

Benzene And Aromaticity

from chapter(s) _____ in the recommended text

A. Introduction

B. Common Aromatic Compounds

to smell.

differently to

a catalyst.



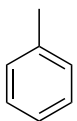
benzene



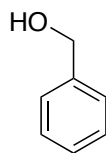
pyridine



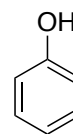
furan



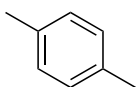
toluene



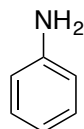
benzyl alcohol



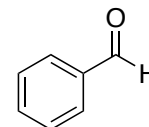
phenol



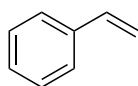
para-xylene



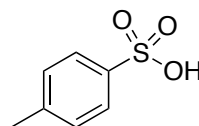
aniline



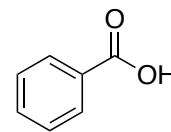
benzaldehyde



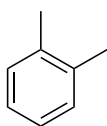
styrene



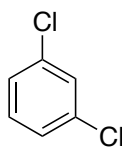
tosic acid



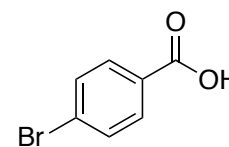
benzoic acid



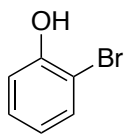
1,2-dimethylbenzene



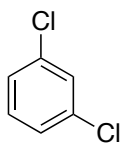
meta-dichlorobenzene



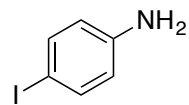
para-bromobenzoic acid



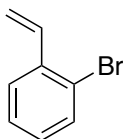
ortho-bromophenol



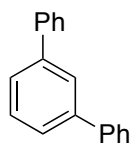
1,3-dichlorobenzene



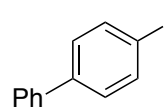
4-iodoaniline



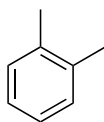
2-bromostyrene



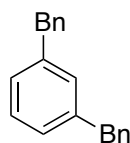
1,3-diphenylbenzene



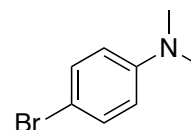
para-phenyliodobenzene



ortho-Me₂C₆H₄

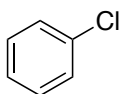


1,3-Bn₂C₆H₄

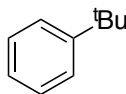


para-(Me₂N)BrC₆H₄

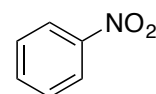
ie toluene.



chlorobenzene

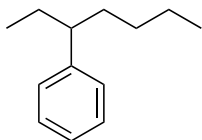


tert-butylbenzene

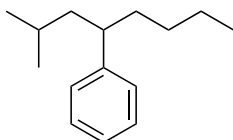


nitrobenzene

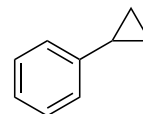
do not
lipophilic



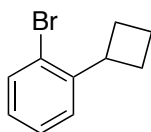
3-phenylheptane



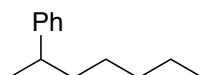
2-methyl-4-phenyloctane



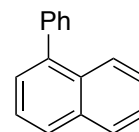
phenylcyclopropane



1-bromo-2-cyclobutylbenzene

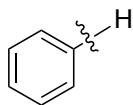


2-phenylheptane

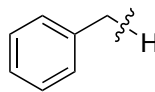


1-phenylnaphthalene

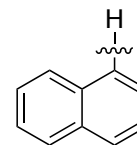
correct name: **cyclopropylbenzene** .



