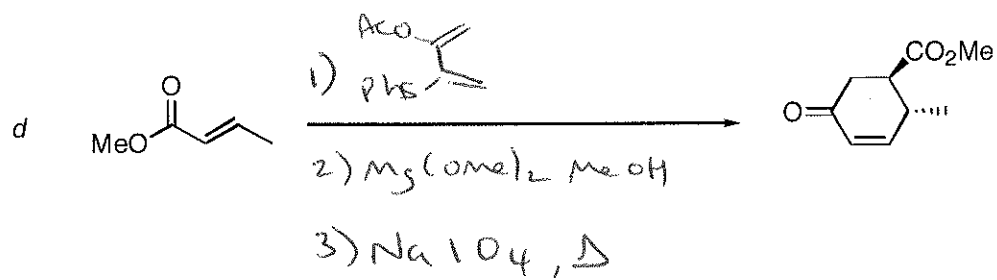
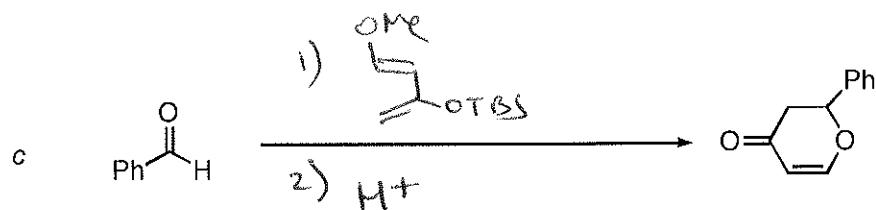
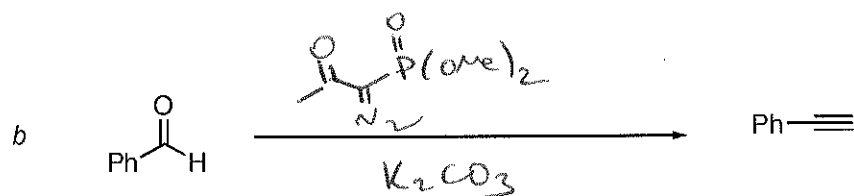
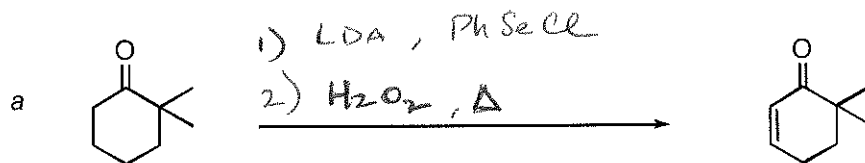


Chem 634
Exam 2
December 10, 2007
3 hours
Prof. Fox

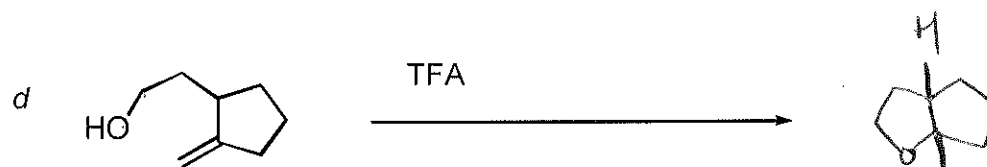
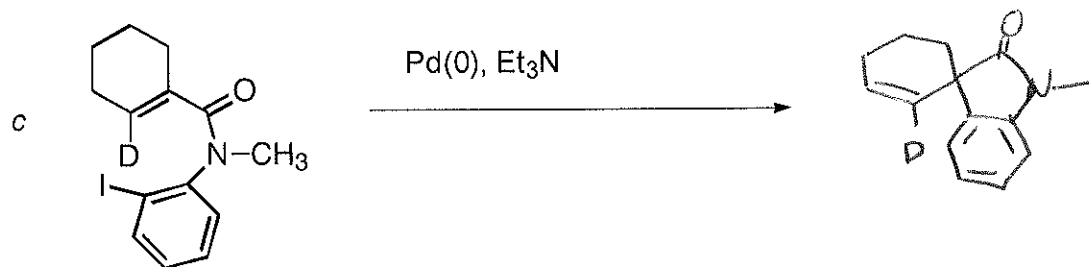
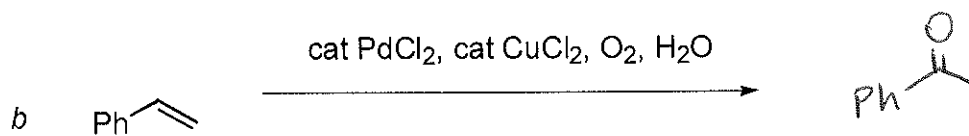
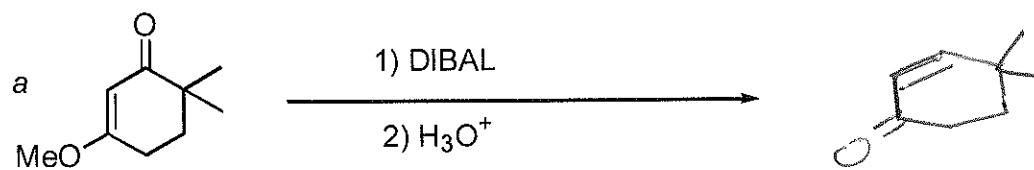
Your Name key

