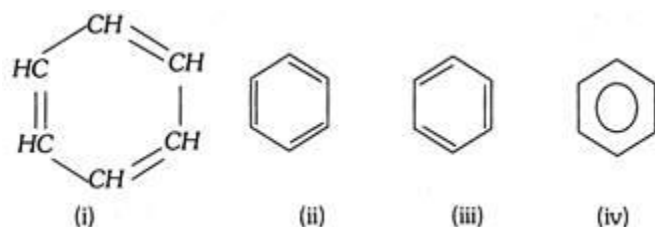


## Nomenclature of Simple Aromatic Compounds:

Aromatic compounds are those which contain one or more benzene rings in them. An aromatic compound has two main parts: (1) Nucleus, (2) Side chain

(1) Nucleus: The benzene ring represented by regular hexagon of six carbon atoms with three double bonds in the alternate positions is referred to as nucleus. The ring may be represented by any of the following ways,



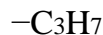
(2) Side chain : The alkyl or any other aliphatic group containing at least one carbon atom attached to the nucleus is called side chain. These are formed by replacing one or more hydrogen atoms in the ring by alkyl radicals i.e., R (R may be



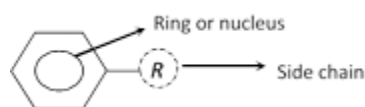
,



,



etc.)



If one atom of hydrogen of benzene molecule is replaced by another atom or group of atoms, the derivative formed is called monovalent substituted derivative. It can exist only in one form because all the six hydrogens of benzene represent equivalent positions. For example, C<sub>6</sub>H<sub>5</sub>X, where X is a monovalent group.

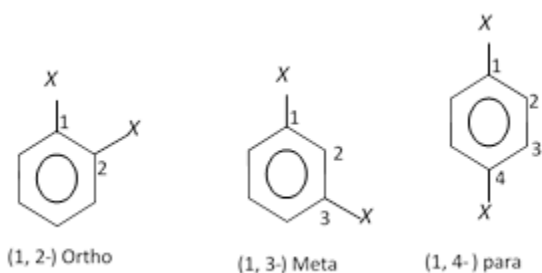
When two hydrogen atoms of benzene are replaced by two monovalent atoms or group of atoms, the resulting product disubstituted benzene derivative can have three different forms. These forms are distinguished by giving the numbers. The position occupied by the principle functional group is given as 1 and the other position is numbered in a clockwise direction which gives lower locant to the substituents.

(i) Ortho (or 1, 2-) : The compound is said to be ortho (or 1, 2-) if the two substituents are on the adjacent carbon atoms.

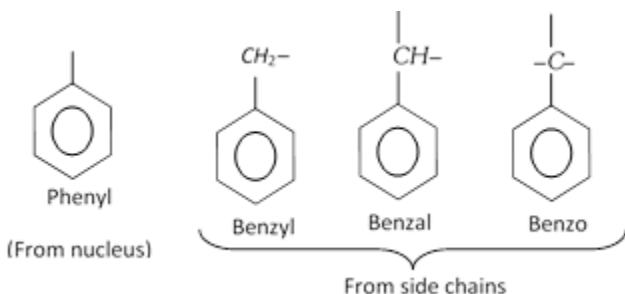
(ii) Meta (or 1, 3-) : The compound is said to be meta or (1, 3-) if the two substituents are on alternate carbon atoms.

(iii) Para (or 1, 4-) : The compound is said to be para or (1, 4-) if the two substituents are on diagonally situated carbon atoms.

