CHM 3150 Organic Chemistry II
Dr. Laurie S. Starkey, Cal Poly Pomona
Exam I Review Problems (Chapters 11, 12, 13)

For clicker question voting, go to:
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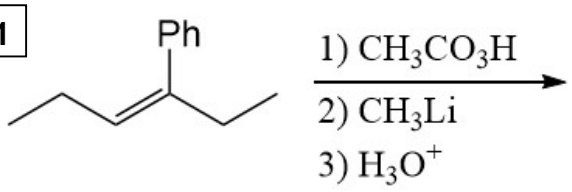
1



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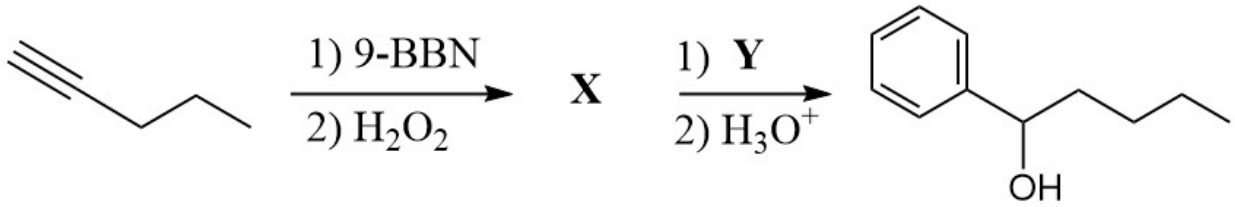
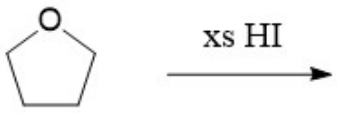


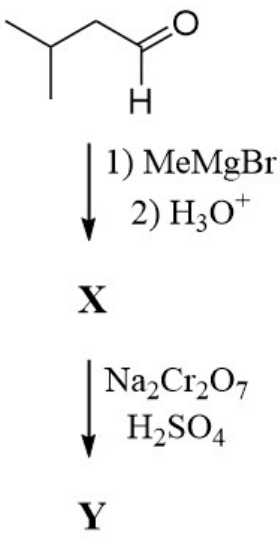
Predict the major product, and provide a mechanism.

3

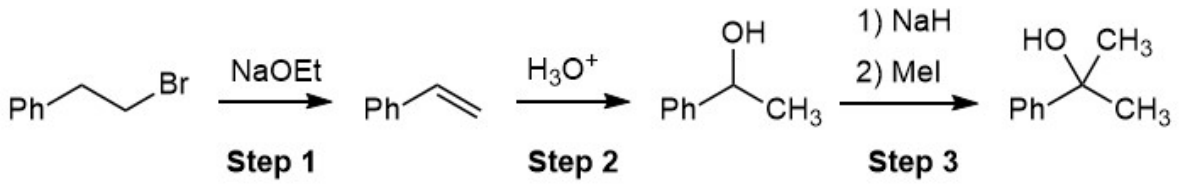


4

Predict the major products formed (X, Y).

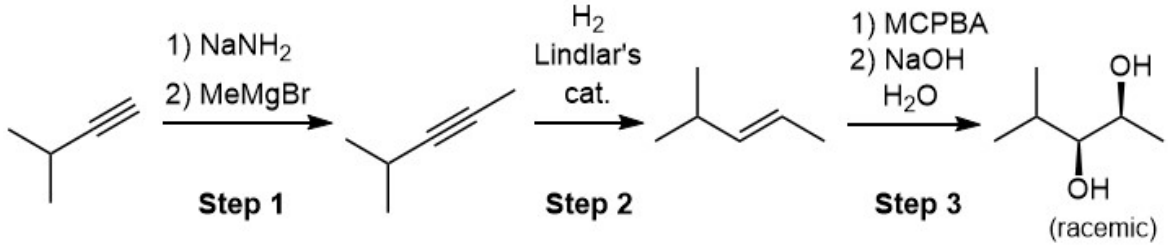


5 Identify any incorrect reagent(s) in the given synthetic sequence, and provide correct reagent(s) to achieve the desired transformation.



