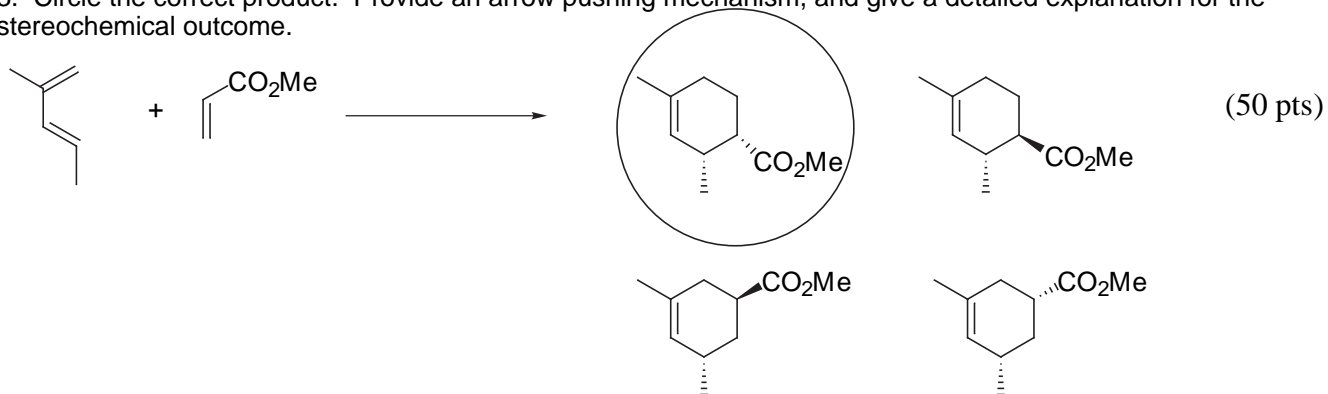
step 3. Decide if the reaction must be conrotatory or
disrotatory



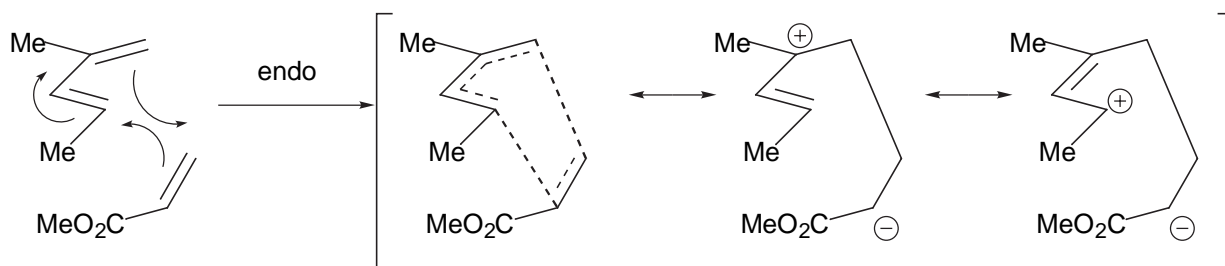
step 4. follow the stereochemistry



3. Circle the correct product. Provide an arrow pushing mechanism, and give a detailed explanation for the stereochemical outcome.



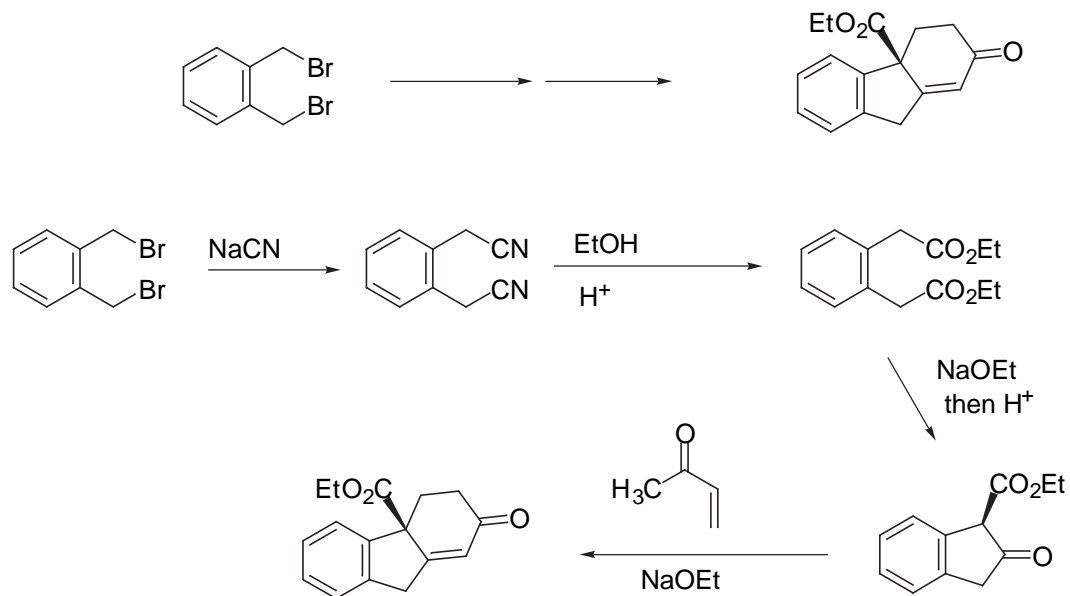
favoured



concerted but not synchronous addition gives the endo product.
the favored regioisomer results from the transition state that
has the character of 3° and 2° carbocations, with the negative charge
stabilized by the ester.

4. Provide a multistep synthesis using **E** and any other starting materials

(60 pts)



5. Provide a detailed arrow pushing mechanism (60 points)

