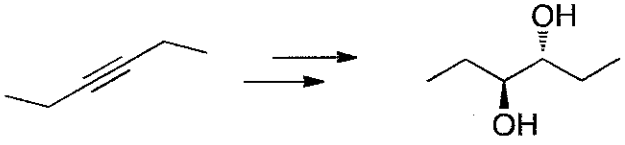
Synthesis Problems I

Answer Key

The following syntheses can be carried out using all the material learned up until Oct. 25th (No carbonyl chemistry, no oxidation/reduction chemistry). However, you may find that as we learn more reactions, there may be alternative ways that are even more efficient.

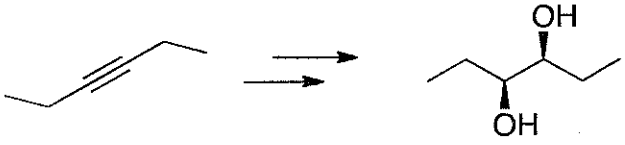
Show how you would carry out the following syntheses starting from the starting material shown in addition to any other starting materials. Be sure to address any stereochemistry shown in your answer.

a)



1. Lindlar's cat
2. OsO_4 ; $NaHSO_3$

b)

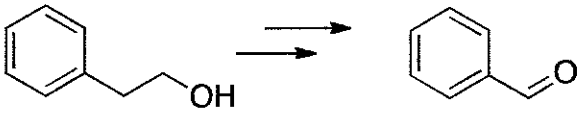


1. Na^0, NH_3
2. OsO_4 ; $NaHSO_4$

c)

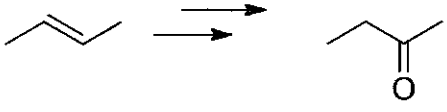
1. H_2SO_4, H_2O
2. H_3PO_4, heat

d)



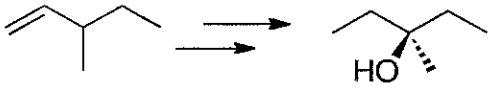
1. H_3PO_4, heat
2. O_3, Me_2S

e)



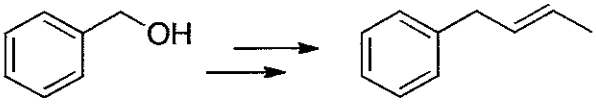
1. BF_2
2. $^{\ominus}NH_2$ $Na^{\oplus}$
3. H_2SO_4, H_2O

f)



1. H_2SO_4, H_2O ; 2. H_3PO_4, heat
3. H_2SO_4, H_2O

g)

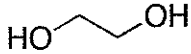


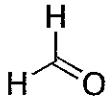
1. PBr_3, 2. $Na^{\oplus}$ $^{\ominus}C\equiv C-$
3. Na^0, NH_3

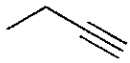
Synthesis Problems I Answer Key

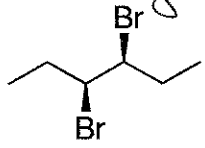
Show how you could synthesize the following molecules using ethanol as your only starting material. (Some rxns drew upon previously shown building blocks)

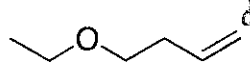
a) 

b) 

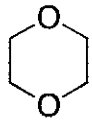
c) 

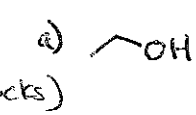
d) 

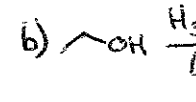
e) 

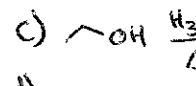
f) 

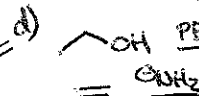
g) 

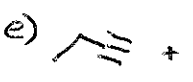
h) 

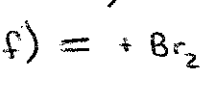
a) 

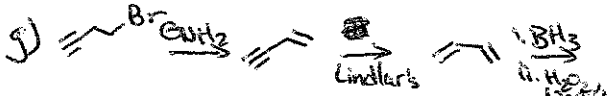
b) 

c) 

d) 

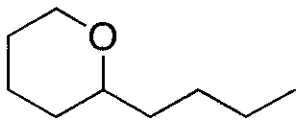
e) 

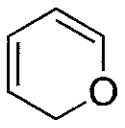
f) 

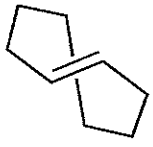
g) 

h) 

***Big Challenge! Show how you could synthesize the following molecules using any starting material of 3 carbons or less.**

a) 

b) 

c) 

See attachment