Ortho, meta and para are generally represented as o-, m- and p- respectively as shown below,

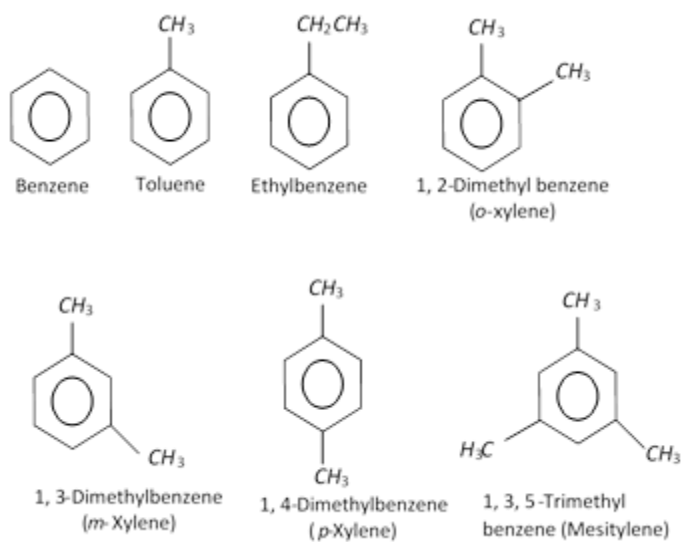


Aryl group: The radicals obtained by removal of one or more hydrogen atoms of the aromatic hydrocarbon molecules are known as aryl radicals or aryl groups. For example,

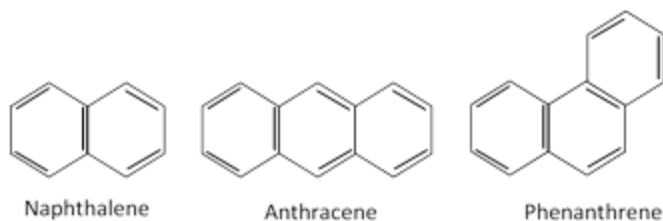


**Nomenclature of different aromatic compounds :** The names of few simple aromatic compounds are given below :

### Hydrocarbons

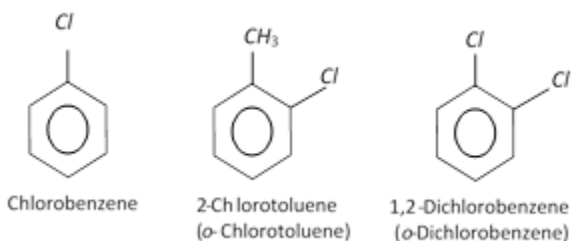


The aromatic hydrocarbons may also contain two or more benzene rings condensed together.

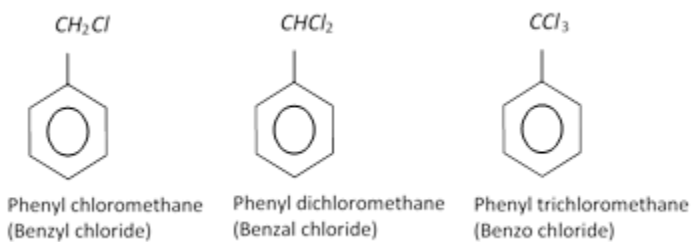


## Halogen derivatives

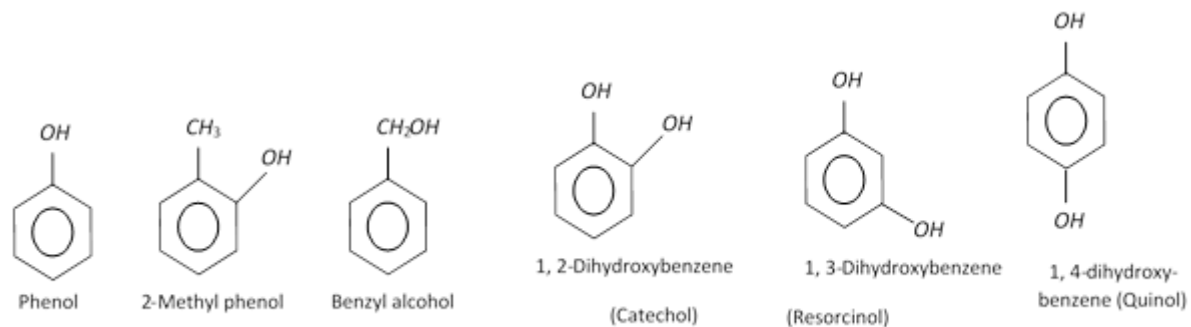
Nuclear substituted



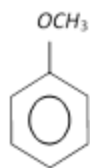
Side chain substituted



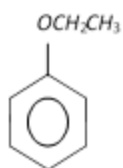
## Hydroxy derivatives



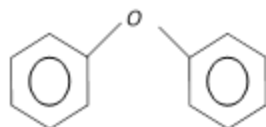
## Ethers



Methoxybenzene  
(Anisole)

