

INDIAN SCHOOL DARSAIT

DEPARTMENT OF CHEMISTRY



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Subject: ChemistryTopic :Haloalkanes and HaloarenesDate of Worksheet: 26.3.20				
Resou	rce Person: SREEKALA M	Date of Submission:		
Name	of the Student: Class &Division: XII	Roll Number:		
1.	Which one of the two compounds, CH ₃ Br and CH ₃ I will react fast withOH ⁻ ?	ter in an $S_N 2$ reaction	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 KOH solution and why? CH ₃ CHClCH ₂ CH ₃ or CH ₃ CH ₂ CH ₂ CH ₂ CH ₂ Cl		1	
4.	An alkyl halide with molecular formula C ₄ H ₉ Br is optically active. What is its structure?		1	
5.	Out of Chlorobenzene and benzyl chloride, which one gets easily hydrolysed by aqueous NaOH and Why?		1	
6.	Give a chemical test to distinguish between the following pairs of i)Benzyl chloride and chlorobenzene. ii)C ₂ H ₅ Br and C ₆ H ₅ Br		1	
7.	Which has higher boiling point and why?1-Chloropentane or 2-methyl-2-chlorobutane		1	
8.	What are ambidentnucleophiles ? Explain with an example.		1	
9.	Give reason : p-nitrochlorobenzene undergoes nucleophilic substichlorobenzene. Explain giving structures as well.	tution faster than	1	
10.	Give the IUPAC name of CH ₃		2	
	i) CH ₃ CH=CH- C- CH ₃ ii) C ₆ H ₅ CH ₂ CH ₂ Cl			
	Br			
11.	Write the structures of the major products in the following reaction i) $CH_3CH=C(CH_3)_2 + HBr \rightarrow$ ii) $C_6H_5ONa + C_2H_5Cl \rightarrow$	ons:	2	
12.	What are enantiomers? Give the structural formula of the alkane v Carbon atoms capable of showing chirality.	with minimum number of	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.	
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 <u>EtOH-H₂O</u> 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 _N 1 reaction. v)Grignard reagents should be prepared under anhydrous condition. vi)C ₆ H ₅ CHClCH ₃ is hydrolysed more easily with KOH than C ₆ H ₅ CH ₂ Cl. 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 alochols 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.	
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 ₃ CH(Br)CH ₂ CH ₃ > A Br ₂ alc.KOH H ₂ O, Hg ²⁺ , H ₂ SO ₄ A> B> C>D	2

19.	Write the formula of main product formed in the following chemical reactions	3
	$\begin{array}{c} Na, dry \ ether\\ i) \qquad (CH_3)_2CHCl &>\\ & \Delta\\ ii) \qquad CH_3Br \ + AgF \>\\ & Dry \ acetone\\ iii) \qquad CH_3CH_2Br \ + NaI \> \end{array}$	
20.	Answer the following: i) Identify chiral C in CH ₃ CHOHCH ₂ CH ₃ and CH ₃ CHOHCH ₃ ii) Which of these will react faster in S _N 2 displacement and why? 1-bromopentane or 2-bromopentane iii) Which one of the following has the highest dipole moment? i)CH ₂ Cl ₂ ii) CHCl ₃ iii) CCl ₄	3
21.	Starting from methyl bromide, how will you preparei)Nitromethane and methyl nitrite?ii)Methyl cyanide and methyl isocyanide.Write the complete reaction involved.	3
22.	 a)Identify the Chiral molecule in the following pair. i) iii iiiiiiiiiiiiiiiiiiiiiiiiiiiiii	3
23.	How are the following conversions carried out? i)Ethanol to propanenitrile ii) Toluene to Benzyl alcohol iii) Benzene to 4-Bromonitrobenzene iv) But-1-ene to n-Butyliodide. v)Chlorobenzene to p-nitrophenol vi) 1-Chlorobutane to n-Butyliodide.	1 each
24.	Explain with an example: i)Sandmeyer's reaction ii)Finkelstein reaction iii)Swarts reaction iv) Wurtz reaction v) Fittig reaction vi)Wurtz-Fittig reaction vii) Diazotisation	1 each
25.	Give the uses of Freon, DDT, Carbontetrachloride and Iodoform.	1 each