

Chemistry Department

University of Alberta

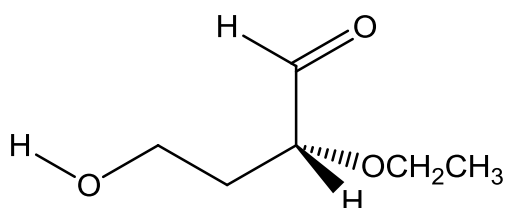
CHEM 263

Exam II

June 10 2011

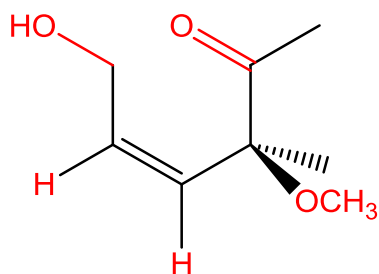
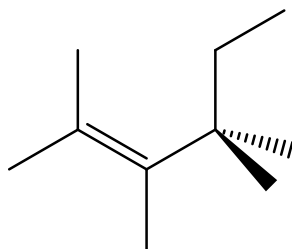
1. Name the following compound:

(4 points)



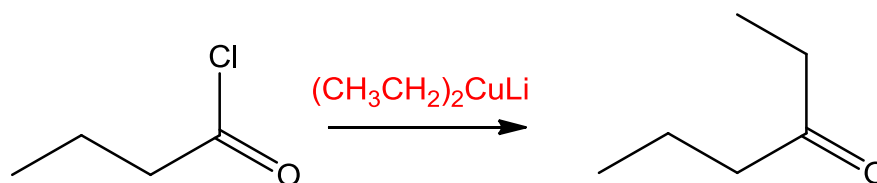
(R)-2-ethoxy-4-hydroxybutanal

2. Using the following partial structure, draw the structure of (Z,3S)-6-hydroxy-3-methoxy-3-methyl-4-hexen-2-one. (5 points)

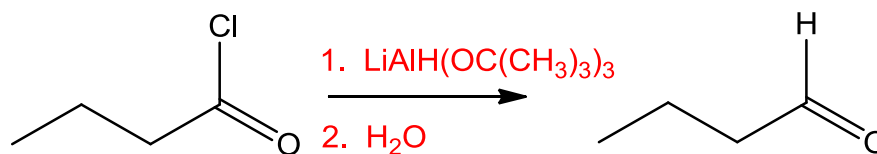


3. What reagents would you use to effect the following conversions? (15 points)

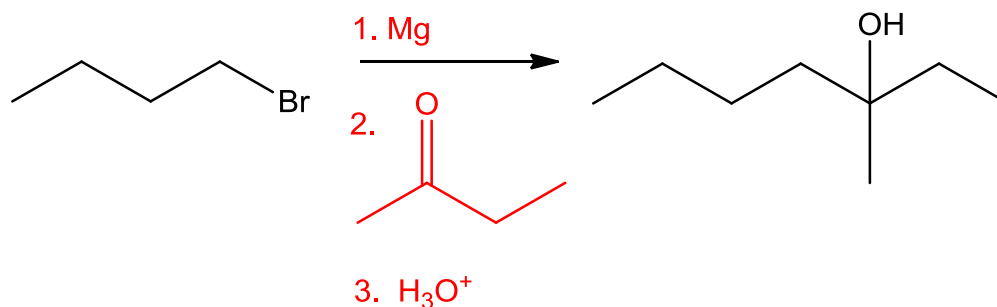
a.



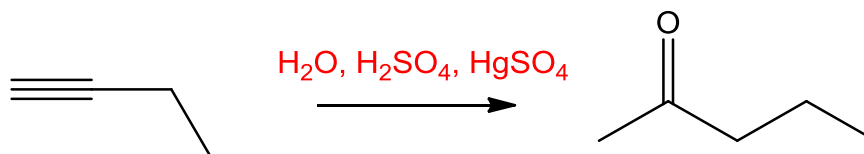
b.