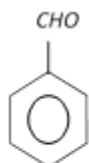


Ethoxybenzene  
(Phenetole)

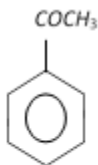


Phenoxybenzene

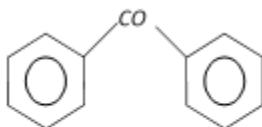
### Aldehydes and ketones (Nuclear substituted)



Benzaldehyde

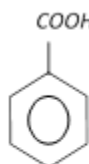


Methyl phenyl ketone  
(Acetophenone)

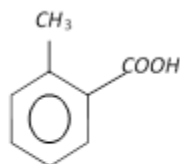


Diphenyl ketone  
(Benzophenone) or  
diphenyl methanone

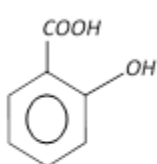
### Carboxylic acids (Nuclear substituted)



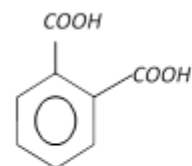
Benzoic acid



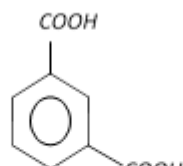
*o*-Toluic acid



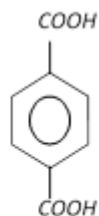
2-Hydroxy benzoic acid  
(*o*-salicylic acid)



Phthalic acid  
(1,2 benzene  
dicarboxylic acid)

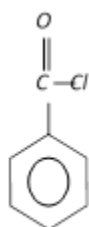


Isophthalic acid  
(1,3 benzene  
dicarboxylic acid)

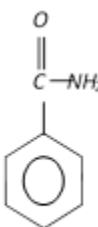


Terephthalic acid  
(1,4 benzene  
dicarboxylic acid)

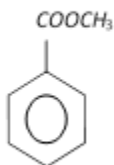
### Acid derivatives



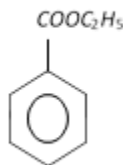
Benzoyl chloride



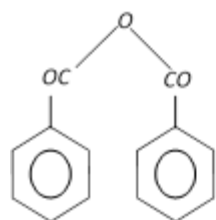
Benzamide



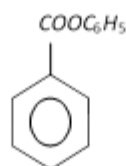
Methyl benzoate



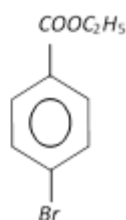
Ethyl benzoate



Benzoic anhydride



Phenyl benzoate

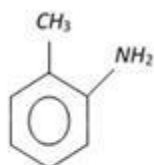


Ethyl 4-bromobenzoate

### Amino derivatives (Nuclear substituted)



Aniline (Aminobenzene)

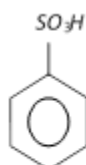


2-Amino toluene  
or  
o-Toluidine



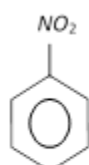
Benzyl amine  
or phenyl  
methanamine

### Sulphonic acids

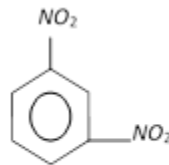


Benzene sulphonic acid

### Nitro derivatives



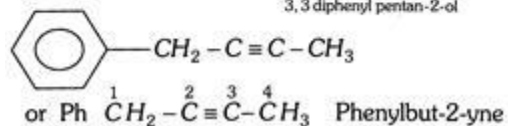
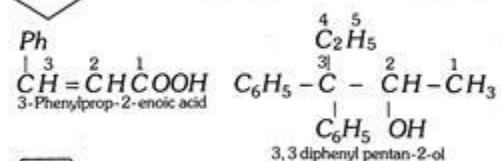
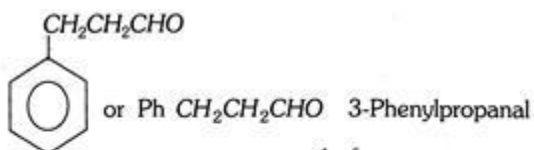
Nitrobenzene



