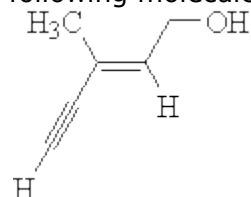


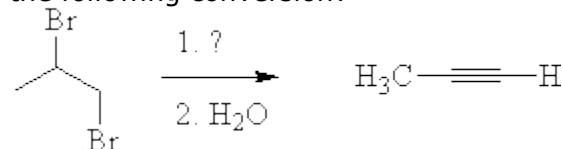
Vollhardt-Schore, Organic Chemistry 5e Ch 13

1. What is the correct IUPAC name for the following molecule?



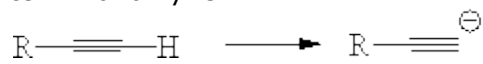
- A. (Z)-3-methyl-3-penten-1-yn-5-ol
- B. (E)-3-methyl-3-penten-1-yn-5-ol
- C. (E)-3-methyl-2-penten-4-yn-1-ol
- D. (Z)-3-methyl-2-penten-4-yn-1-ol
- E. (E)-4-hydroxymethyl-3-methyl-3-penten-1-yne

2. What reagents are required to effect the following conversion?



- A. Mg, ether
- B. $\text{CH}_3\text{CH}_2\text{O}^-\text{Na}^+$
- C. NaNH_2 (1 equivalent)
- D. NaNH_2 (2 equivalents)
- E. NaNH_2 (3 equivalents)

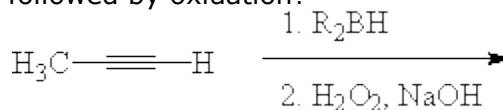
3. Terminal alkynes are more acidic than other hydrocarbons. Which of the bases below can quantitatively deprotonate a terminal alkyne?



- A. $\text{CH}_3\text{O}^-\text{Na}^+$

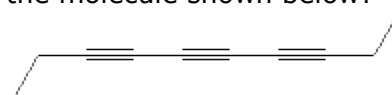
- B. $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{Li}$
- C. NaOH
- D. $\text{Na}^+ \text{NH}_2^-$
- E. More than one of these would work.

4. What would you expect to result from mono-hydroboration of the alkyne shown, followed by oxidation?



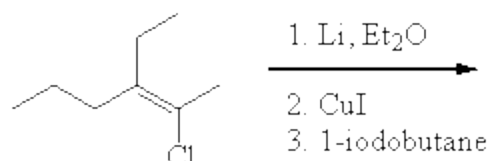
- A.
- B.
- C.
- D.
- E. $\text{H}_3\text{C}-\text{C}\equiv\text{C}-\text{OH}$

5. What is the *greatest* number of atoms that you would expect to be co-linear in the molecule shown below?



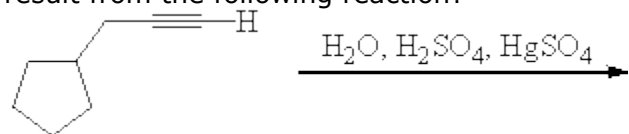
- A. Five
- B. Six
- C. Seven
- D. Eight
- E. Nine

6. Predict the *major* product of the following reaction.



- A.
- B.
- C.
- D.
- E.

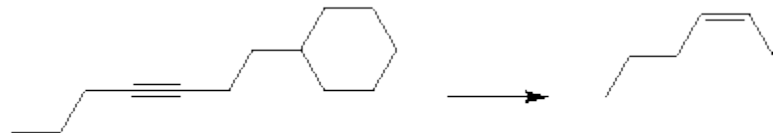
7. What product would you expect to result from the following reaction?



- A.

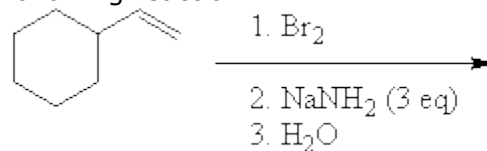
- B.
- C.
- D.
- E.

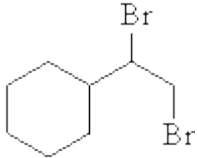
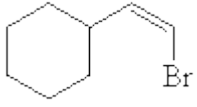
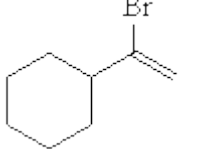
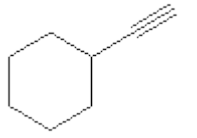
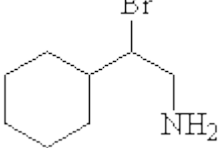
8. Which of the following reaction conditions would be appropriate for carrying out the transformation shown below?



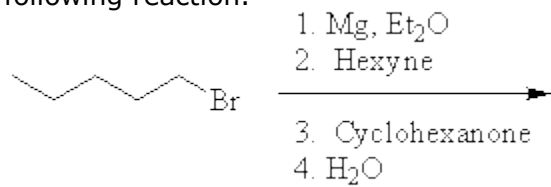
- A. Na, NH₃ (liquid) followed by H₂O
- B. H₂SO₄, H₂O, HgSO₄
- C. H₂, Lindlar's catalyst
- D. R₂BH, followed by H₂O₂, NaOH
- E. More than one of these is correct.

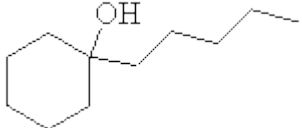
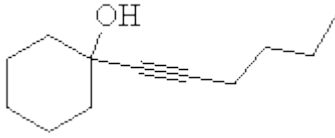
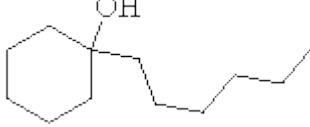

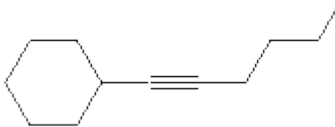
9. What is the major product of the following reaction?