1. Provide reagents for the following transformation. More than one step may be required.
Do not write mechanisms.

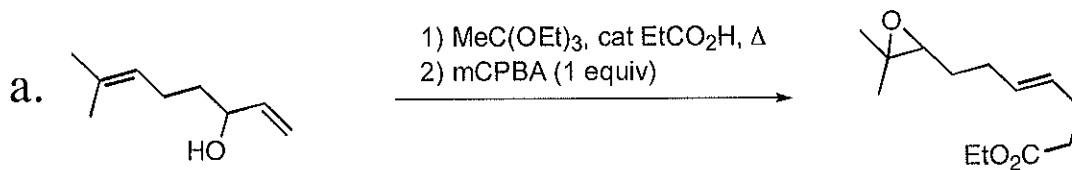
2.5 points each



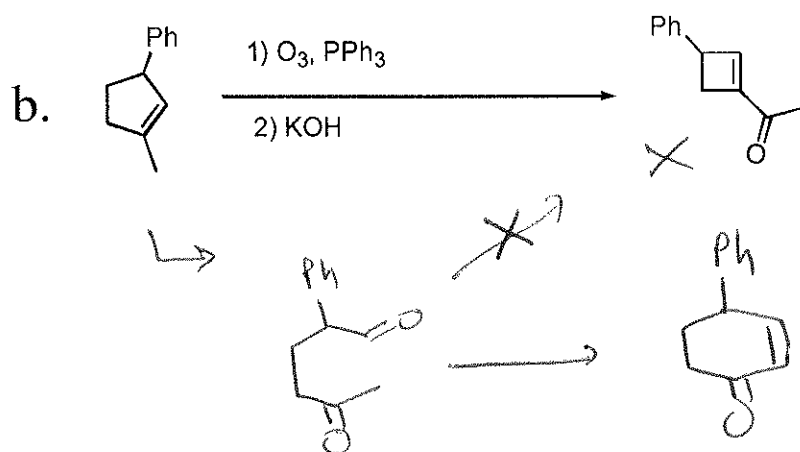
2. Provide the products of the following transformations. Do not provide mechanisms (2.5 pts each)



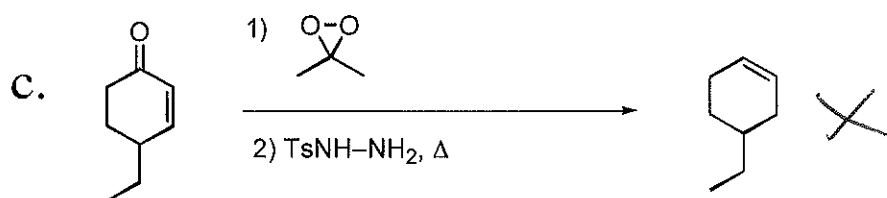
3. Indicate if the following would or would not proceed as written. If it will not proceed as written, provide the structure of the product that would be formed instead along with a brief explanation. 4 pts each