Step 1 **Step 2** **Step 3**

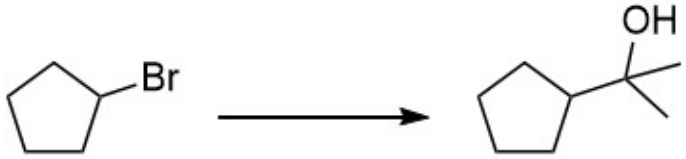
6



Step 1 **Step 2** **Step 3**

Which reagents would be best to achieve the following synthesis?

7



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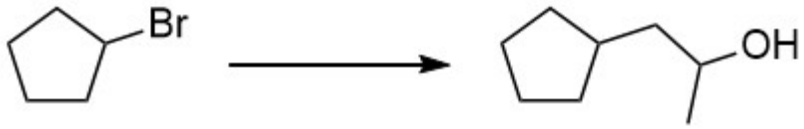
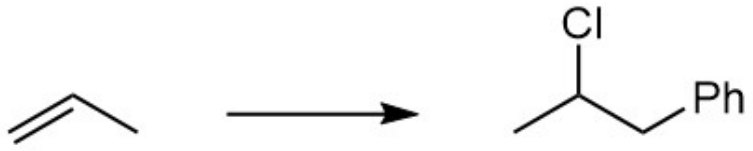


Which reagents would be best to achieve the following synthesis?

9



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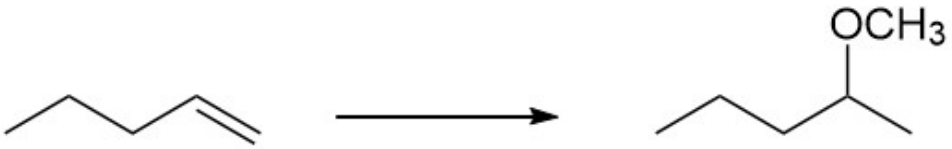

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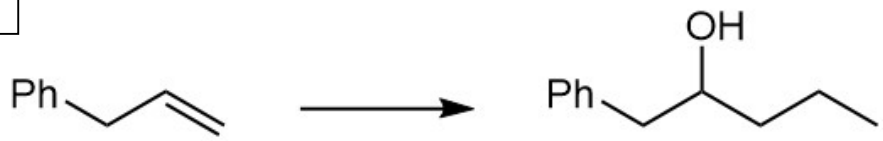

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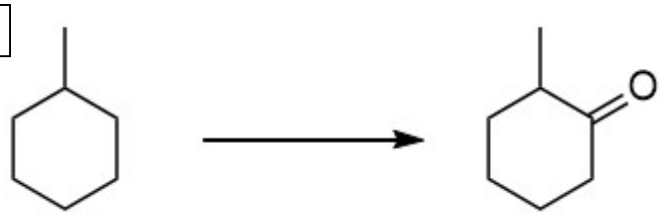
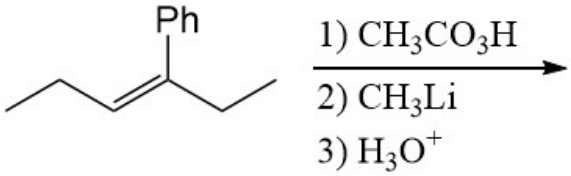
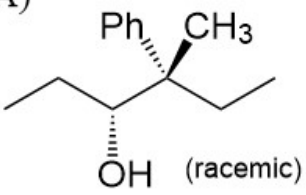


1 Predict the major product.

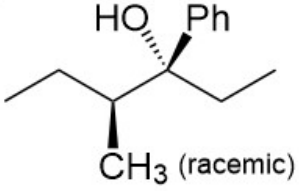


A)



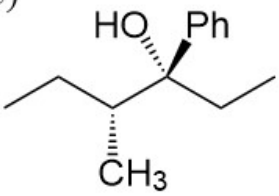
(racemic)

B)



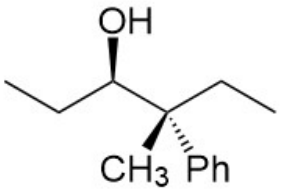
(racemic)

C)



