INDIAN SCHOOL DARSAIT

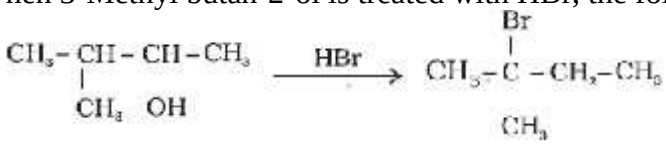
DEPARTMENT OF CHEMISTRY

Subject: Chemistry Topic : Alcohols. Phenols and Ethers Date of Worksheet: 8.5 .2017

Resource Person: SREEKALA M Date of Submission:_____

Name of the Student: _____ Class &Division: XII Roll Number: _____

1.	Which is a stronger acid –Phenol or Cresol? Explain.	1
2.	Give the IUPAC name of the following compound: CH_3-C(CH_3)=C(Br)-CH_2OH ii) $CH_3OCH_2CH(CH_3)CH_3$	1
3.	What is denatured alcohol?	1
4.	Write the structures of the following compounds i)3-Cyclohexylpetan-3-ol. ii) Cyclopent-3-en-1-ol. iii)2-Ethoxy-3-methylpentane.	1 Mark each
5.	How will you know whether a given OH group is alcoholic or phenolic in nature.	1
6.	Write the structure of phenyl isopentylether.	1
7.	How would you account for the miscibility of ethoxyethane with water?	1
8.	Write the products obtained when benzyl phenylether is heated with HI	1
9.	Name the reagent used in the oxidation of ethanol to ethanoic acid.	1
10.	Arrange the following compounds in the increasing order of their acid strength. 4-nitrophenol, phenol, 2,4,6-trinitrophenol, 4-methylphenol , propanol	1
11.	Alcohols react both as nucleophile as well as electrophile. Write one reaction of each type and describe its mechanism.	2
12.	Write the mechanisms of the following reactions. i)Dehydration of ethanol to giveethane at 443K ii)Formation of diethyl ether from ethanol in the presence of concentrated Sulphuric acid. iii) Acid catalyzed hydration of Ethene to form ethanol . iv)Reaction of Carbonyl compounds with Grignard Reagent forming an adduct followed by hydrolysis. v)Reaction of Methoxy ethane with HI.	2 marks each

13.	How is Phenol prepared from i) Cumene ii) Benzene sulphonic acid iii) Benzene diazonium salt iv) Chlorobenzene.	1 mark each
14.	How would you obtain? i) Benzoquinone from phenol. ii) Aspirin from Phenol iii)Benzene from Phenol ii) Picric acid from Phenol	1 mark each
15.	How are the following conversions carried out? i)Propene to propan-2-ol ii)Ethyl magnesium chloride to propan-1-ol	2
16.	Predict the products of the following reactions: i) B_2H_6 i) $CH_3CH{=}CH_2$ ----------> ii) $3H_2O_2/OH^-$ $Br_2 - H_2O$ ii) C_6H_5OH ----------> Cu/573K iii) $(CH_3)_3COH$---------->	3
17.	Give chemical tests to distinguish between compounds in each of the following pairs: i) Phenol and benzyl alcohol ii) Butan-2-ol and 2-methyl propan-2-ol	1 mark each
18.	Write one chemical reaction each to illustrate the following i)Reimer – Tiemann reaction ii)Williamson's synthesis iii)Kolbe's reaction. iv)Friedel-Crafts acetylation of anisole v) Hydroboration- Oxidation reaction	1 mark each
19.	Illustrate with an examples the limitations of Williamson synthesis for the preparation of certain type of ethers.	2
20.	When 3-Methyl butan-2-ol is treated with HBr, the following reaction takes place.  Write the mechanism for this reaction.	2
21.	Give plausible explanation for each of the following: a)Ortho-nitrophenol is more acidic than ortho-methoxyphenol. b)Alcohols are easily protonated in comparison to phenols. c)The relative ease of dehydration of alcohols is tertiary>secondary>Primary. d) Phenols are more acidic than Alcohols. e) Water is more acidic than alcohols. f) Ortho and Para nitrophenols can be separated by steam distillation.	1 mark each

	g)The C-O bond in Phenol is slightly stronger than that in methanol. h) Boiling point of ethanol is higher in comparison to methoxy methane. i) Preparation of ethers by acid-catalysed dehydration of secondary and tertiary alcohol is not a suitable method	
22.	Complete the reaction. i) $CH_3 – O – CH_3 + HI \rightarrow$ ii) $CH_3 – O – CH_2CH_3 + HI \rightarrow$ iii) $(CH_3)_3COCH_3 + HI \rightarrow$ iv) $C_6H_5 - O – CH_3 + HI \rightarrow$ v) $C_6H_5CH_2 - O – C_6H_5 + HI \rightarrow$	1 mark each
23.	What happens when Phenol is treated with i)Bromine in CS_2 ii) Bromine- H_2O iii) Dilute HNO_3 iv) Conc. HNO_3 v) Chromic acid.	1 mark each
24.	An organic compound 'A" having molecular formula C_3H_6 on treatment with aqueous H_2SO_4 gives 'B' which on treatment with $HCl/ZnCl_2$ gives 'C'. The compound C on treatment with ethanolic KOH gives back the compound 'A'. Identify the compound A, B and C and write the equations for the reactions involved.	3
25.	An organic compound 'A' having molecular formula C_6H_6O gives a characteristic colour with neutral ferric chloride solution. A on treatment with CO_2 and NaOH at 400K under pressure gives B which on acidification gives a compound C. The compound C reacts with acetyl chloride to give D which is a popular pain killer. Deduce the structure of A, B, C and D and write the reactions involved.	3