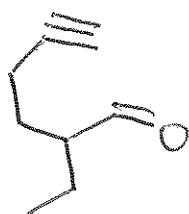
proceeds as written



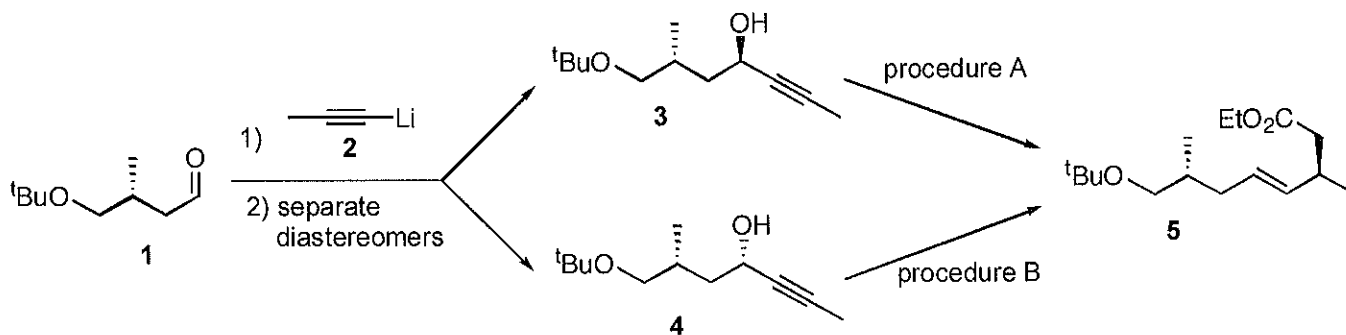
cyclobutene is too STRAINED.



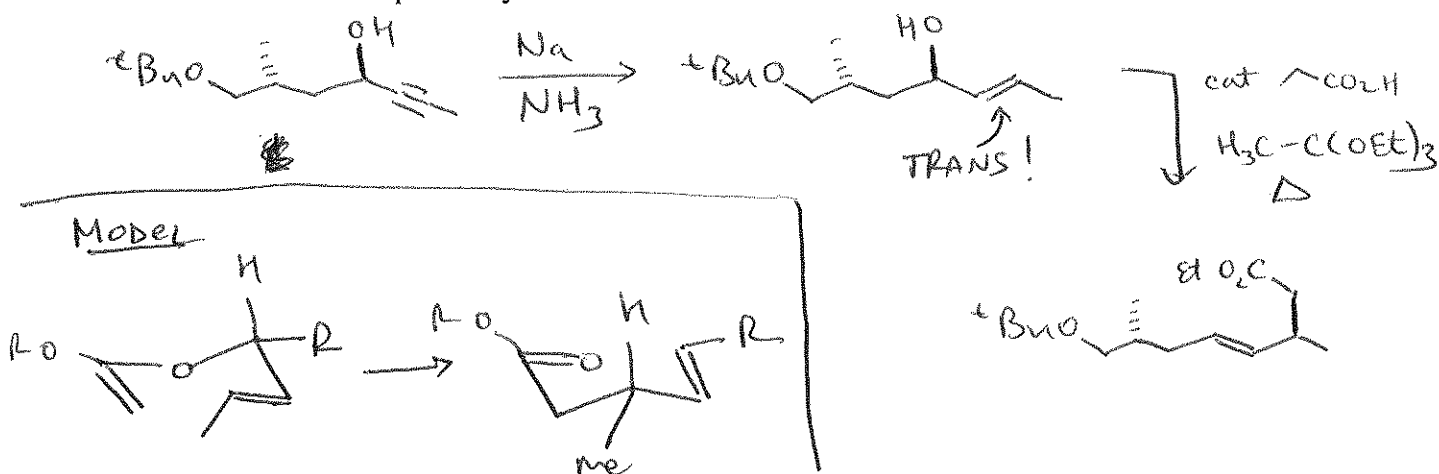
Eschenmoser Fragmentation
GIVES.