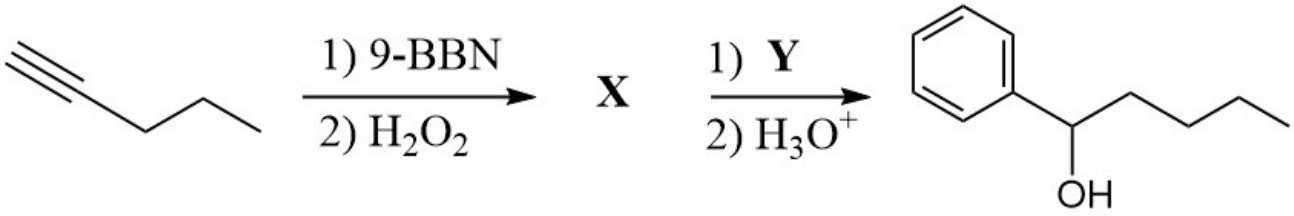
(racemic)

D)



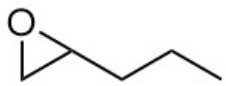
(racemic)

2



Missing product **X**

A)



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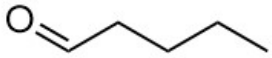

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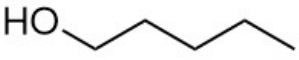
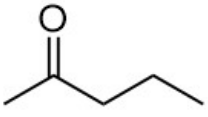


D)



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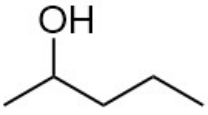
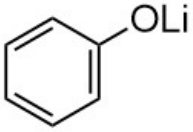


Missing reagent **Y**

A)



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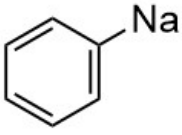

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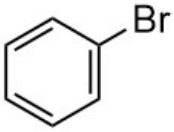

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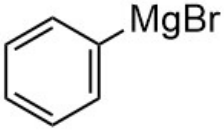
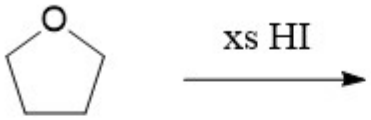


Predict the major product of the following reaction.

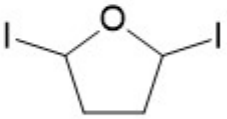
3b

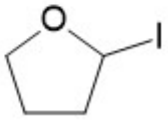


A) 

B) 

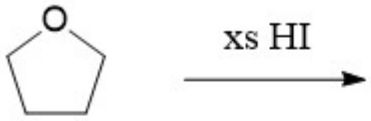
C) 

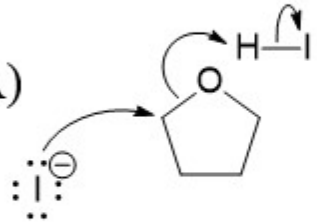
D) 

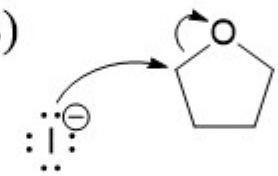
E) 

Which of the following is a correct mechanism step for the given reaction?

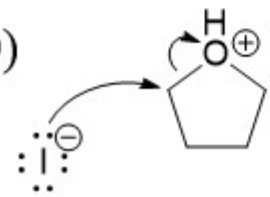
3b

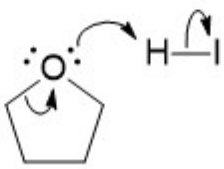


A) 

B) 

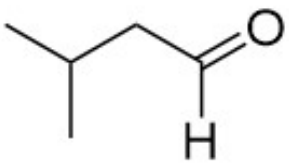
C) 

D) 

E) 

4

Predict the major products formed (X, Y).

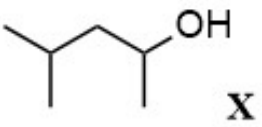
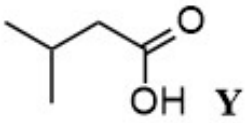


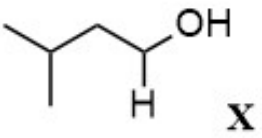
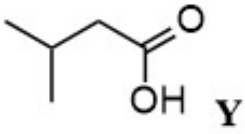
1) MeMgBr
2) H_3O^+

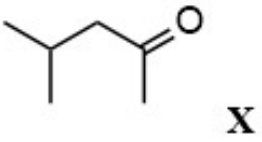
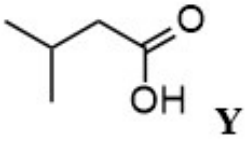
X

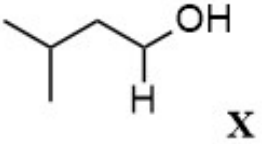
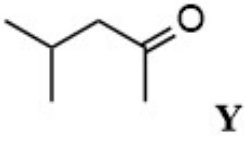
$Na_2Cr_2O_7$
H_2SO_4