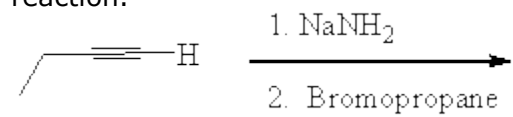
- A. 
- B. 
- C. 
- D. 
- E. 

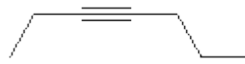
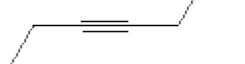



10. Predict the *major* product of the following reaction.



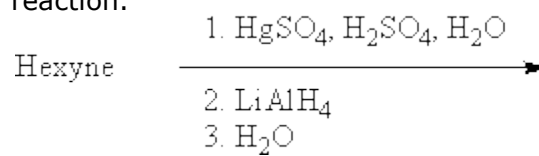
- A. 
- B. 
- C. 
- D. 
- E. 

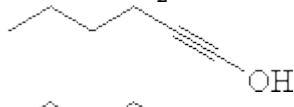

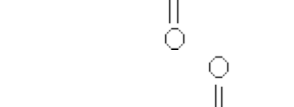
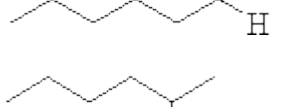
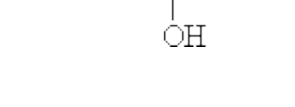
11. Predict the product of the following reaction.



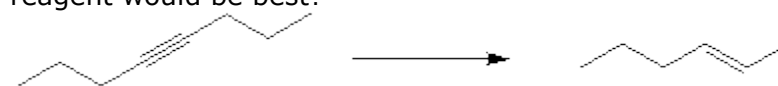
- A. 
- B. 
- C. 
- D. 
- E. 

12. Predict the product of the following reaction.



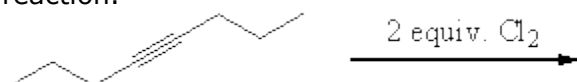
- A. 
- B. 
- C. 
- D. 
- E. 

13. Consider the following reaction. What reagent would be best?



- A. LiAlH_4 followed by H_2O
- B. NaBH_4 , CH_3OH
- C. H_2 , Pd-C
- D. Na , NH_3 (liquid) followed by H_2O
- E. H_2 , Lindlar's catalyst

14. Predict the product of the following reaction.



- A.
- B.
- C.
- D.
- E.

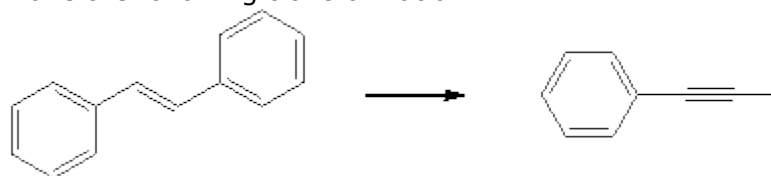
15. Predict the product of the following reaction



- A.

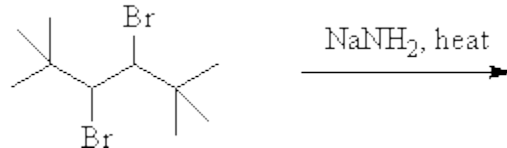
- B.
- C.
- D.
- E.

16. Which reagent should be used to make the following transformation?

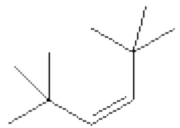
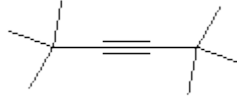


- A. H_2 , Pd-C
- B. NaNH_2 , heat
- C. water
- D. Br_2 , followed by NaNH_2
- E. None

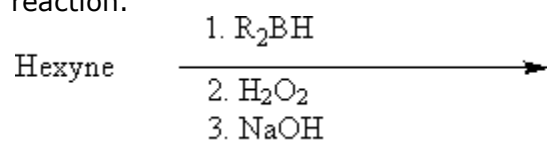
17. Predict the product of the following reaction.

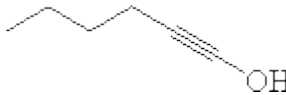
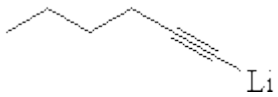
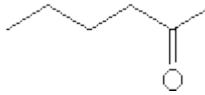

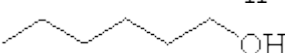


- A.
- B.

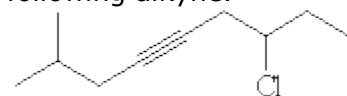
- C. 
- D. 
- E. None

18. Predict the product of the following reaction.




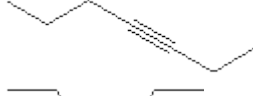
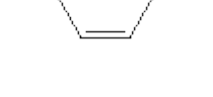

- A. 
- B. 
- C. 
- D. 
- E. 

19. Provide an appropriate name for the following alkyne.



- A. 2-methyl-7-chloro-4-nonyne
- B. 7-chloro-2-methyl-4-nonyne
- C. 4-chloro-1-isobutylhexyne
- D. 3-chloro-8-methyl-5-nonyne
- E. 8-methyl-3-chloro-5-nonyne

20. Which compound would show IR peaks at both 2150 and 3300 cm^{-1} ?

- A. 
- B. 
- C. 
- D. 
- E. 