phenyl group in benzene



benzyl group in toluene



1-naphthyl group in naphthalene

C. Heats Of Hydrogenation And Aromaticity

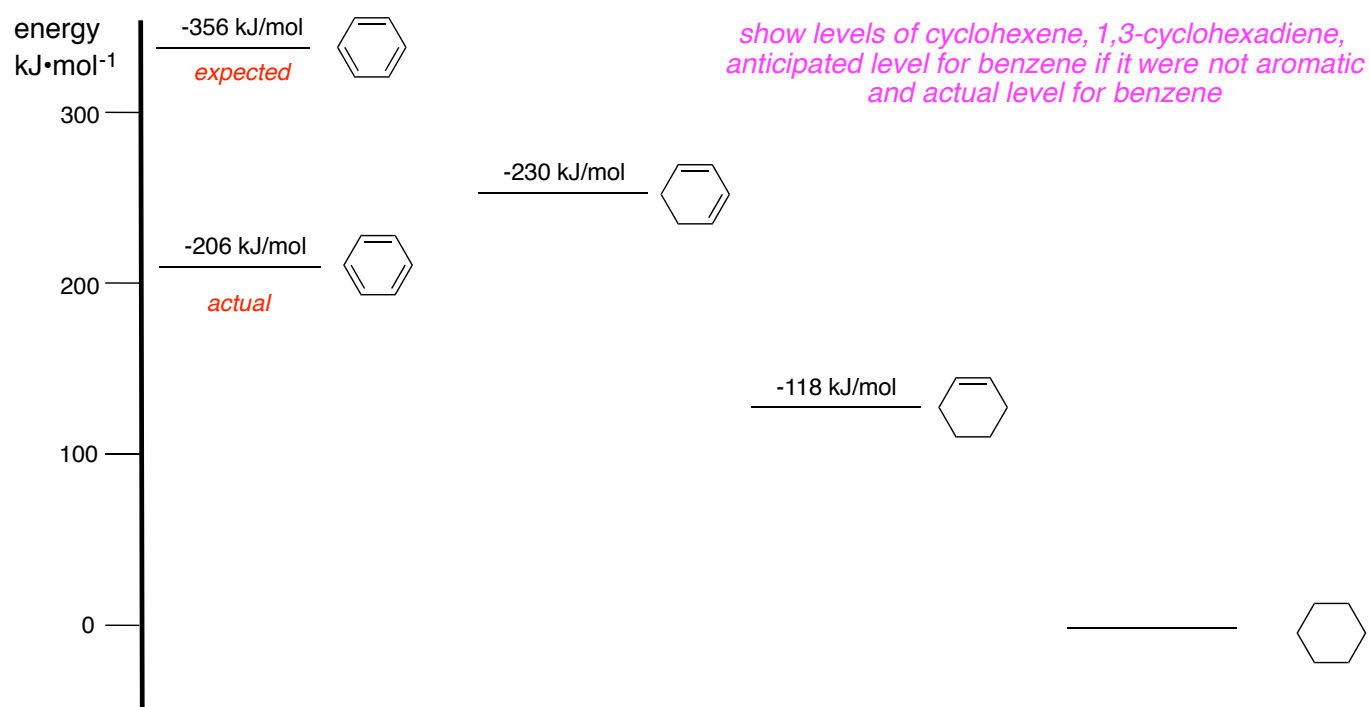
liberated

can

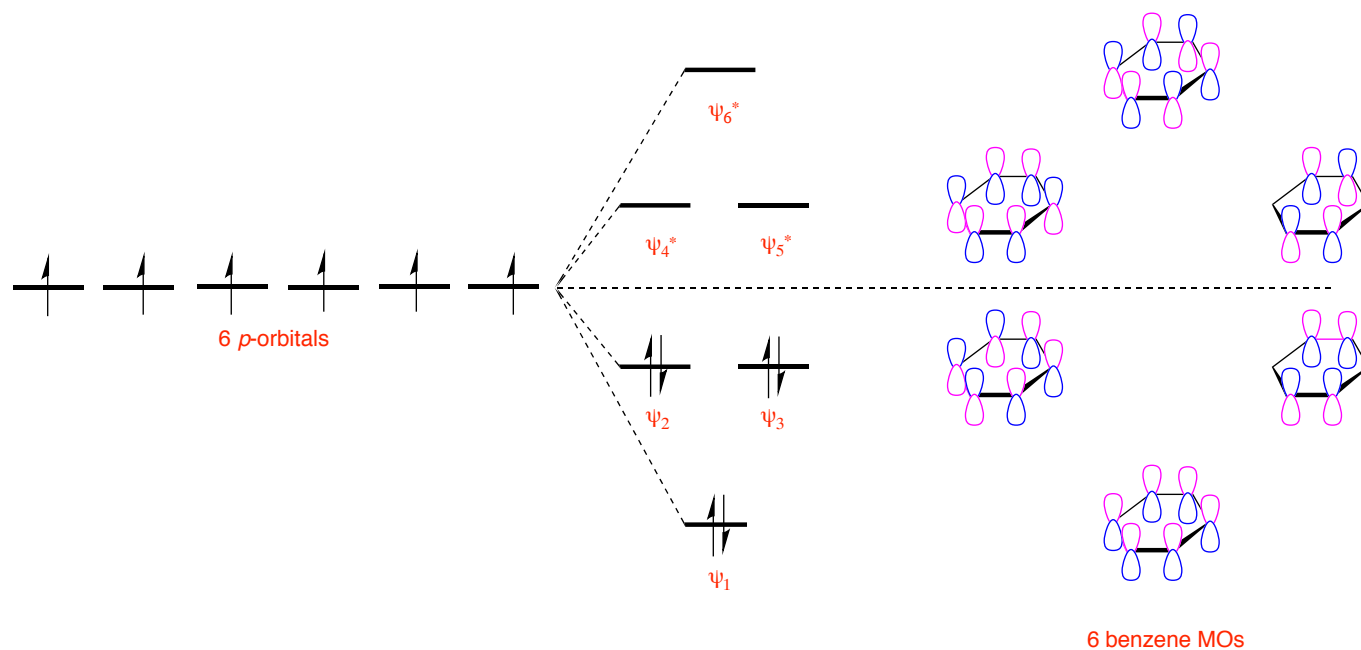
more

less than expected.

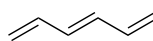
Cyclohexane



120°; each carbon is sp²
equal.

12 molecular orbitalscyclic, conjugated, planarThe Hückel Rule

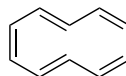
aromatic because it has $\{4(1)+2\} = 6$ π -electrons, follows Huckel Rule.



not aromatic because this is not cyclic compound.



aromatic because it has $\{4(1)+2\} = 6$ π -electrons, follows Huckel Rule.



aromatic because because it has $\{4(2)+2\} = 10$ π -electrons, follows Huckel Rule.



not aromatic because it has 4 π -electrons, does not follow Huckel Rule.



not aromatic because it has 4 π -electrons, does not follow Huckel Rule.



not aromatic because it has 4 π -electrons, does not follow Huckel Rule.



