

HALOALKANES AND HALOARENES

Topic :-

Classification (LECTURE -1)

CHEMISTRY

* BASED ON N C E R T PATTERNS *

Class - XII

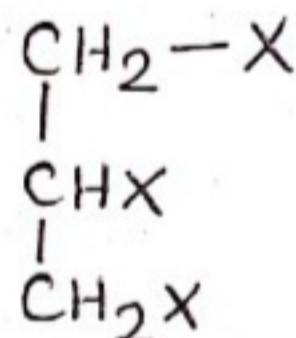
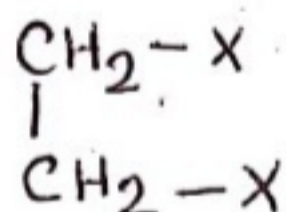
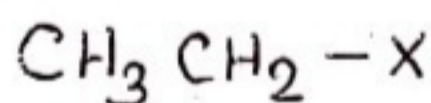
(Organic Portion)

Unit - 10

* HALOALKANES *

Halogen derivative of alkane is known as Haloalkane.

example,



(X = Any Halogen
= F, Cl, Br, I)

CLASSIFICATION OF HALOALKANES ON THE BASIS OF NO. OF HALOGEN ATOM

1. MONOHALOALKANE :-

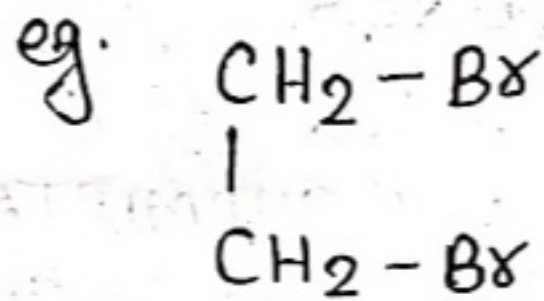
mono = one

* Mono halogen derivative of alkane is known as monohaloalkane.

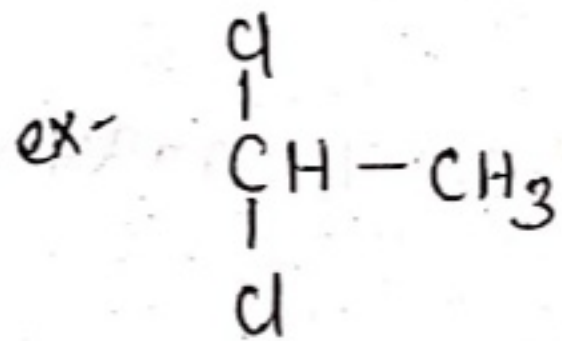
eg. CH_3Cl , $\text{CH}_3-\text{CH}_2-\text{Cl}$, $\text{CH}_3-\underset{\text{Br}}{\text{CH}}-\text{CH}_3$ etc.

2. DIHALOALKANE (Di = Two)

Dihalogen derivative of alkane is known as Dihalohaloalkane.



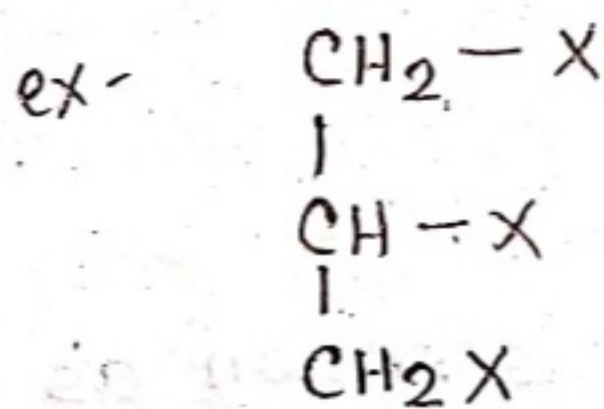
* Dihalalkane having the same type of halogen atoms are named as alkylidene or alkylene dihalide.



* Two same type of halogen atoms on same carbon called geminal dihalide.

* Two same type of halogen atoms on adjacent carbon = vicinal dihalide.

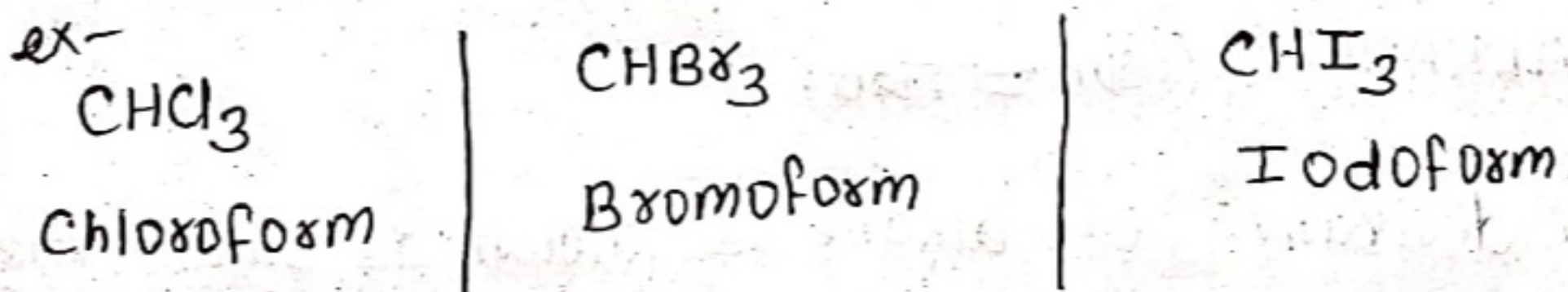
3. TRIHALOALKANE : Haloalkane contains three Halogen atoms in their structure.



