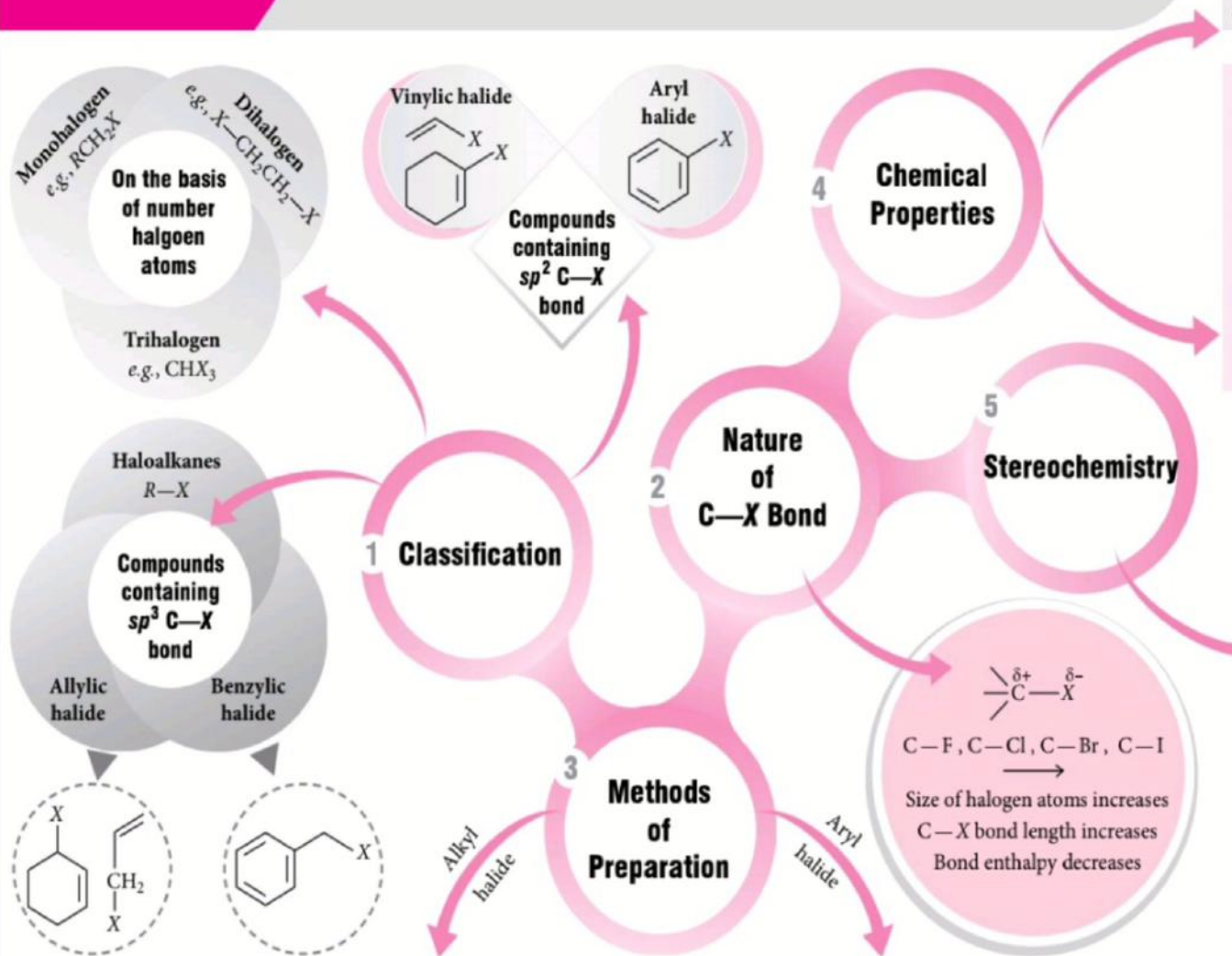
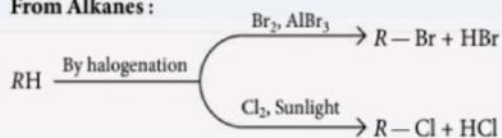


CONCEPT MAP

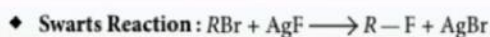
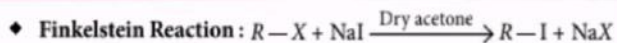
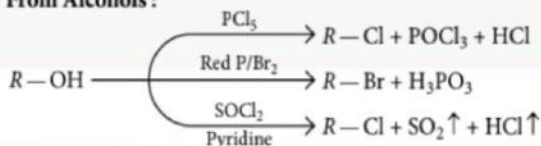
HALOALKANES AND HALOARENES



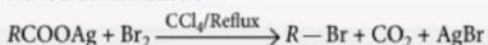
From Alkanes :



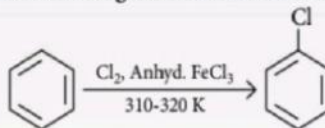
From Alcohols :



Hunsdiecker Reaction :

