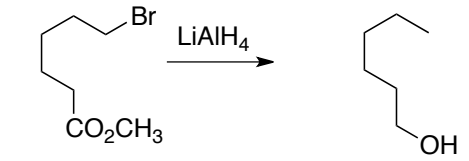
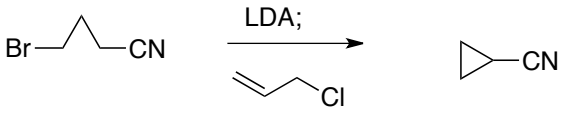
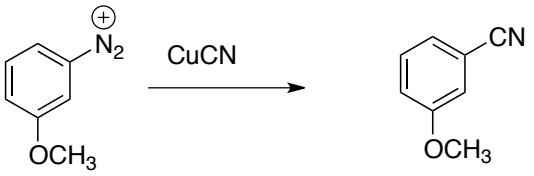
Chem 332
Spring 2012
Exam #2
March 23, 2012 Name____Key_____

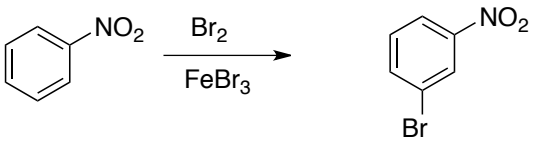
This is an open-book, open notes exam. No electronic devices are allowed.

1. (5 points each) These reactions would not proceed as indicated. Please draw the correct product of each reaction.

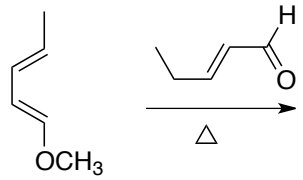
a. 

b. 

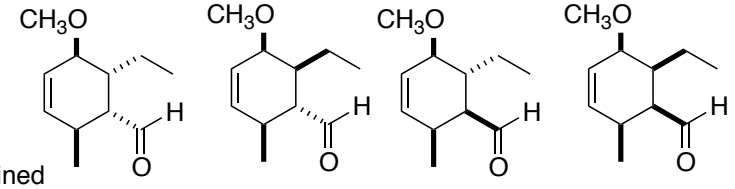
c. 

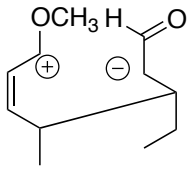
d. 

2. (20 points) Circle the correct product, and explain why.

