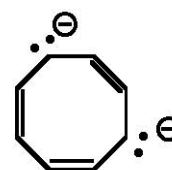
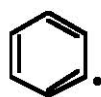
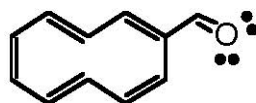
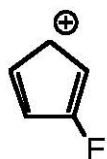
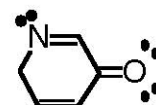
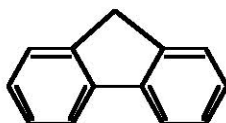
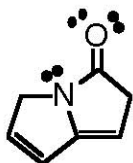
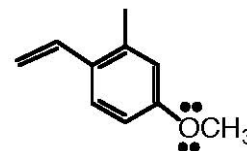
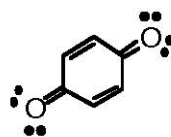
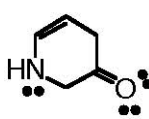
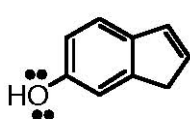
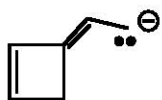
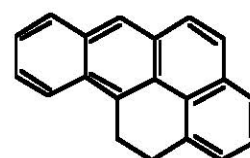
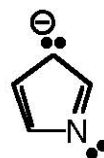
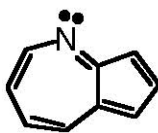
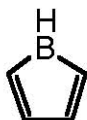
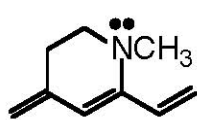


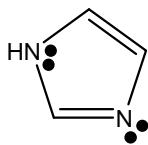
## Chapter 16 Worksheet

1. For each compound below, state the number of  $\pi$ -electrons in the conjugated cycle, if any, and state whether the compound is aromatic, antiaromatic, or non-aromatic.

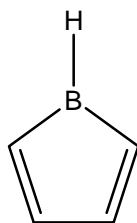


2. For each compound below, state the number of  $\pi$ -electrons in the conjugated cycle, if any, and state whether the compound is aromatic, antiaromatic, or non-aromatic. Show how the  $\pi$ -electrons are delocalized by drawing all the significant resonance structures for each compound.

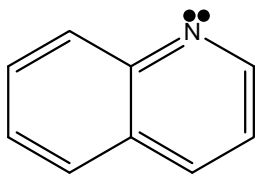
a.



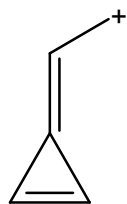
b.



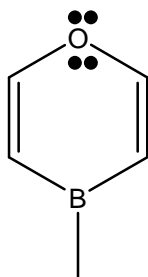
c.



d.



e.



**3. Draw the following compounds.**

(a) m-vinylbenzoic acid

(b) p-bromophenol

(c) o-(3,5-dinitrophenyl)toluene

(d) 3,4-dichloro-N,N-diethylaniline