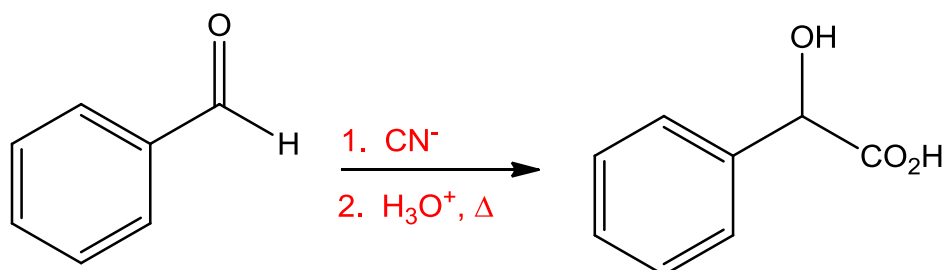
c.



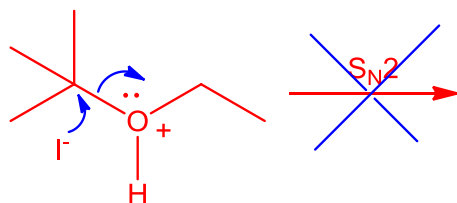
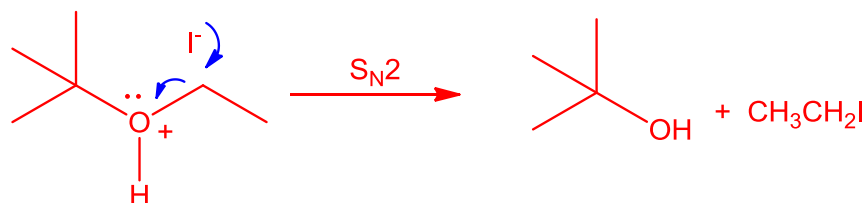
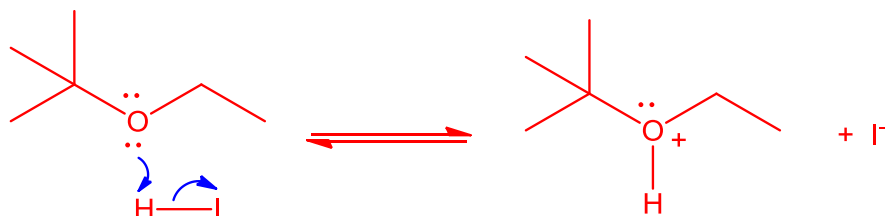
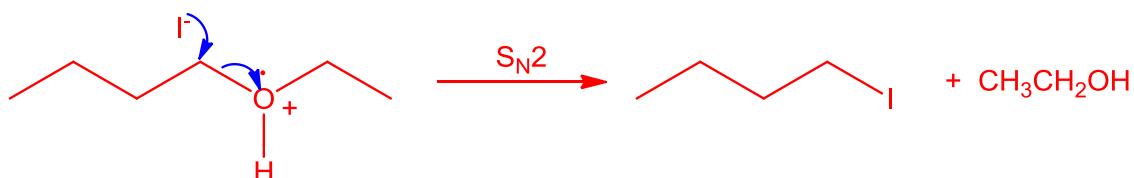
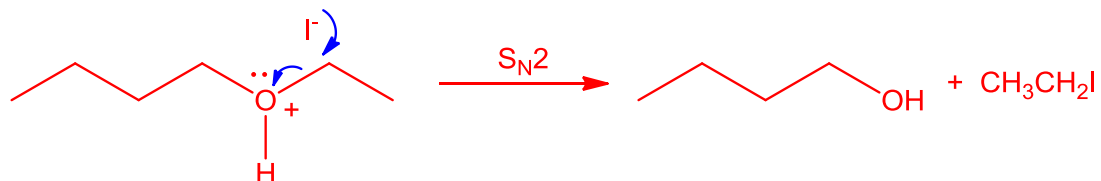
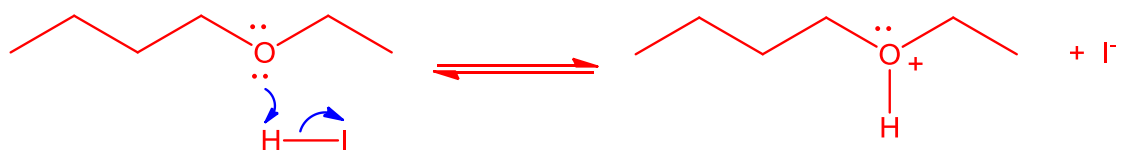
d.



e.

