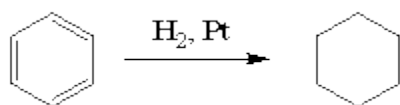


Vollhardt-Schore, Organic Chemistry 5e Ch 15

1. The ring in an aromatic compound typically undergoes what *type* of reaction?

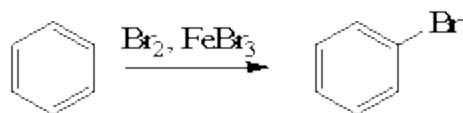
- A. Addition
- B. Substitution
- C. Elimination
- D. Oxidation
- E. Reduction

2. Account for the fact that, during hydrogenation of benzene, no cyclohexene or cyclohexadienes are observed, even at only partial conversions.



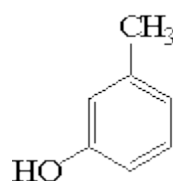
- A. Benzene is very reactive and so readily hydro-genates fully.
- B. Benzene is quite unreactive, and the partially hydrogenated derivatives are much more reac-tive.
- C. The mechanism requires that all three double bonds hydrogenate simultaneously.
- D. Two of the above are correct.
- E. All of the above are correct.

3. Consider carefully the mechanism of the following electrophilic aromatic substitution reaction and indicate which of the following is *not* formed as a product or intermediate during the course of the reaction.



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

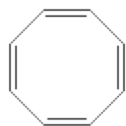
4. What would be the *best* name for the following compound?



- A. 3-methylhydroxybenzene
- B. 3-methylcyclohexa-1,3,5-trien-1-ol
- C. 3-methylphenol
- D. 3-hydroxytoluene
- E. 3-(hydroxyphenyl)methane

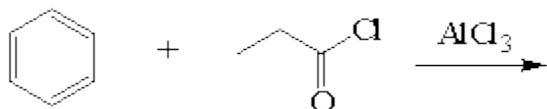
5. Which of the following statements most accurately describes the reason why

1,3,5,7-cyclooctatetraene (shown below) is not aromatic?



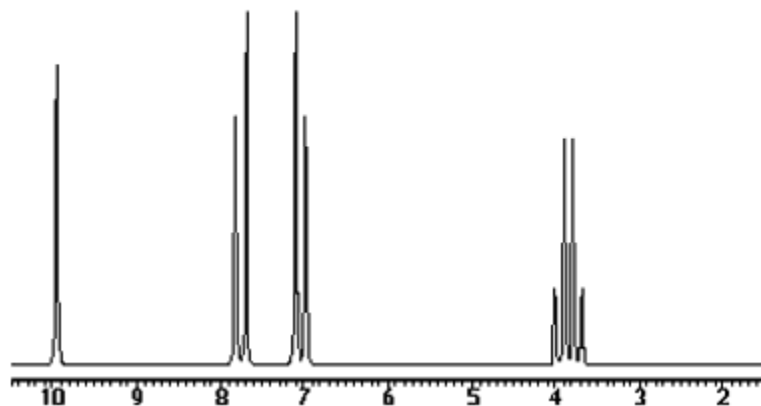
- A. Each carbon atom is not sp^2 -hybridized.
- B. Each carbon atom does not have a p orbital to participate in the pi cloud.
- C. The compound does not obey Huckel's rule.
- D. The compound is not planar.
- E. Two of the above statements are accurate.

6. What is the *major* product of the following reaction?



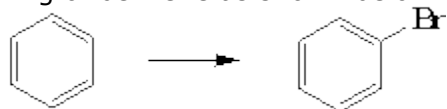
- A.
- B.
- C.
- D.
- E.

7. Which of the following aromatic compounds *most likely* generated the accompanying $^1\text{H-NMR}$ spectrum?



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

8. Which of the following combinations of reagents is appropriate to brominate the ring of benzene as shown below?



- A. Br_2 , light
- B. Br_2 , H_2O
- C. Br_2 , NaOH
- D. Br_2 , H_2SO_4
- E. Br_2 , FeBr_3

9. Which of the following molecules would you expect to be especially stable relative to typical examples of molecules with the same functional groups?

- A.
- B.
- C.
- D.
- E. None of these is especially stable.

10. Which of the following compounds is *not* aromatic?

- A.
- B.

