SARALA BIRLA PUBLIC SCHOOL

Birla Knowledge City, Mahilong, Ranchi

CLASS-XII (2020-21)

Sub: CHEMISTRY
Assignment-1

Haloalkanes and Haloarenes

Q.1. Write the IUPAC names of the following compounds: (i) $(CCl_3)_3CCl$, (ii) $ClCH_2C \equiv CCH_2Br$.

Q.2. Write the structures of the following organic compound: (i) 4 - tert - Butyl - 3 - iodoheptane, (ii) 2 - (2 - Chlorophenyl) - 1 - iodooctane.

Q.3. Write the mechanism of the following reaction: n BuBr + KCN $\xrightarrow{EtOH + H_2O}$ nBuCN

Q.4. Explain why :

(i) Grignard reagents should be prepared under anhydrous conditions.

(ii) Chlorobenzene is extremely less reactive towards a nucleophillic substitution reaction.

(iii) (±) 2 - Butanol is optically inactive.

(iv) The dipole moment of Chlorobenzene is lower than that of cyclohexylchloride.

(v) Alkyl halide, though polar, are immiscible with water.

Q.5. Complete the following reactions equations:

(a) $CH_3 - CH_2 - CH_2 - Cl + NaI \xrightarrow[heat]{Acetone}$

(b) $(CH_3)\ C\ Br + KOH \xrightarrow[heat]{Ethanol}$

(c) $CH_3CH_2CH = CH_2 + HBr \xrightarrow{Peroxide}$

(d) $CH_3 - CH = C\ (CH_3)_2 + HBr \longrightarrow$

Q.6. Arrange the compounds of each Oct in order of reactivity towards SN_2 displacement:

(i) 2 - Bromo - methylbutane, 1 - Bromobeutane, 2 - Bromopentane

(ii) 1 - Bromo - 3 methylbutane, 2 - Bromo - 2 methylbutane, 3 - Bromo - 2 methylbutane.

Q.7. What happens when:

(i) Ethylchloride is treated with aqueous KOH.

(ii) Methylchloride is treated with KCN.

(iii) Methyl bromide is treated with sodium in the presence of dry ether.

Q. 8. Primary albylhalide C_4H_9Br (a) reacted with alcoholic KOH to give compound (b). Compound (b) is reacted with HBr to give (C) which is an isomer of (a). When (a) is reacted with sodium metal it gives compound (d), C_8H_{18} which is different from the compound formed when n - butylbromide is reacted with sodium. Give the structural formula of (a) and write the equations for all the reactions.

Q.9. Distinguish between:

(i) CCl_4 & $CHCl_3$

(ii) $CH_2 = CHCl$ & C_2H_5Cl

(iii) C_6H_5Cl & C_6H_7Cl (Benzyl chloride)

Q.10. How the following conversion can be carried out?

(i) Propane to Propan - 1 - ol

(ii) 1 - Bromopropane to 2 - Bromopropane

(iii) Toluene to Benzyl alcohol

(iv) 2 - Bromopropane to 1 - Bromopropane

(v) Ethylchloride to Propanoic acid.