Note :-

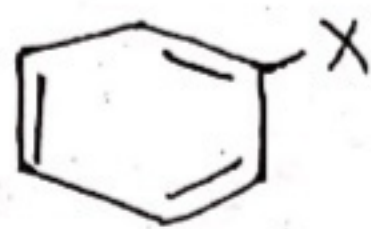
Trihalogen derivative of methane is known as

Halofom.

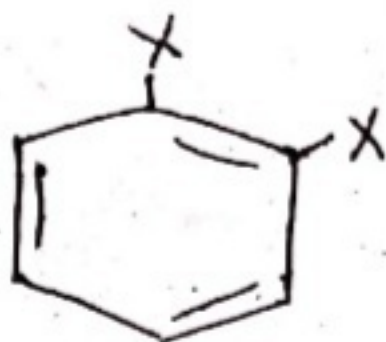


* HALOARENE *

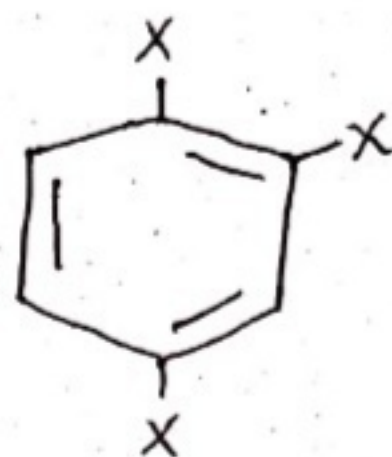
Halogen derivative of Benzene is known as Haloarene.
example ;



monohaloarene



Dihaloarene



Trihaloarene

Monohalo Compounds are further classified :::

On the basis of Hybridisation of Carbon to which Halogen attached : ---

Compound containing $\text{C}-\text{X}$
 sp^3

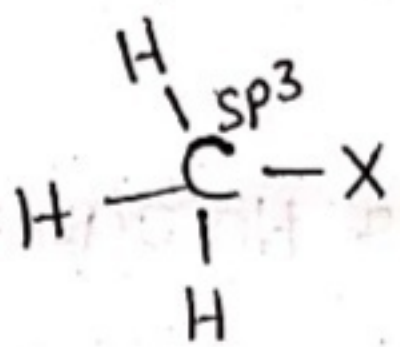
1. Alkyl halide (Haloalkane)
2. Allylic halide
3. Benzylic halide

~ ALKYL HALIDE ~

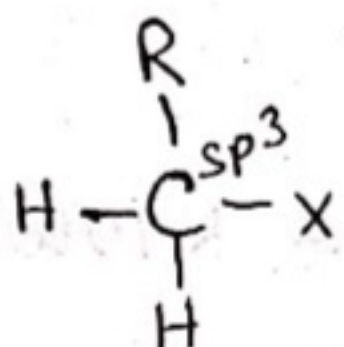
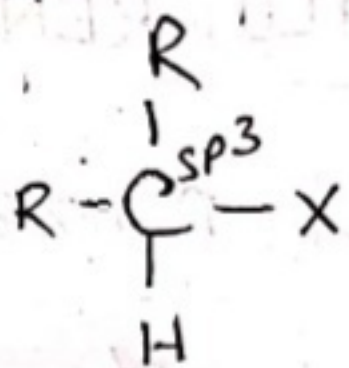
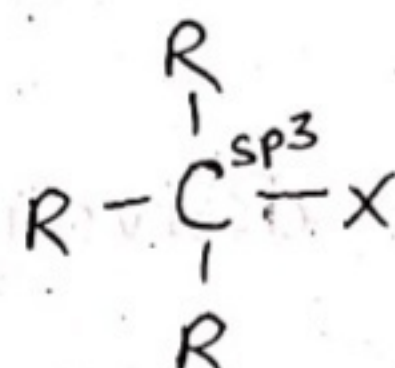
* Halogen atom is bonded to alkyl group.

* General Formula $(\text{C}_n\text{H}_{2n+1})\text{X}$

* Alkyl halide are further classified as primary, secondary, tertiary according to nature of carbon to which halogen attached.

