****INDIAN SCHOOL DARSAIT

DEPARTMENT OF CHEMISTRY

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

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| 1.  | Which one of the two compounds, CH3Br and CH3I will react faster in an SN2 reaction withOH-?  | 1 |
| 2. | Write the structure of the following compoundi) 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? CH3CHClCH2CH3 or CH3CH2CH2CH2Cl  | 1 |
| 4. |  An alkyl halide with molecular formula C4H9Br 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 compounds.i)Benzyl chloride and chlorobenzene. ii)C2H5Br and C6H5Br. | 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 substitution faster than chlorobenzene. Explain giving structures as well. | 1 |
| 10. |  Give the IUPAC name of CH3i) CH3CH═CH- C- CH3  ii) C6H5CH2CH2Cl Br | 2 |
| 11. | Write the structures of the major products in the following reactions:1. CH3CH=C(CH3)2 + HBr→
2. C6H5ONa + C2H5Cl→
 | 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 C7H15Br 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: | 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 1973iv)Benzylic halides show high reactivity towards SN1 reaction.v)Grignard reagents should be prepared under anhydrous condition.vi)C6H5CHClCH3 is hydrolysed more easily with KOH than C6H5CH2Cl.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. | 1 mark each |
| 17. | Define the following:1. 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.KOHCH3CH(Br)CH2CH3 --------------------$>$ A  Br2alc.KOH H2O, Hg2+, H2SO4A ---------------> B-------------> C ---------------------------->D | 2 |
| 19. | Write the formula of main product formed in the following chemical reactions Na, dry ether1. (CH3)2CHCl ------------------>

 Δ1. CH3Br + AgF ----------------->

 Dry acetone1. CH3CH2Br + NaI ------------------>
 | 3 |
| 20. | Answer the following:i) Identify chiral C in CH3CHOHCH2CH3 and CH3CHOHCH3ii) Which of these will react faster in SN2 displacement and why?1-bromopentane or 2-bromopentane iii) Which one of the following has the highest dipole moment?i)CH2Cl2  ii) CHCl3 iii) CCl4 | 3 |
| 21. | Starting from methyl bromide, how will you prepare1. Nitromethane and methyl nitrite?
2. Methyl cyanide and methyl isocyanide.

Write the complete reaction involved. | 3 |
| 22. | a)Identify the Chiral molecule in the following pair.b) Write the structures of the product when chlorobenzene is treated with methyl chloride in the presence of sodium metal and dry ether.C) Write the structures of the alkene formed by dehydrohalogenation of 1-Bromo-1-methyl cyclohexane with alcoholic KOH. | 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 reactionv) Fittig reaction vi)Wurtz-Fittig reaction vii) Diazotisation | 1 each |
| 25.  | Give the uses of Freon, DDT, Carbontetrachloride and Iodoform. | 1 each |