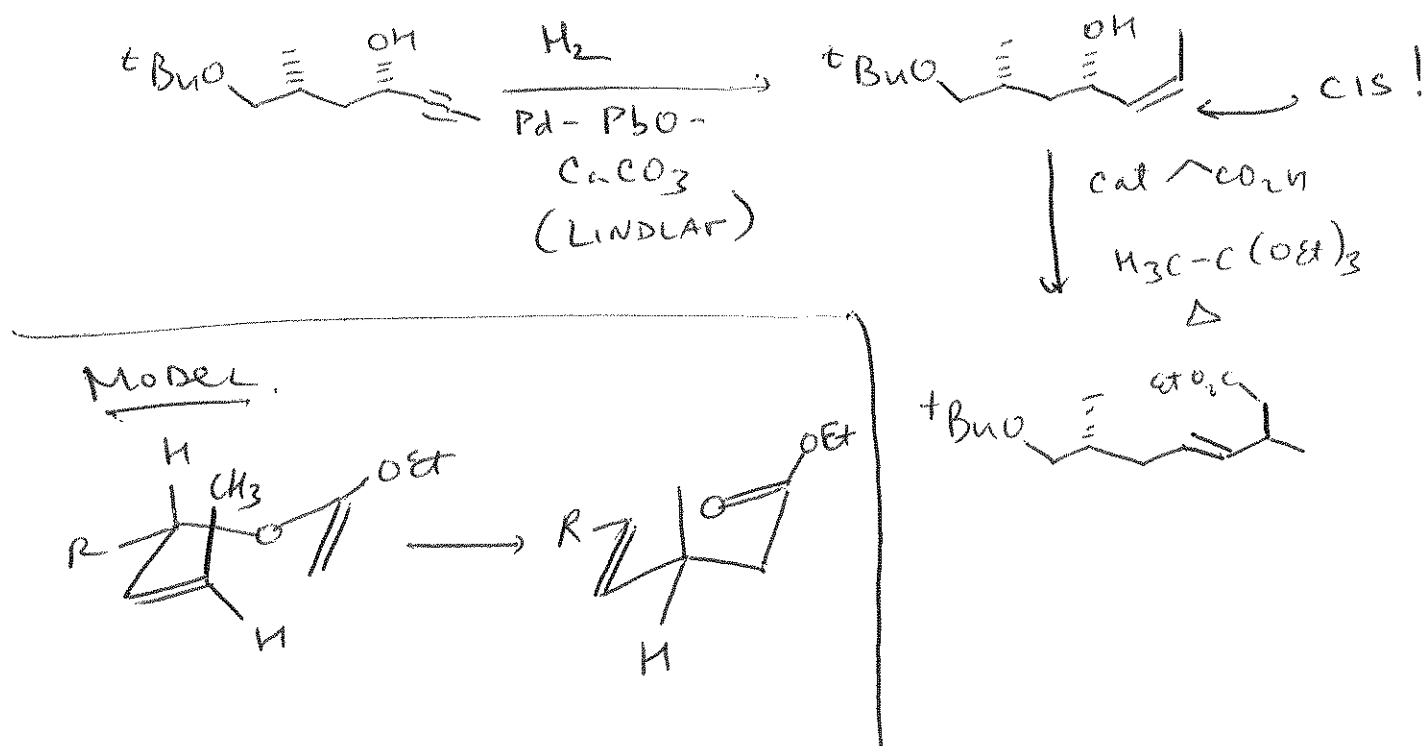
4. You require a synthesis of **5** from aldehyde **1**. Unfortunately, the addition of acetylide **2** to aldehyde **1** is not selective: it gives a mixture of diastereomers **3** and **4**. Luckily, diastereomers **3** and **4** are separable by chromatography, and can be separately converted into **5**. ~~20~~ 20 pts



