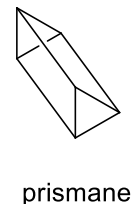
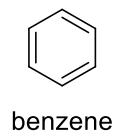
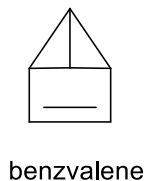
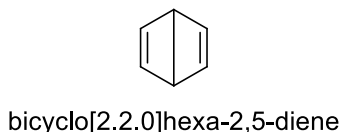


WORKSHOP, Chapter 11
Aromaticity and Aromatic Reactions

1. The following are some of the structures proposed for benzene over the years. All of them have been synthesized and are known to revert to benzene when warmed. With the help of arrows show how each of these rearranges to benzene.



2. Provide reasonable explanation for the following observations:

a. Pyridine and pyrrole exhibit the properties of typical aromatic compounds. Pyridine is commonly used as a base; the pK_a of the corresponding conjugate acid is 5.29. On the other hand, pyrrole is not basic; the pK_a of the corresponding conjugate acid is -4.4.

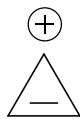


Pyridine



pyrrole

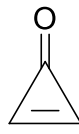
b. Despite the ring strain, cyclopropenium ion represents one of the most stable carbocations known. Explain this stability. Predict chemical properties for cyclopropene and cyclopropenone.



cyclopropenium ion



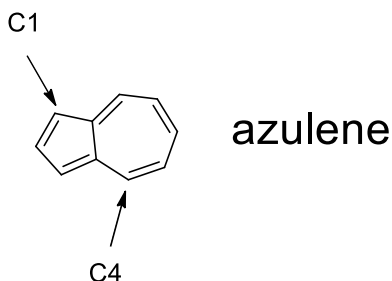
cyclopropene



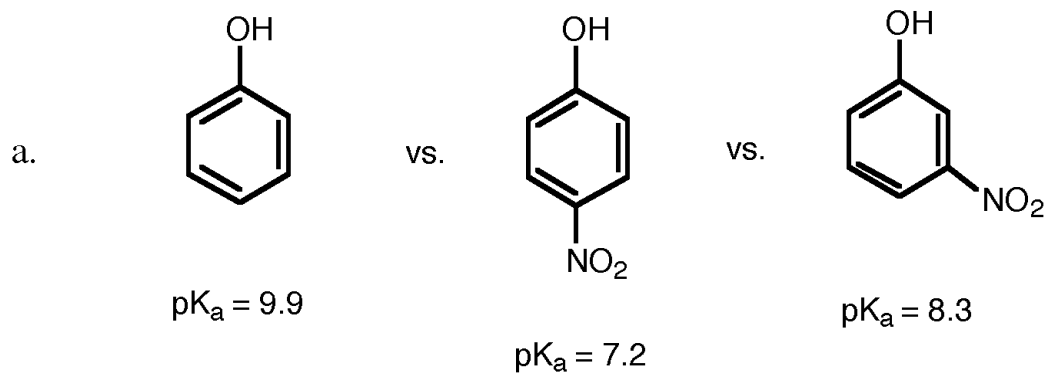
cyclopropenone

3. Explain these interesting properties of azulene with aromaticity in charged molecules.

Azulene readily attacks electrophiles at C1. However, azulene is attacked by nucleophiles at C4. You will need to show the mechanism and resonance structures to understand this question.



4. Explain the differences in acidity.



5. What are the products from the following reaction?

