PHARMACEUTICAL ORGANIC CHEMISTRY-II- BP301T

UNIT: 5 Cycloalkanes

CLASS: 3

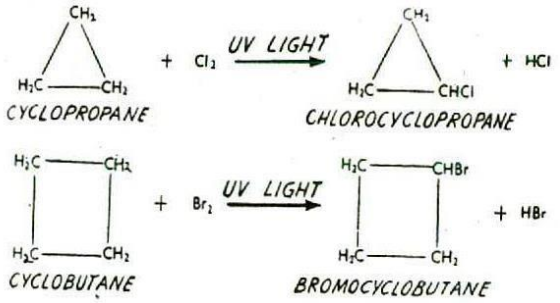
TOPIC: Cycloalkanes

CHEMICAL REACTIONS

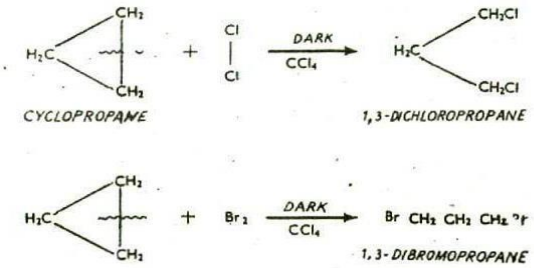
Cyclo-alkanes react mostly like their corresponding to their straight chain alkanes.

1. **Halogenation in presence of UV-light:-** Produce mono substituted halogen without breaking the ring.

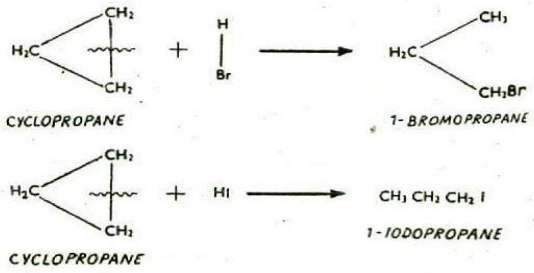
EX-



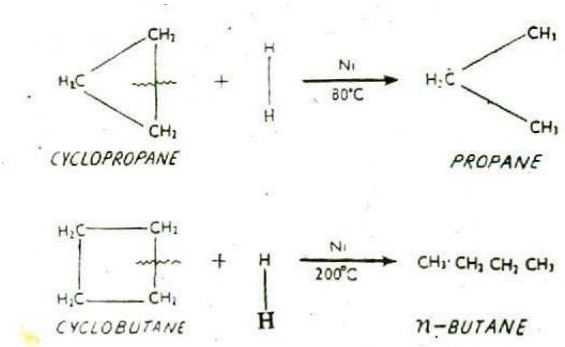
2. **Addition of Cl_2/ Br_2 in presence of CCl_4 in dark:-**Cyclopropane reacts with Cl_2/ Br_2 at room temperature and in the absence of diffused sunlight to produce I,3-dichlorocyclopropane and 1,3-dibromocyclopropane respectively. One of the carbon-carbon bonds of cyclopropane is broken and the two halogen atoms appear at the ends of the propane chain.



3. **Reaction with concentrated HBr and HI:-** Produce1-bromopropane and 1-iodopropane respectively with ring braking.



4. **Addition of Hydrogen / Catalytic Reduction:-** Cyclo-propane and cyclo-butane react with hydrogen in the presence of a nickel catalyst to produce n-propane and n-butane respectively. Cyclopentane and higher members of the family do not give this reaction.


CH2
H2C
CH2
CYCLOPROPANE
+
H
H
Ni
80°C
CH3
H2C
CH3
PROPANE
H2C
CH2
H2C
CH2
CYCLOBUTANE
+
H
H
Ni
200°C
CH3 CH2 CH2 CH3
n-BUTANE