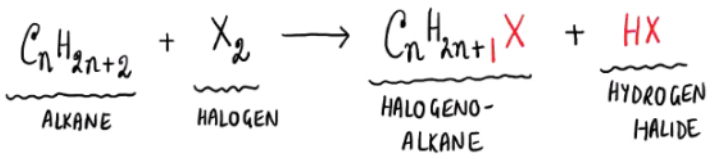
#3 ORGANIC-CHEMISTRY

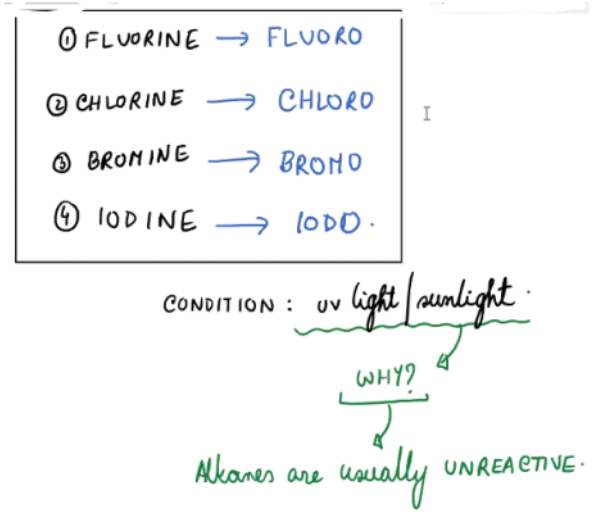
CHEMICAL REACTIONS OF ALKANES

2. **SUBSITUTION REACTION -**
   In this reaction, we react a Halogen with an Alkane or a derivative of Alkane. During this reaction, a halogen atom substitutes a hydrogen atom from an alkane or a derivative of alkane.



Condition : UV light / Sunlight

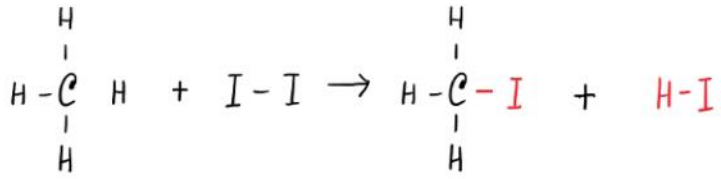
NOTE:
The reaction between an Alkane and a Halogen is called **Substitution** / **Halogenation** reaction.
The reaction between a derivative of Alkane and a Halogen is called **Substitution** reaction.



EXAMPLE:

① METHANE + IODINE ⟶ IODOMETHANE + HYDROGEN IODIDE

$$CH_4 + I_2 \longrightarrow CH_3I + HI$$

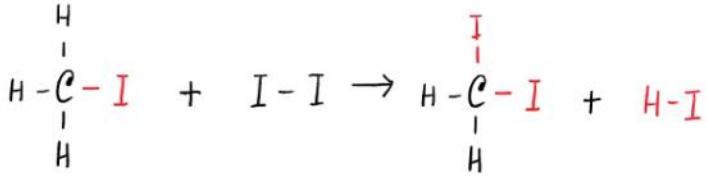


TYPE : Substitution / Halogenation reaction

CONDITION : UV light / sunlight

IODOMETHANE + IODINE ⟶ DIIODOMETHANE + HYDROGEN IODIDE

$$CH_3I + I_2 \longrightarrow CH_2I_2 + HI$$

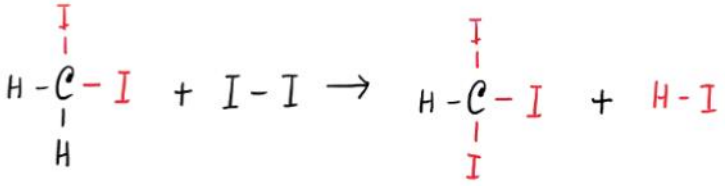


TYPE : Substitution reaction

CONDITION : UV light / sunlight

DIIODOMETHANE + IODINE ⟶ TRIIODOMETHANE + HYDROGEN IODIDE

$$CH_2I_2 + I_2 \longrightarrow CHI_3 + HI$$

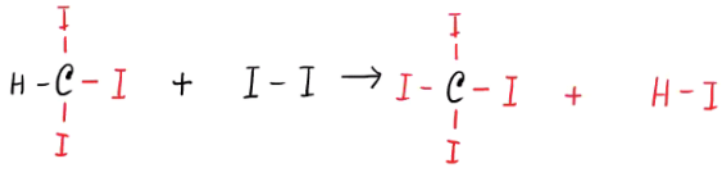


TYPE : Substitution reaction

CONDITION : UV light / sunlight

TRIIODOMETHANE + IODINE ⟶ TETRAIODOMETHANE + HYDROGEN IODIDE

$$CHI_3 + I_2 \longrightarrow CI_4 + HI$$



TYPE : Substitution reaction

CONDITION : UV light / sunlight

$$C_5H_{12} + Br_2 \longrightarrow ?$$

$$C_5H_{12} + Br_2 \longrightarrow C_5H_{11}Br + HBr$$

METHANE + CHLORINE

METHANE + BROMINE

* WORD eqn
* chem
* displayed
* TYPE
* CONDITION