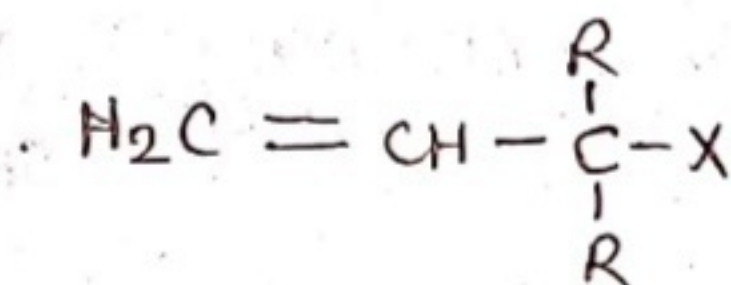
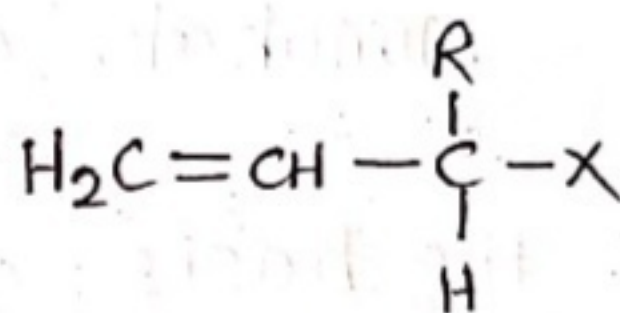
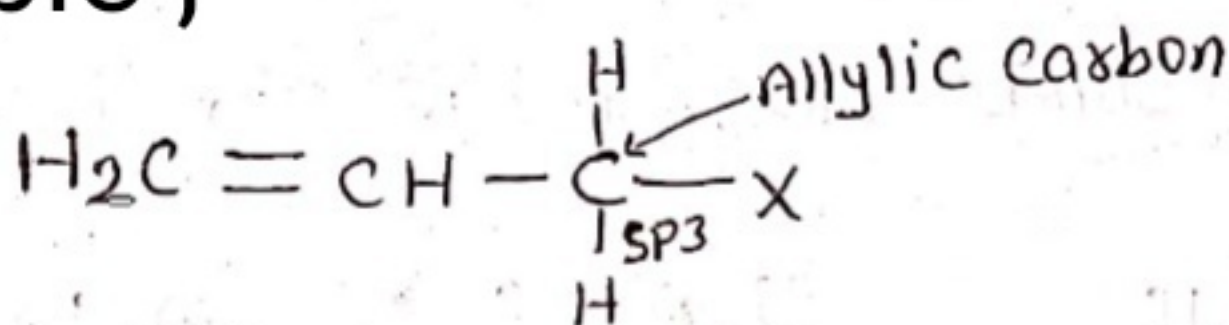


methyl halide

primary alkyl
halide (1°)secondary alkyl
halide (2°)Tertiary alkyl
halide (3°)

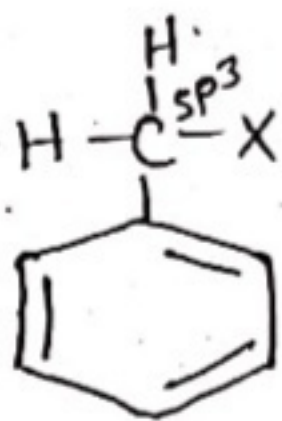
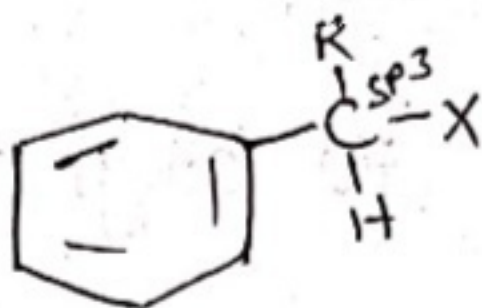
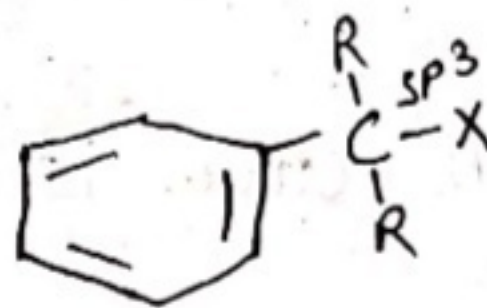
~ ALLYLIC HALIDE ~

example;



These are the compounds in which the halogen atom is bonded to an sp^3 -hybridised carbon atom next to carbon-carbon double bond ($\text{C}=\text{C}$) i.e. to an allylic carbon.

~ BENZYLIC HALIDE ~

 (1°)  (2°)  (3°)

* These are the compounds in which the halogen atom is bonded to an sp^3 -hybridised carbon atom next to an aromatic ring.

To be continued in next lecture..