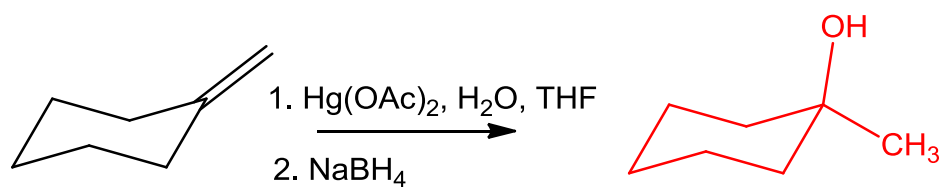


4. 1-Ethoxybutane reacts with HI to give a mixture of 1-iodobutane, iodoethane, ethanol and 1-butanol whereas 2-ethoxy-2-methylpropane gives a mixture of 2-methyl-2-propanol and iodoethane. Explain by means of appropriate mechanisms. (10 points)

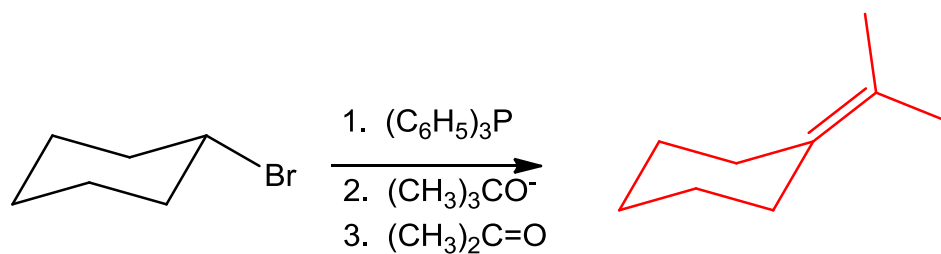


5. Give the structure(s) of the principle organic products of the following reactions: (12 points)

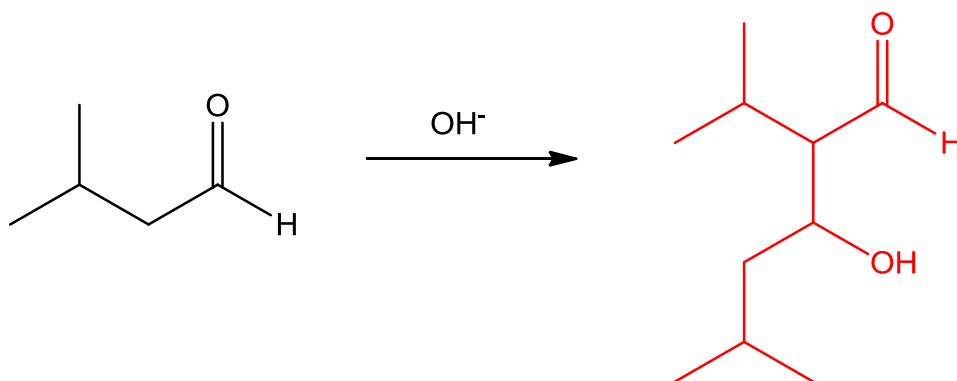
a.



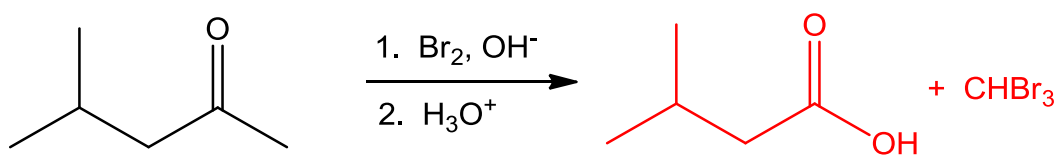
b.



c.

