

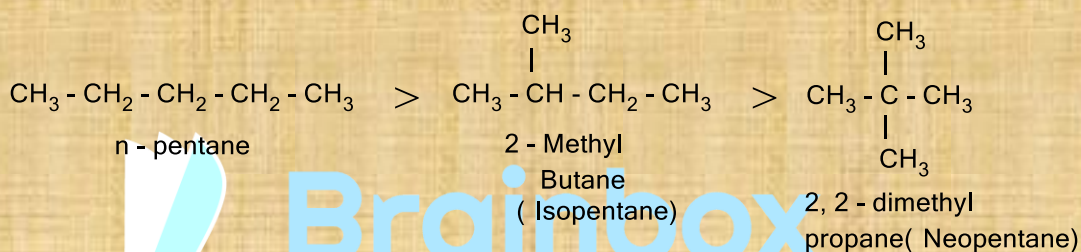
CHAPTER 13

HYDROCARBONS

Physical properties:

- First four members (C_1 to C_4) are gases. C_5 to C_{17} are liquids and higher ones are solids.
- They are non-polar molecules. Hence, they are insoluble in water and melting and boiling points are low and increases with increase in no. of carbon atoms.
- Among isomeric alkanes, increase in branching decreases boiling point.

Ex. Isomers of pentane.

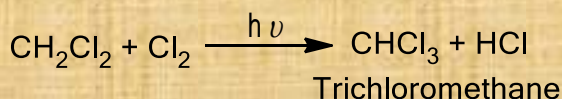
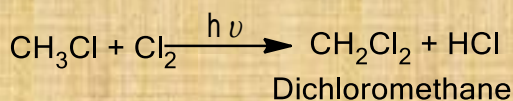
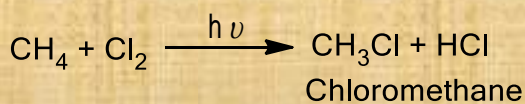


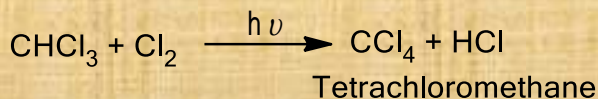
Chemical properties:

Substitution reactions:

Alkanes shows substitution reactions by replacing one or more no. of hydrogen atoms.

Ex. Chlorination of methane



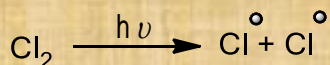


Halogenation of alkanes takes place via free radical mechanism.

Mechanism:

i) Initiation:

Chlorine molecule undergoes homolytic cleavage to form free radicals.



ii) Propagation:

Chlorine radical attacks methane molecule, generates another radical, which propagates the reaction.



iii) Termination:

Reaction is terminated when free radical are consumed.