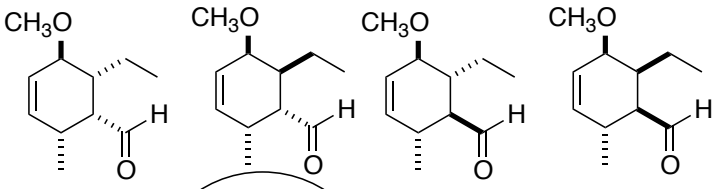


alkene geometry retained

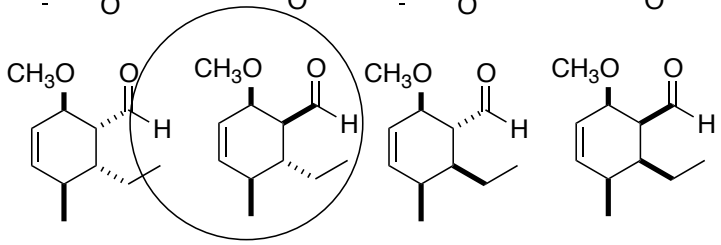


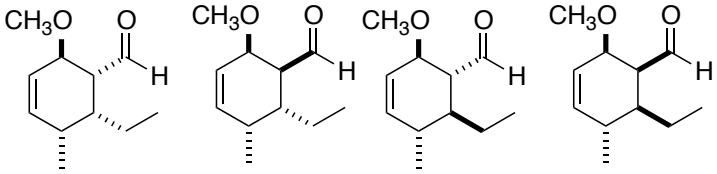


more stable carbocation

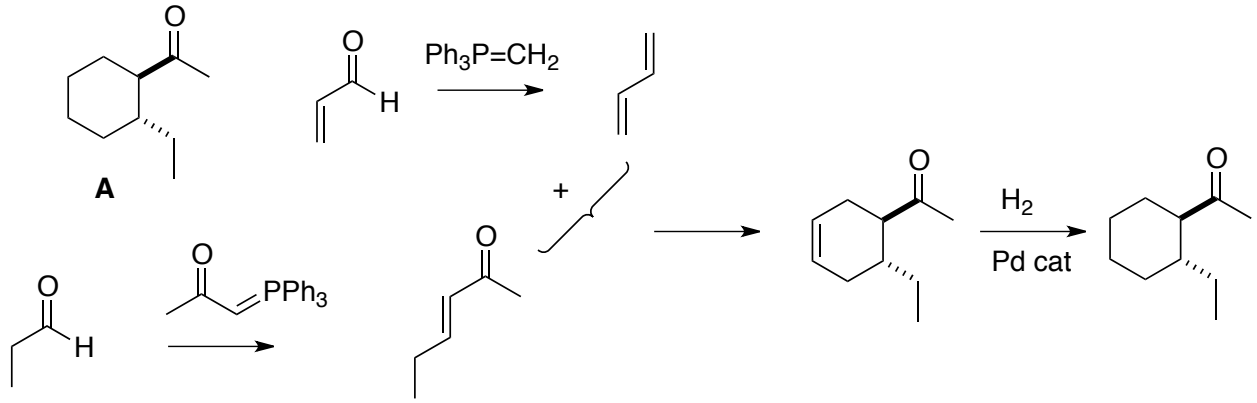


carbonyl endo

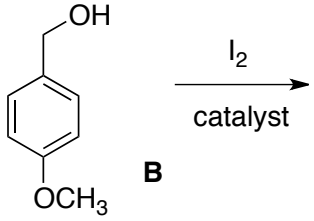




3. (20 points) Outline a synthetic route to **A**. You may use any starting materials that contribute three or fewer carbons to the final product



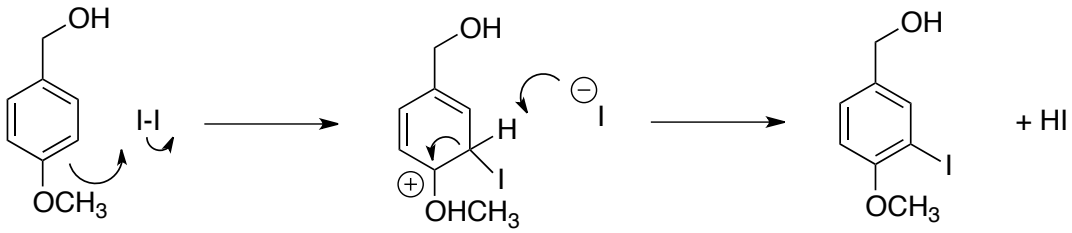
4. (20 points) Deduce the structure of **C**, and outline an arrow-pushing mechanism for its formation. For the mechanism, assume that the active reagent is I^+.



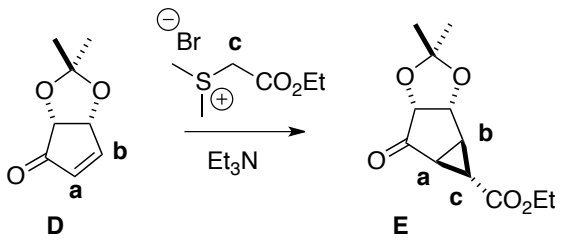
C

$C_8H_9IO_2$

^{13}C NMR	**^{1}H NMR**
159.5, s	2.3, bd, 1H (exchanges)
137.s, d	3.78, s, 3H
136.5, s	4.50, s, 2H
129.5, d	6.52, d, J = 7.8 Hz, 1H
111.6, d	7.45, m, 2H
87.4, s	
64.3, t	
57.6, q	



5. (20 points) Draw an arrow-pushing mechanism for the conversion of **D** to **E**. Correct labelling is worth three points, and correct bb/bf an additional three points.



bb	bf
a-b	b-c
c-S	a-c
c-H	H-N