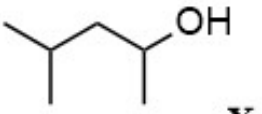
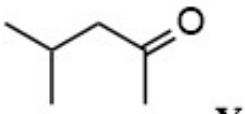
Y

A)  **X**  **Y**

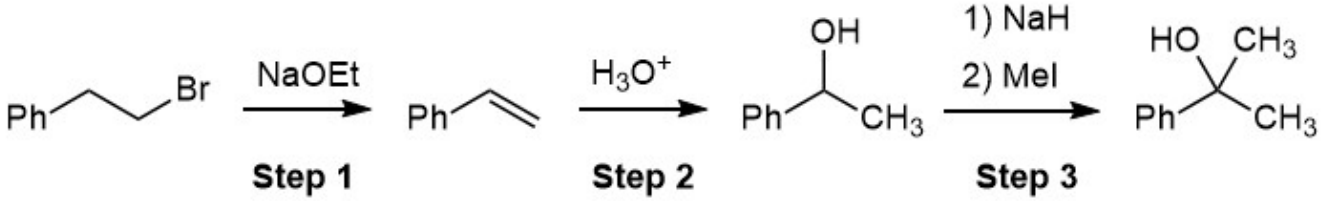
B)  **X**  **Y**

C)  **X**  **Y**

D)  **X**  **Y**

E)  **X**  **Y**

5 Identify any incorrect reagent(s) in the given synthetic sequence, and provide correct reagent(s) to achieve the desired transformation.



A) Wrong reagent(s): Step 1

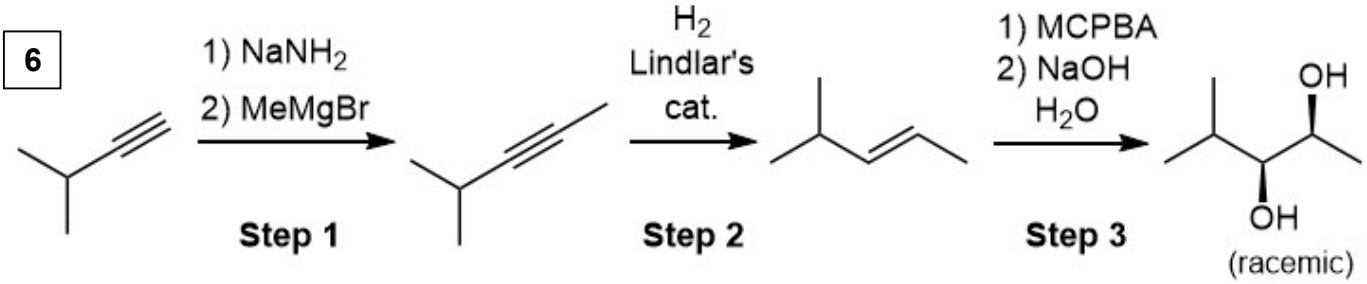
B) Wrong reagent(s): Step 1 and Step 2

C) Wrong reagent(s): Step 2 and Step 3

D) Wrong reagent(s): Step 1 and Step 3

E) Wrong reagent(s): Step 3

6



A) Wrong reagent(s): Step 2

B) Wrong reagent(s): Step 1 and Step 2

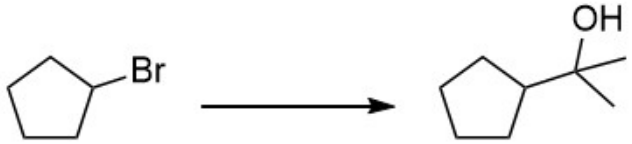
C) Wrong reagent(s): Step 2 and Step 3

D) Wrong reagent(s): Step 1 and Step 3

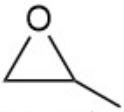
E) Wrong reagent(s): Step 1 and Step 2 and Step 3

Which reagents would be best to achieve the following synthesis?

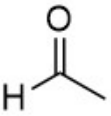
7



A) 1) Mg
2) 
3) H_3O^+

C) 1) Mg
2) 
3) H_3O^+

B) 1) Mg
2) 
3) H_3O^+

D) 1) Mg
2) 
3) H_3O^+

Which reagents would be best to achieve the following synthesis?

