Dr. Starkey, CHM 3140 Organic Chem. I, Cal Poly Pomona
Chapter 9 Alkyne Reactions – Part 2 – Practice Problems

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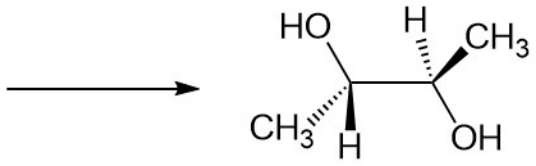
Predict the products, provide a mechanism and determine direction of equilibrium. **A R I O**

1 $H-C\equiv C-H \;+\; BuLi \rightleftharpoons$

2 carbide lamp: $CaC_2 \;+\; H_2O \rightleftharpoons$

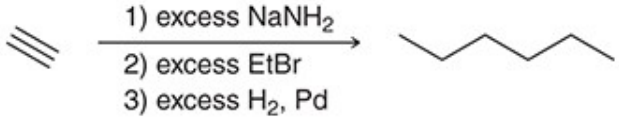
3 Predict the major product formed after each set of reagents.

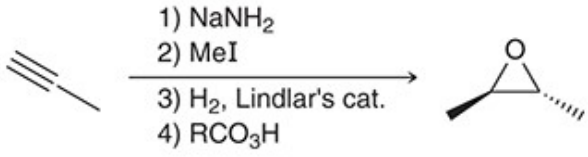
4 Which reagents would be best to achieve the following synthesis?

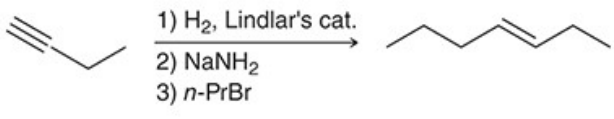
5 propyne 

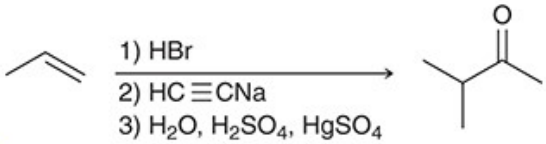
9.57 Each of the following synthetic transformations has a fatal flaw and the desired target molecule would not be produced. Identify the error in each synthesis and explain why the synthesis fails.

6 (Klein 4th ed.)

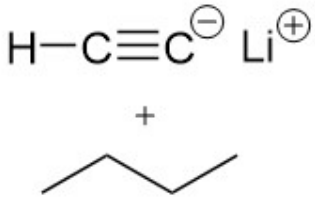
a. 

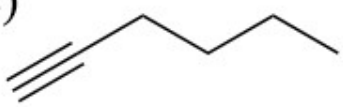
b. 

c. 

d. 

1 Predict the major product(s) and determine direction of equilibrium.

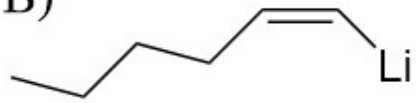
A) 

C) 

A) Forward

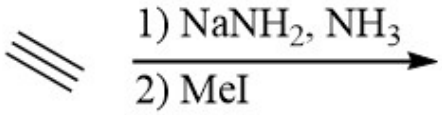
B) Reverse

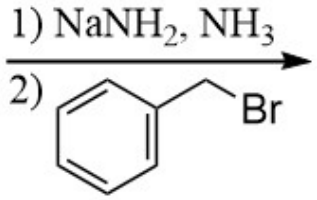
C) Neither

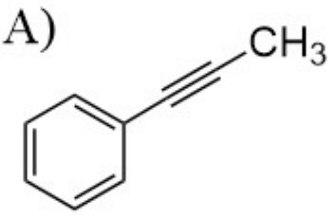
B) 

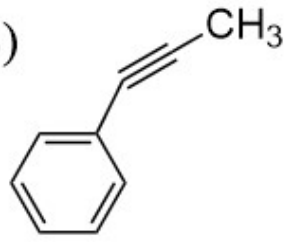
D) 

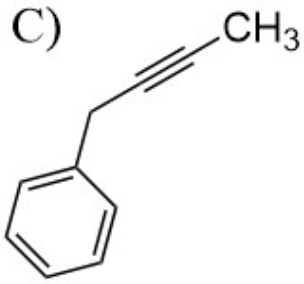
3 Predict the major product formed after each set of reagents.

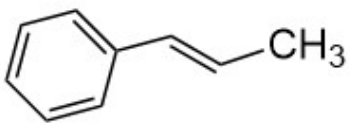


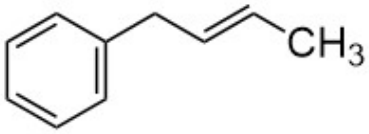


A) 

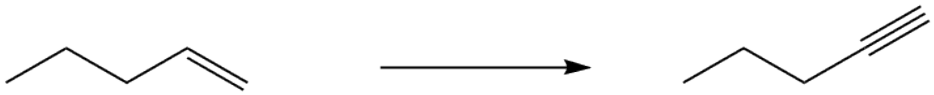
B) 

C) 

D) 

E) 

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



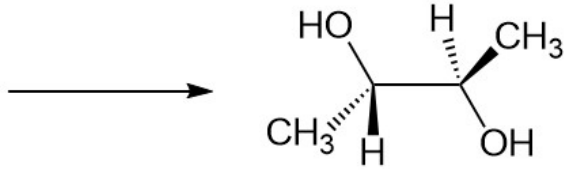
A) 1) HBr
2) HC≡CNa

C) 1) HBr, ROOR
2) HC≡CNa

B) 1) Br_2
2) xs $NaNH_2$
3) H_2O

D) 1) $KMnO_4$
2) xs $NaNH_2$
3) H_2O

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

propyne 

A) 1) Na, NH_3
2) $KMnO_4$

C) 1) H_2, Lindlar's cat.
2) $KMnO_4$

B) 1) $NaNH_2$
2) MeI
3) Na, NH_3
4) $KMnO_4$

D) 1) $NaNH_2$
2) MeI
3) H_2, Lindlar's cat.
4) $KMnO_4$