INDIAN SCHOOL MUSCAT

CHEMISTRY DEPARTMENT

QUESTION BANK

Halo alkanes and Halo arenes

1 Define

(i) Chiral carbon

(ii) Chiral molecule

(iii) Enantiomer

(iv) Racemic mixture

2 Explain the following with suitable example

(i) Racemisation

(ii) Inversion of configuration

(iii) Retention of configuration

3 Give reasons:

(i) Thionyl chloride is best reagent for converting alcohols to haloalkanes.

(ii) Alkyl halides have higher boiling points than corresponding hydrocarbons

(iii) Benzylic and allylic halides follow S_N1 mechanism.

(iv) H_3PO_4 is used with KI for iodination of alcohols.

(v) Halogens are deactivating but ‘o, p’ directive.

(vi) Presence of electron withdrawing groups on benzene ring increases tendency of S_N reaction.

4 Write equation to illustrate

(i) Sandmeyer reaction

(ii) Finkelstein reaction

(iii) Swart's reaction

(iv) Wurtz reaction.

5 Explain with suitable example the following mechanism

(i) S_N1

(ii) S_N2

(iii) SN in aryl halides

6 What happens when:

(i) Chlorobenzene is treated with Mg in ether and then reacted with water

(ii) Cylcohexene is treated with Br_2 /uv light

(iii) Ethylbromide is treated with excess ammonia

(iv) Isopropylbromide is treated with sodium ethoxide

(v) Methyl bromide is treated with metallic sodium in ether

7 Bring about the following conversions:

(i) 2-methyl propene to 2-chloro-2-methylpropane

(ii) benzene to 4-bromo nitrobenzene

(iii) benzylalcohol to 2-phenylethanoic acid

(iv) ethanol to butane

(v) propene to 1-propanol

(vi) 1-bromopropane to 2-bromopropane

(vii) 2-bromopropane to 1-bromopropane

(viii) Benzene to biphenyl

(ix) Methylbromide to acetic acid

(x) Tert- butylbromide to isobutylbromide

8 Give a test to distinguish

(i) Ethyl chloride and phenyl chloride

(ii) 1-Cholropropene and 3-chloropropene