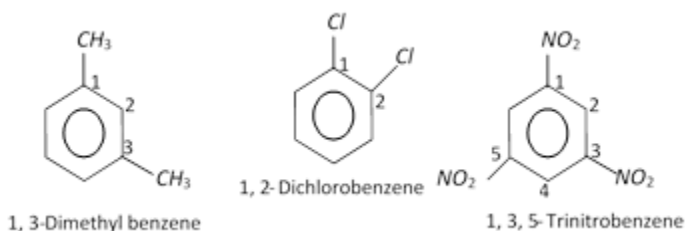
1, 3-Dinitrobenzene  
(*m*-Dinitrobenzene)

**Some tips for nomenclature of aromatic compounds :** For IUPAC nomenclature of substituted benzene compounds, the substituent is placed as prefix to the word benzene. It may be noted that common names of many substituted benzene compounds are still universally used. Some important tips for nomenclature of organic compounds are given below,

(i) When the benzene ring is named as substituent on the other molecule, it is named as phenyl group. It is treated in the nomenclature just like the name of an alkyl group. It is abbreviated as Ph. For example,



(ii) Disubstituted, trisubstituted or tetrasubstituted benzenes are named by using the numbers for the positions of the substituents.

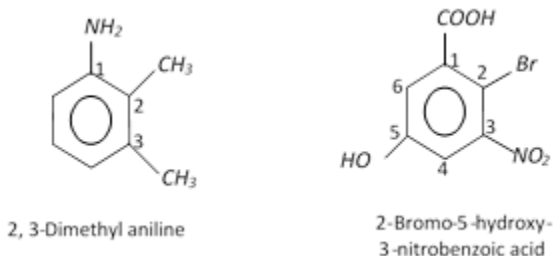
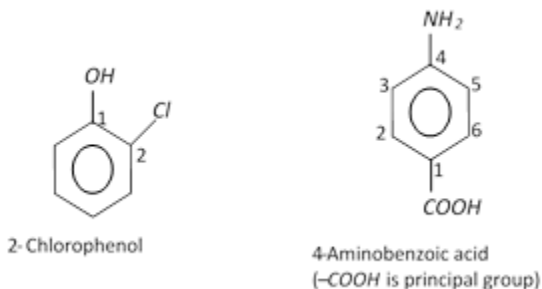


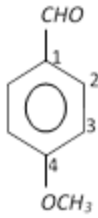
(iii) If different groups are attached to the benzene ring, then the following rules are kept in mind,

(a) The principal group is fixed as number 1.

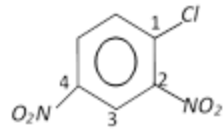
(b) The numbering of the chain is done in any direction (clockwise or anticlockwise) which gives lower number to the substituents.

(c) The substituents are written in alphabetical order. For example,

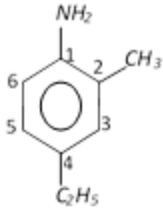




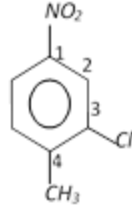
4-Methoxy benzaldehyde



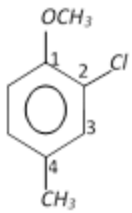
1-Chloro, 2, 4, dinitrobenzene



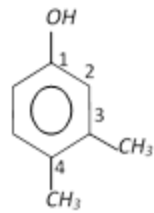
4-Ethyl-2-methylaniline



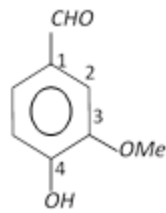
3-Chloro-4-methyl nitrobenzene



2-Chloro-4-methyl anisole



3, 4-Dimethylphenol



4-Hydroxy-3-methoxy benzaldehyde