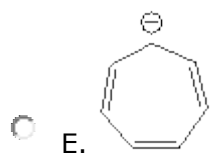
- C.
- D.
- E.

11. Which of the compounds below is *not* aromatic?

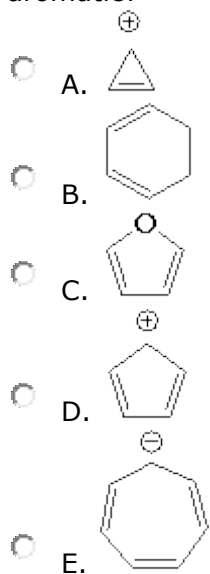
- A.
- B.
- C.
- D.
- E.

12. Which compound below is aromatic?

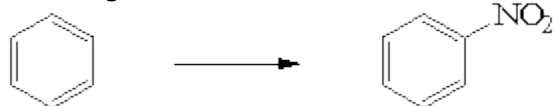
- A.
- B.
- C.
- D.



13. Which compound below is non-aromatic?

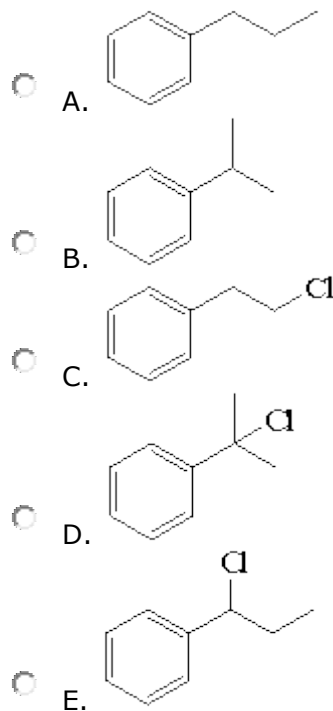
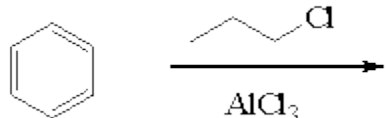


14. What reagents will be needed for the following transformation?

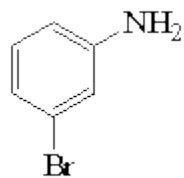


- A. $\text{H}_2\text{SO}_4, \text{H}_2\text{O}$
- B. $\text{NH}_3, \text{H}_2\text{O}$
- C. 1. Na, NH_3 2. H_2O
- D. $\text{HNO}_3, \text{H}_2\text{SO}_4$
- E. None of the above

15. Predict the product of the following reaction.

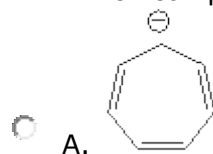


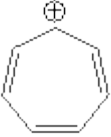

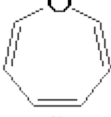

16. Provide an appropriate name for the following compound.

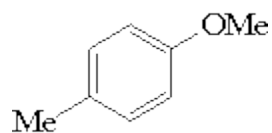


- A. 1-amino-3-bromobenzene
- B. *m*-bromoaniline
- C. 3-bromoaniline
- D. 3-bromoanisole
- E. More than one name is correct.

17. Which compound below is aromatic?

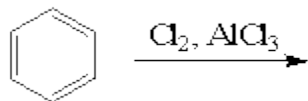


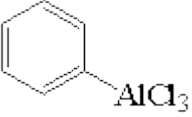
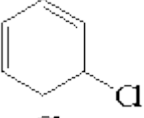
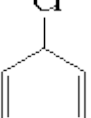
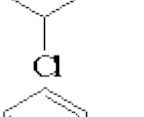
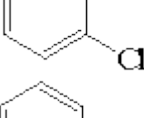
- B. 
- C. 
- D. 
- E. 



- A. *p*-methylanisole
- B. *p*-methoxytoluene
- C. 1-methoxy-4-methylbenzene
- D. *p*-methylaniline
- E. None of the above names are correct.

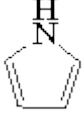
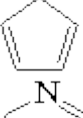
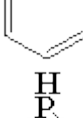

18. Predict the product of the following reaction.



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

19. Provide an appropriate name for the following compound.

20. Which of these compounds is basic?

- A. 
- B. 
- C. 
- D. 
- E. No way to determine.