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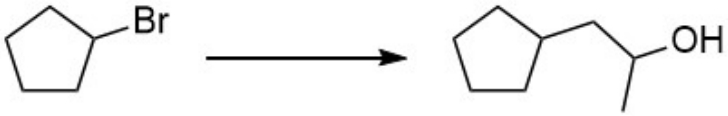
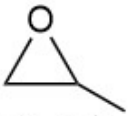
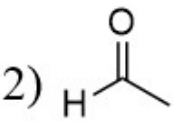
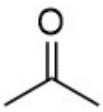


A) 1) Mg
2) 
3) H_3O^+

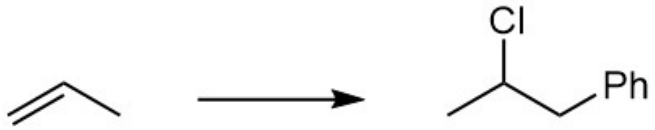
C) 1) Mg
2) 
3) H_3O^+

B) 1) Mg
2) 
3) H_3O^+

D) 1) Mg
2) 
3) H_3O^+

Which reagents would be best to achieve the following synthesis?

9



A) 1) HBr, ROOR
2) Mg
3) PhCl (+ H_3O^+ workup)

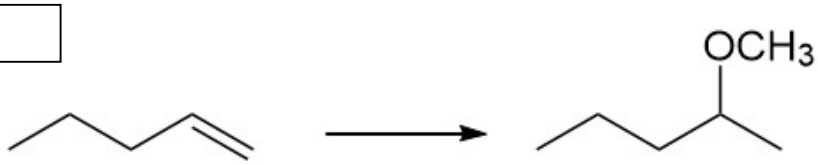
B) 1) MCPBA
2) PhMgCl
(+ H_3O^+ workup)
3) $SOCl_2$

C) 1) MCPBA
2) PhMgCl
(+ H_3O^+ workup)

D) 1) HBr, ROOR
2) PhMgCl
(+ H_3O^+ workup)

Which reagents would be best to achieve the following synthesis?

10



A) 1) HBr, ROOR
2) MeONa

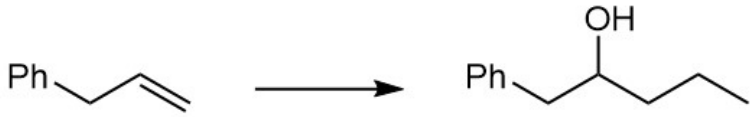
B) 1) HBr
2) MeONa

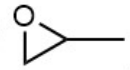
C) 1) H_3O^+
2) MeOH, H_2SO_4

D) 1) H_3O^+
2) NaH
3) MeI

E) 1) BH_3-THF
2) H_2O_2, NaOH
3) NaH
4) MeI

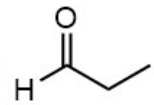
11 Which reagents would be best to achieve the following synthesis?

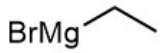


A) 1) HBr, ROOR
2) Mg
3) 
(+ H_3O^+ workup)

C) 1) MCPBA
2) 

(+ H_3O^+ workup)

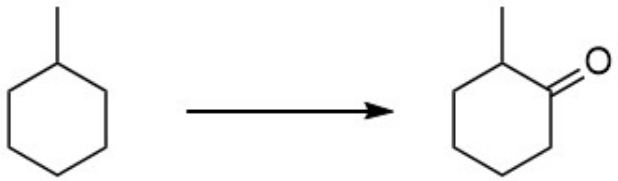
B) 1) HBr, ROOR
2) Mg
3) 
(+ H_3O^+ workup)

D) 1) HBr, ROOR
2) 

(+ H_3O^+ workup)
3) BH_3-THF
4) H_2O_2, NaOH

Which reagents would be best to achieve the following synthesis?

12



A) 1) Br_2, hν
2) NaOEt
3) BH_3-THF
4) H_2O_2, NaOH
5) PCC

C) 1) Br_2, hν
2) *t*-BuOK
3) BH_3-THF
4) H_2O_2, NaOH
5) $Na_2Cr_2O_7$, H_2SO_4

B) 1) Br_2, hν
2) NaOEt
3) H_3O^+
4) PCC

D) 1) Br_2, hν
2) *t*-BuOK
3) H_3O^+
4) $Na_2Cr_2O_7$, H_2SO_4