Chem 348 Homework Problem Set 8A

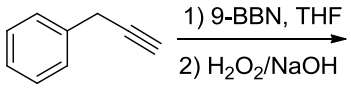
1) Consider the reaction $AH^{(+)} + H_2O \rightarrow A:^{(-)} + H_3O^+$. For the following named acids: 1) draw the structure of the acid, 2) give the approximate pKa of the conjugate acid (±1 pKa unit), 3) give the name of the conjugate base, and 4) draw the structure of the conjugate base. For the purposes of answering this question you may use pKa values evenly divisible by 5.

acid	Cyclopentadiene pKa_____	*p*-Methoxyanilinium cation pKa_____	Benzenesulfonic acid pKa____	Butanal pKa_____
Conjugate base				

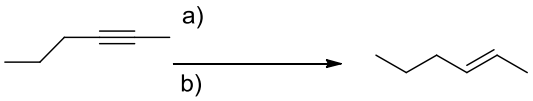
2) Consider the reaction $B:^{(-)} + H_3O^+ \rightarrow BH^{(+)} + H_2O$. For the following named bases: 1) draw the structure of the base, 2) draw the structure of the conjugate acid, 3) give the name of the conjugate acid, and 4) give the approximate pKa of the conjugate acid (±1 pKa unit). For the purposes of answering this question you may use pKa values evenly divisible by 5.

base	Benzoate anion	Cyclopentadienide anion	Diethyl amine	Diethylamide anion
Conjugate acid	pKa_____	pKa_____	pKa_____	pKa_____

3) Complete the following: *Stereochemistry, enantio-, and regioselectivity are important.*

a) 

type _____

b) 

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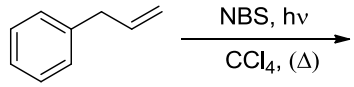
c) 

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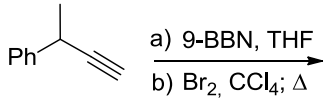
d) 

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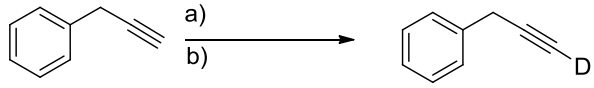
e) 

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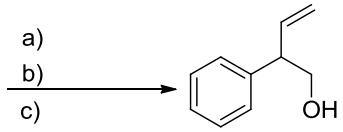
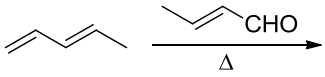
f) 

type Grignard Synthesis of an alcohol

g) 

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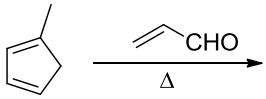
h) 

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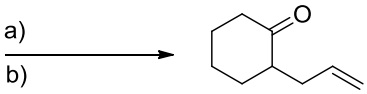
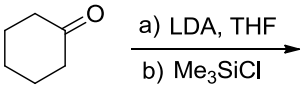
i) 

type a) B.-L. acid-base; b) alkylation (allylation)

j) 

type _____

4) List the reduction reactions you have learned.