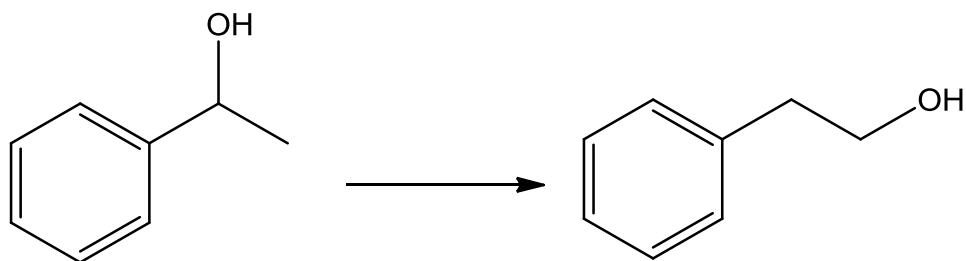


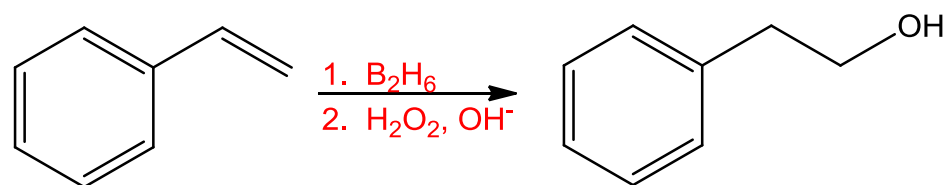
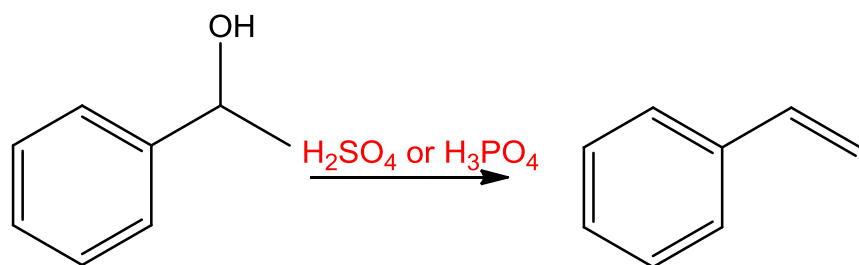
d.



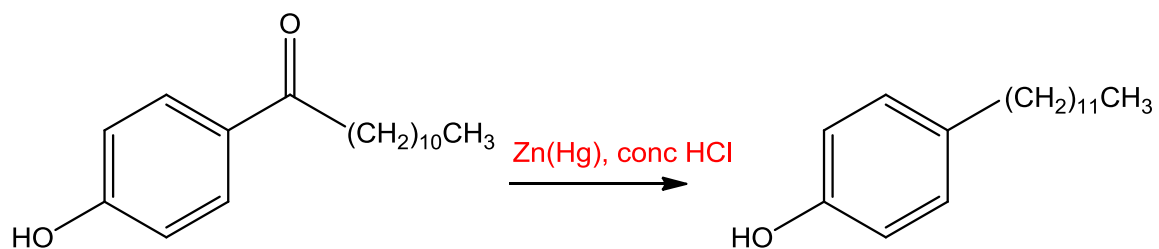
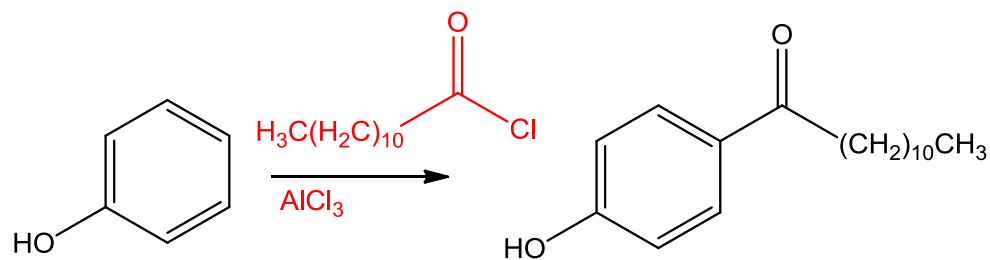
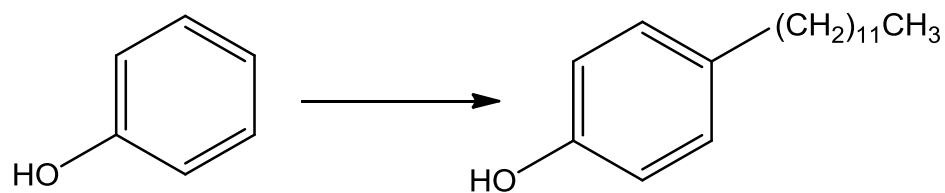
6. Provide a synthetic pathway for the following transformations using the starting material provided and any other reagents: (18 points)