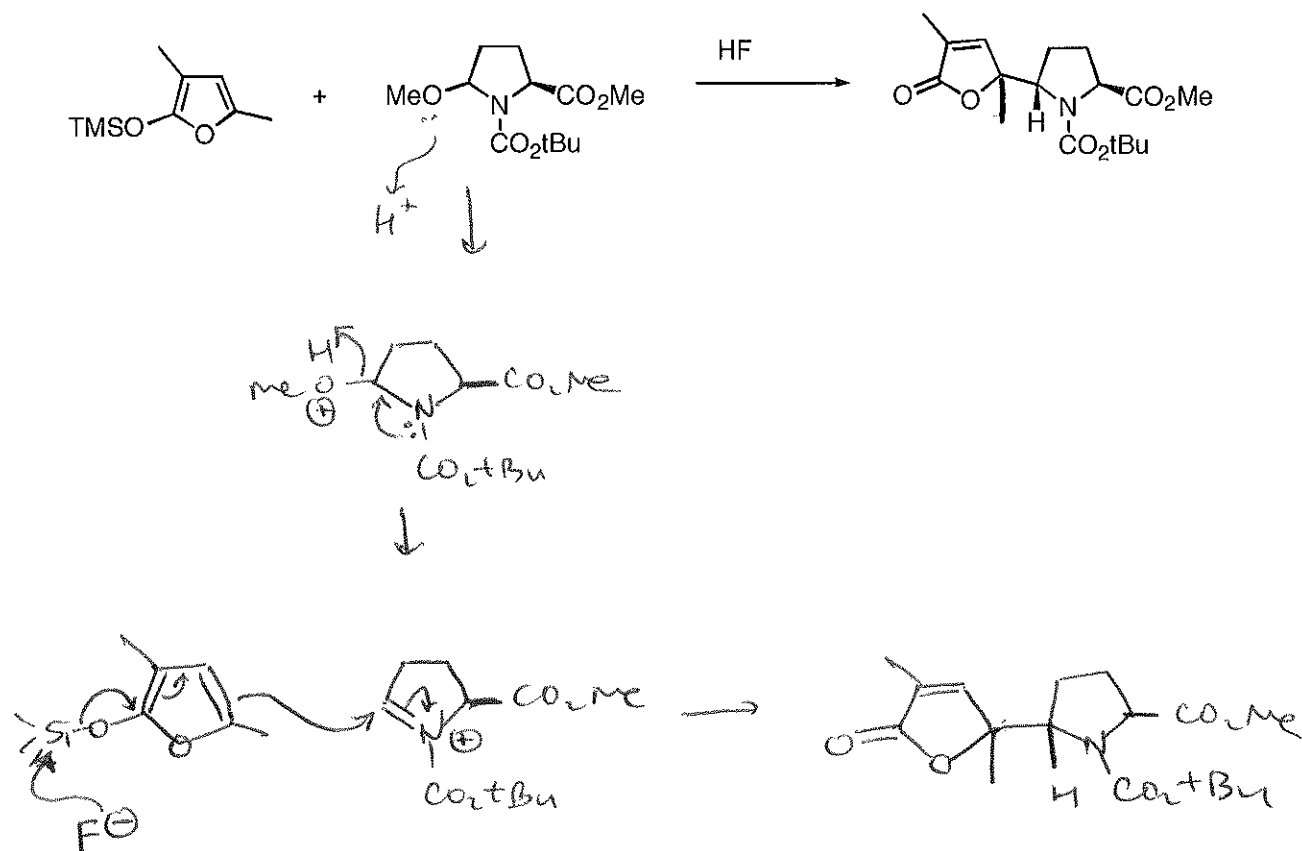
a. Outline a stereospecific synthesis of **5** from **3** below



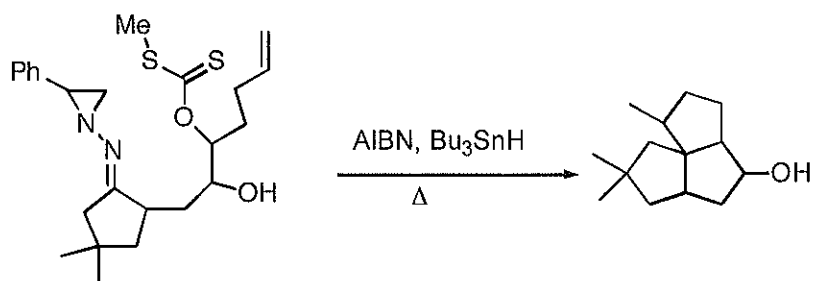
a. Outline a stereospecific synthesis of **5** from **4** below:



