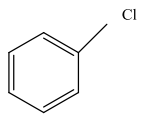
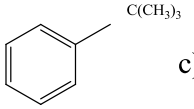
CHAPTER 15 (Benzene and Aromaticity - Practice Exercises)

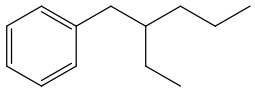
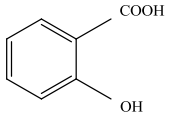
1. Which of the following has the ***highest boiling point***? Explain your answer.

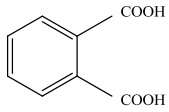
a) Benzene	Toluene	o- Xylene	p- Xylene
b) Aniline	m-Xylene	Toluene	Benzene
c) Toluene	Benzaldehyde	Benzonitrile	Benzene

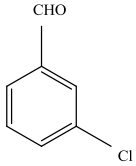
2. Give the proper ***IUPAC*** name for each of the compounds shown below.

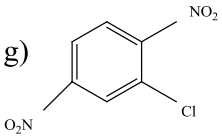
a) 

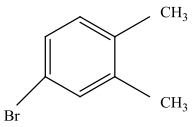
b) 

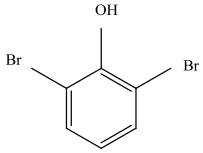
c) 
d) 

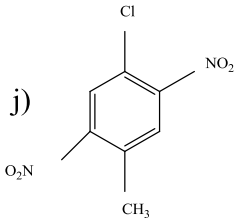
e) 

f) 

g) 

h) 

i) 

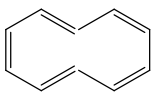
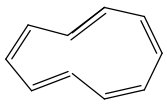
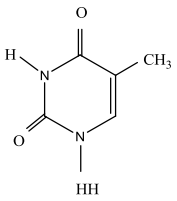
j) 

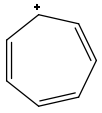
3. Draw the structure corresponding to each of the following ***IUPAC*** names.

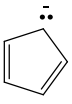
a) Ortho-bromopropylbenzene	b) 2, 3, 5-trinitrophenol	c) 1-fluoro-2, 4- dinitrobenzene
d) (1-bromoethyl) benzene	e) 2-methyl-6-phenylheptane	f) 1-Bromo-2,4-diethylbenzene
g) Sulfanilic acid	h) Benzaldehyde	i) Benzyl bromide j) Vinyl benzene

4. Determine how many **monobromo** and **dibromo derivatives** constituents responsible for 1, 3-cyclopentadine.

5. Determine if each of the compounds shown below is(are) expected to be ***aromatic***, based on the Hukle (4n+2) criteria.

a) 
b) 
c) 

d) 

e) 

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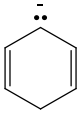
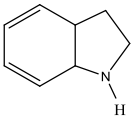
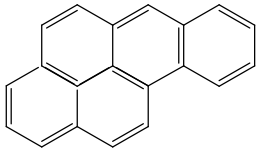
g) 

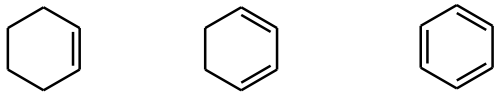
h) 

i) 

j) 

6. Give four reasons for ***unusual stability*** of benzene.

7. Compare the **stability** of cyclohexene, 1, 3-cyclohexadiene, and benzene bases on **heat of hydrogenation**.



8. What are the aromaticity conditions. Give an example of **aromatic** compound, **anti-aromatic**, and **non-aromatic** compound.

9. What are the aromatic **heterocycles aromatic** and **polycyclic aromatic** compounds? Given examples of heterocyclic and polycyclic compounds.

10. What type of reactions benzene and benzene derivatives typically undergo? Provide at least two examples.