a.

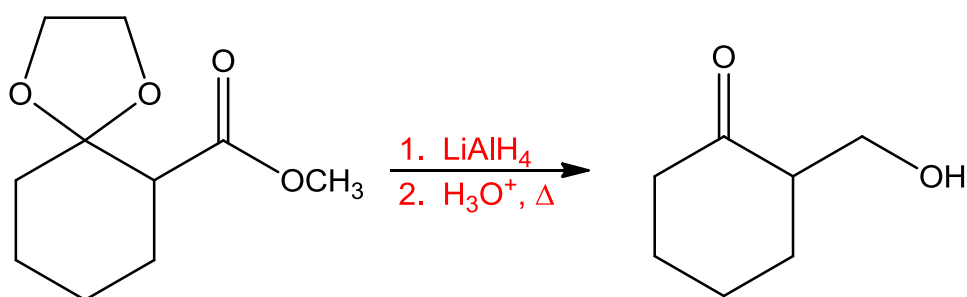
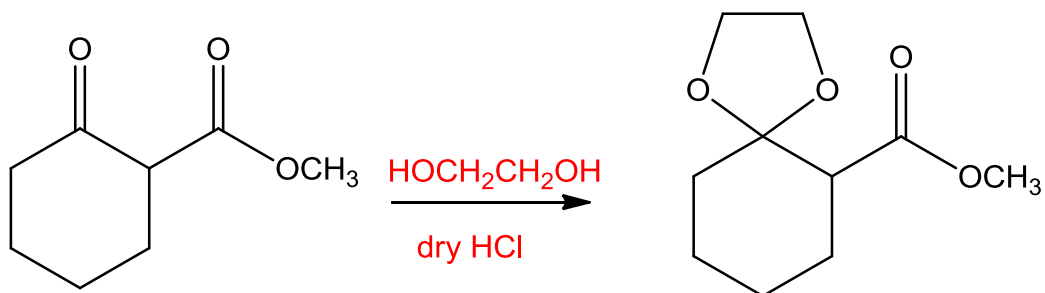
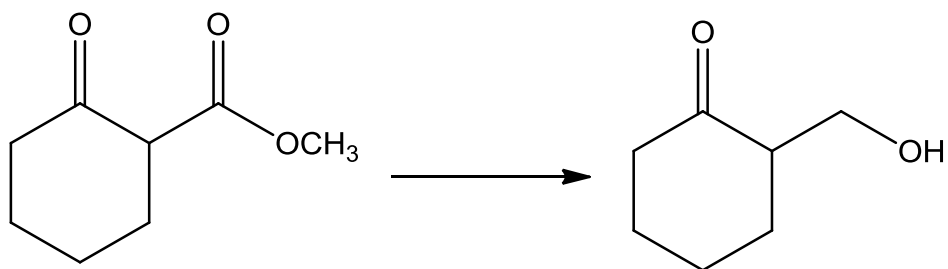




b.



c.



7. Propose a mechanism for the following reaction (don't forget the curved arrows!): (12 points)