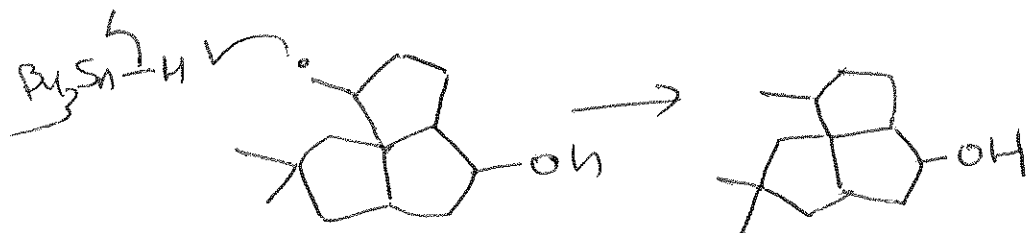
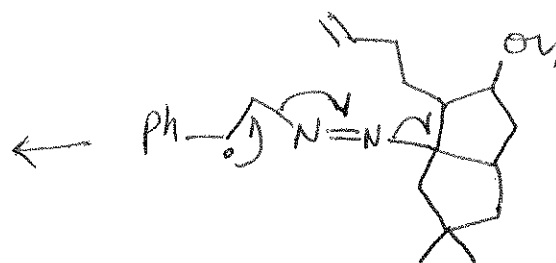
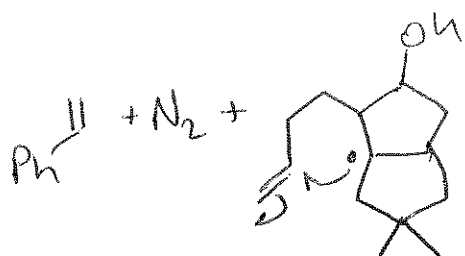
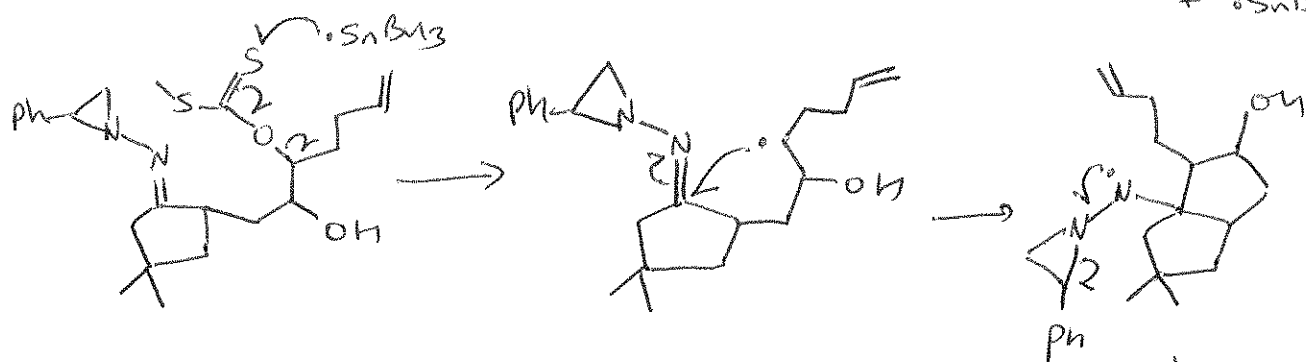
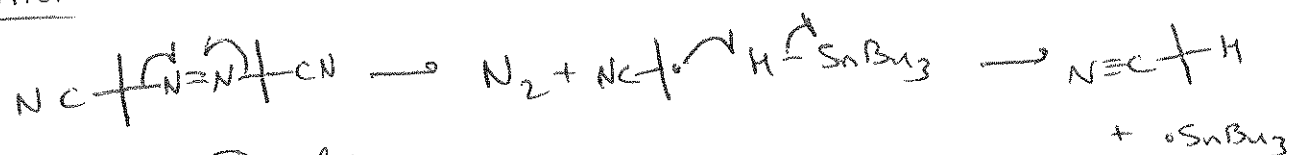
5. Provide a detailed, arrow pushing mechanism. 12 pts



6. Provide a detailed, arrow pushing mechanism. 20 pts



INITIATION



7. Outline a multistep synthesis 20 pts