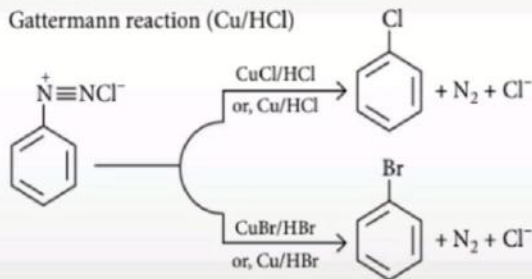


Direct halogenation of aromatic hydrocarbons :

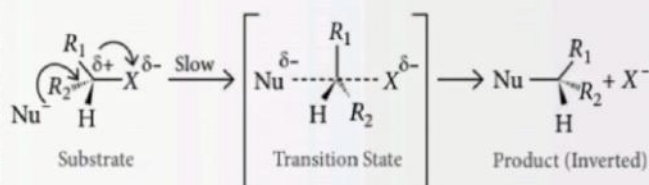
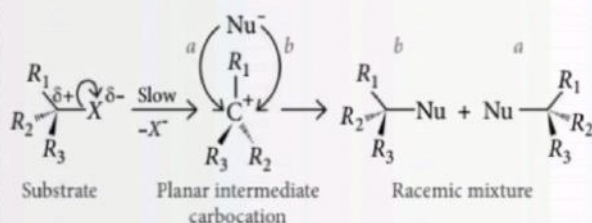


From diazonium salts :

Sandmeyer's reaction (CuCl/HCl) and Gattermann reaction (Cu/HCl)



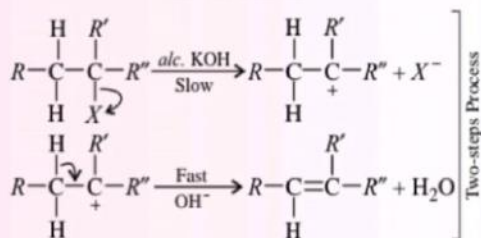
Nucleophilic Substitution Reactions



Elimination Reactions

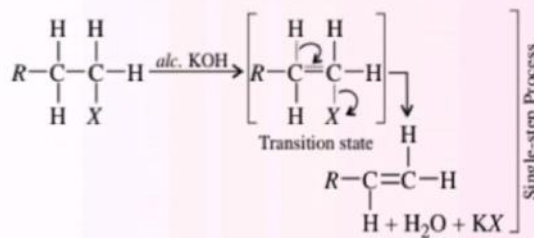
Alkyl halides undergo β -elimination reaction in the presence of potassium hydroxide in ethanol (high temperature) to yield alkenes.

E1 mechanism



Rate = k [Alkyl halide]

E2 mechanism



Rate = k [Alkyl halide] [base]

Optical Activity

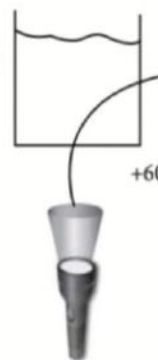
Plane polarised light produced by passing ordinary light through nicol prism is rotated when it is passed through the solutions of certain compounds. Such compounds are called optically active compounds.

Chirality:

The objects which are non-superimposable on their mirror images are said to be chiral.

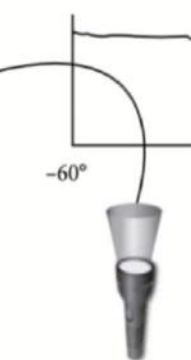
The direction and magnitude of rotation must be determined experimentally. There is no correlation between (R) and (S) configuration and the direction of rotation.

Chiral Solution



Clockwise rotation = dextrorotatory (d) or (+)

Chiral Solution



Counterclockwise rotation = laevorotatory (l) or (-)

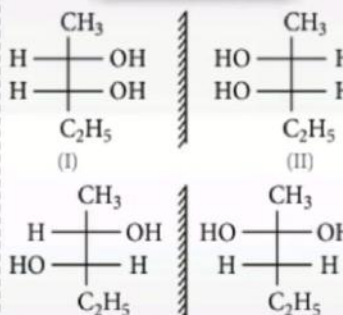
Enantiomers:

Compounds having non-superimposable mirror images with same physical and chemical properties.



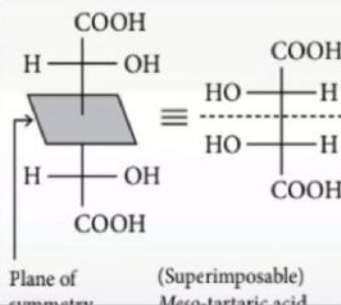
Diastereomers:

Compounds which are not mirror images (I and III, II and IV) of each other with different physical properties but same chemical properties.



Meso compounds:

These are optically inactive compounds as there exists a plane of symmetry which divides the molecule into two identical halves.



Racemic mixture:

A mixture of equal amounts of two enantiomers is called racemic mixture or racemic modification.

A racemic mixture is always optically inactive because the rotation caused by the molecules of one enantiomer is exactly cancelled by equal and opposite rotation caused by the same number of molecules of the other enantiomer. It is represented by prefixing dl or (\pm) before the name. For example, (\pm)butan-2-ol.