PHARMACEUTICAL ORGANIC CHEMISTRY-II- BP301T

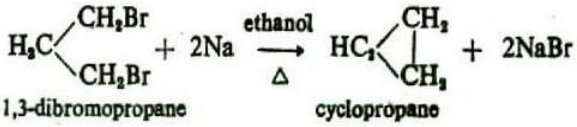
UNIT: 5 Cycloalkanes

CLASS: 2

TOPIC: Cycloalkanes

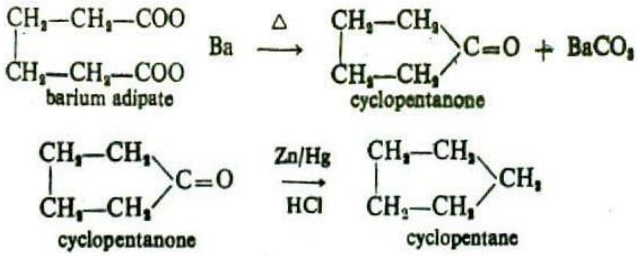
Methods of Preparation:

1. **From Di-halogen Compounds: -** Suitable 1,3 or 1,4 like di- halogen alkanes on treatment with sodium or zinc give corresponding cycloalkanes. For example



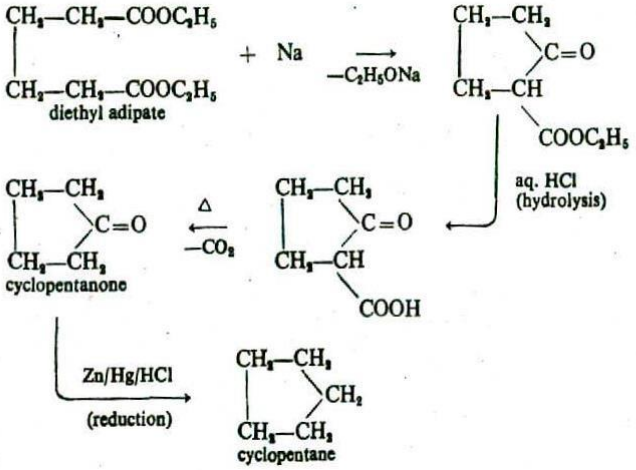
1,3-dibromopropane — cyclopropane

2. **From Calcium or Barium salts of Dicarboxylic acids: -** When the calcium or barium salt of adipic, pimelic, or suberic acid is heated, a cyclic ketone is formed. Cyclic ketones may be readily converted into the corresponding cycloalkanes by means of **the *Clemmensen*** *Reduction*.



barium adipate — cyclopentanone — cyclopentanone — cyclopentane

3. **From Esters of Dicarboxylic acids (Dieckmann Reaction): -** The diester of adipic, pimelic, or suberic acid when treated with sodium undergoes intramolecular acetoacetic ester condensation and a keto- ester is formed. The keto- ester on hydrolysis give corresponding cyclic ketones. Cyclic ketones on reduction yield the corresponding cyclo- ketones.



2. From Aromatic Compounds. Benzene may be catalytically hydrogenated at elevated temperature and pressure to yield cyclohexane.