



**INDIAN SCHOOL DARSAIT**  
**DEPARTMENT OF CHEMISTRY**



Subject: Chemistry	Topic :Haloalkanes and Haloarenes	Date of Worksheet: 26.3.2019
Resource Person: SREEKALA M		Date of Submission: _____
Name of the Student: _____	Class &Division: XII	Roll Number: _____

1.	Which one of the two compounds, $\text{CH}_3\text{Br}$ and $\text{CH}_3\text{I}$ will react faster in an $\text{S}_{\text{N}}2$ reaction with $\text{OH}^-$ ?	1
2.	Write the structure of the following compound i) 1-Bromo-4-sec-butyl-2-methylbenzene    ii) 4-tert. Butyl-3-iodoheptane	1
3.	Which one of these compounds is more easily hydrolysed by $\text{KOH}$ solution and why? $\text{CH}_3\text{CHClCH}_2\text{CH}_3$ or $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{Cl}$	1
4.	An alkyl halide with molecular formula $\text{C}_4\text{H}_9\text{Br}$ is optically active. What is its structure?	1
5.	Out of Chlorobenzene and benzyl chloride, which one gets easily hydrolysed by aqueous $\text{NaOH}$ and Why?	1
6.	Give a chemical test to distinguish between the following pairs of compounds. i) Benzyl chloride and chlorobenzene.    ii) $\text{C}_2\text{H}_5\text{Br}$ and $\text{C}_6\text{H}_5\text{Br}$ .	1
7.	Which has higher boiling point and why? 1-Chloropentane or 2-methyl-2-chlorobutane	1
8.	What are ambident nucleophiles? Explain with an example.	1
9.	Give reason: p-nitrochlorobenzene undergoes nucleophilic substitution faster than chlorobenzene. Explain giving structures as well.	1
10.	Give the IUPAC name of $\text{CH}_3$ i) $\text{CH}_3\text{CH}=\text{CH}-\text{C}-\text{CH}_3$ ii) $\text{C}_6\text{H}_5\text{CH}_2\text{CH}_2\text{Cl}$ $\text{Br}$	2
11.	Write the structures of the major products in the following reactions: i) $\text{CH}_3\text{CH}=\text{C}(\text{CH}_3)_2 + \text{HBr} \rightarrow$ ii) $\text{C}_6\text{H}_5\text{ONa} + \text{C}_2\text{H}_5\text{Cl} \rightarrow$	2
12.	What are enantiomers? Give the structural formula of the alkane with minimum number of Carbon atoms capable of showing chirality.	2

13.	An optically active compound having molecular formula $C_7H_{15}Br$ reacts with aqueous KOH to give a racemic mixture of products. Write the mechanism involved for this reaction.	2
14.	a) Propose mechanism of the reaction taking place when 2-Bromo pentane is heated with alcoholic KOH to form alkenes. b) Out of 2-bromopentane, 2-Bromo-2-methylbutane and 1-bromopentane, which compound is most reactive towards elimination reaction and why?	2
15.	Write the mechanism of the following reaction: $nBuBr + KCN \xrightarrow{EtOH-H_2O} nBuCN$	2
16.	Give reasons: i) Allyl chloride is more reactive than n-propyl chloride towards nucleophilic substitution reaction. ii) Haloalkanes react with KCN to give alkyl cyanide as main product while AgCN they form isocyanide as main product. iii) Use of DDT was banned in United States in 1973 iv) Benzylic halides show high reactivity towards $S_N1$ reaction. v) Grignard reagents should be prepared under anhydrous condition. vi) $C_6H_5CHClCH_3$ is hydrolysed more easily with KOH than $C_6H_5CH_2Cl$ . vii) Aryl halides are less reactive towards nucleophilic substitution reaction. viii) Chloroform is stored in closed dark coloured bottles. ix) Although Chlorine is an electron withdrawing group, yet it is ortho- para directing in electrophilic substitution reaction. x) Sulphuric acid is not used in the reaction of alcohols with KI. xi) The dipole moment of Chlorobenzene is lower than that of cyclohexyl chloride. xii) Alkyl chloride with aqueous KOH leads to the formation of alcohols but in the presence of alcoholic KOH alkenes are major products. xiii) p-Dichlorobenzene has higher melting point and lower solubility than those of o- and m-isomers. xiv) Electrophilic reactions in haloarenes occur slowly.	1 mark each
17.	Define the following: i) Racemisation ii) Retention iii) Chirality	1 mark each
18.	Write the structural formulae of the organic compounds A, B, C and D in the following sequence of reaction. Alc.KOH $CH_3CH(Br)CH_2CH_3 \xrightarrow{\hspace{2cm}} A$  A $\xrightarrow{Br_2alc.KOH}$ B $\xrightarrow{H_2O, Hg^{2+}, H_2SO_4}$ C $\xrightarrow{\hspace{2cm}}$ D	2