not aromatic because of nonplanarity of the methylene bridge



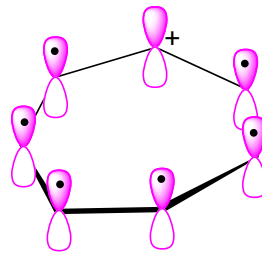
not aromatic because it has 8 π -electrons, does not follow Huckel Rule.



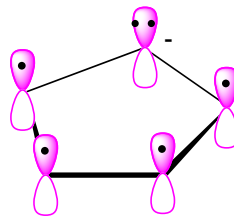
aromatic because the cation on methylene bridge gives planar structure and 6 π -electrons follow Huckel Rule.

D. Predicting Aromaticity

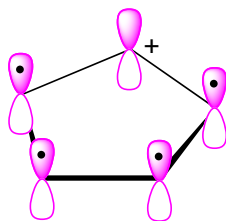
Carbocycles



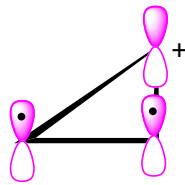
aromatic.



5 resonance structures
is non-aromatic.

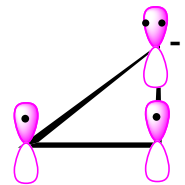


is aromatic.

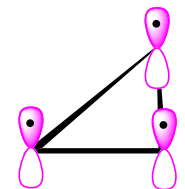


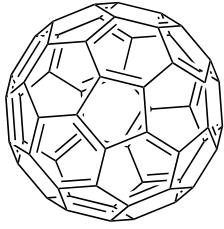
3 resonance
flat.

\ non-aromatic.

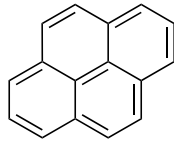


non-aromatic.

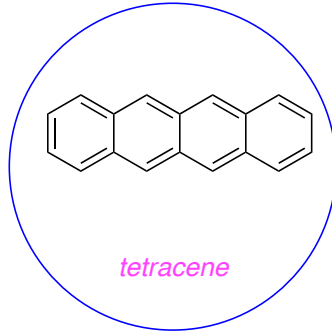




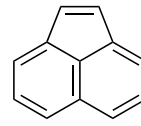
C₆₀



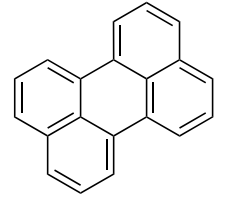
pyrene



tetracene



acenaphthalene



perylene

is not