

# INTERNATIONAL INDIAN SCHOOL BURAI DAH

## Worksheet for the Academic Year 2023-24

CLASS: 12 SUBJECT: CHEMISTRY DATE: 14/05/2023

LESSON : CH – 6 HALOALKANES AND HALOARENES

Q.1. Write the structure of

- i) 1-chloro-2,2-dimethylpropane.
- ii) 1-Bromo-3, 3-dimethyl-1-phenylbutane .
- iii) 3-Chloro-5-methylhex-2- ene .
- iv) 1-Bromo-1-chloro-1, 2, 2-trifluoroethane .
- v) 4-Tert-Butyl-3-iodoheptane .

Q.2. What are ambident nucleophiles? Explain with an example

Q.3 Write the formula of major product formed in the following chemical reactions:

- (a)  $\text{CH}_3\text{Br} + \text{alc. AgCN} \longrightarrow$
- (b)  $\text{CH}_3\text{CH}_2\text{CH}(\text{Cl})\text{CH}_3 + \text{Na} \longrightarrow$
- (c)  $\text{C}_6\text{H}_6 + \text{Br} \xrightarrow{\text{Cl}_2/\text{FeCl}_3}$
- (d)  $(\text{CH}_3)_2\text{CH-Cl} \xrightarrow{\text{Na}}$
- (e)  $\text{CH}_3\text{Br} + \text{AgF} \xrightarrow{\Delta}$
- (f)  $\text{CH}_3\text{CH}_2\text{Br} + \text{NaI} \xrightarrow{\text{dry ether}}$
- (g)  $\text{C}_6\text{H}_5\text{N}_2\text{Cl} \xrightarrow{\text{Cu/HCl}}$

Q.4 . Illustrate the following reactions giving a suitable chemical equation for each:

- (i) Sandmeyer's reaction
- (ii) Wurtz – Fittig reaction
- (iii) Finkelstein reaction
- (iii) Friedel - Crafts reaction
- (iii) Fittig reaction

Q.5 Rearrange the compounds of each of the following sets in order of reactivity towards  $\text{S}_{\text{N}}2$  displacement:

- (i) 2-Brom-2-methylbutane, 1-Bromopentane, 2-Bromopentane

- (ii) 1-Brom-3-methylbutane, 2-Bromo-2-methylbutane, 3-bromo-2-methylbutane  
(iii) 1-Bromobutane, 1-Bromo-2,2-dimethylpropane, 1-Bromo-2-methylbutane

Q.6 (i) State one use each of **DDT** and **Iodoform**.

- (ii) Which compound in the following pairs will react faster in  $S_N2$  displacement and why? (a) 1-Bromopentane or 2-Bromopentane  
(b) 2-Bromo-2 methyl butane or 1-bromo-2methyl butane

Q.7 How will you bring about the following conversions?

- i) Toluene to benzyl alcohol
- ii) Ethanol to ethyl fluoride
- iii) Chlorobenzene to p-nitrophenol
- iv) Benzene to 4- Bromo nitrobenzene
- v) Aniline to chlorobenzene

Q.8 What happens when

- i. n-butyl chloride is treated with alcoholic KOH,
- ii. bromobenzene is treated with Mg in the presence of dry ether,
- iii. chlorobenzene is subjected to hydrolysis,
- iv. ethyl chloride is treated with aqueous KOH,
- v. methyl bromide is treated with sodium in the presence of dry ether,
- vi. Methyl chloride is treated with KCN.

Q.9 Which of the following alkyl halides will undergo  $S_N1$  reaction most readily?

- (a)  $(CH_3)_3 C-F$  (b)  $(CH_3)_3 C-Cl$   
(c)  $(CH_3)_3 C-Br$  (d)  $(CH_3)_3 C-I$

Q.10 Alkyl halides on treatment with alc. KOH give

- (a) alcohols (b) aldehydes (c) alkanes (d) alkenes