

INTERNATIONAL INDIAN SCHOOL BURAI DAH

Worksheet for the Academic Year 2023-24

CLASS: 12 SUBJECT: CHEMISTRY DATE: 04/07/2023

LESSON : CH – 7 ALCOHOLS PHENOLS AND ETHERS

Q.1 (a) Write the mechanism of hydration of ethanol to form ethene.

(b) How are the following conversions carried out?

(i) Propene to propan-1-ol.

(ii) Phenol to salicylic acid.

Q.2. Give simple chemical tests to distinguish between the following pairs of compounds:

(a) Ethanol and Phenol.

(b) Propanol and 2-methylpropan-2-ol.

Q.3 Write structures of the compounds whose IUPAC names are as follows:

(i) 2-Methylbutan-2-ol (ii) 3,5-Dimethylhexane –1, 3, 5-triol

(iii) 2,3 – Diethylphenol (iv) 2-Ethoxy-3-methylpentane (v) Cyclopent-3-en-1-ol

Q.4 . Explain the following giving one example for each :

(i) Reimer-Tiemann reaction

(ii) Friedel – Craft’s acetylation of anisole.

(iii) Williamson synthesis of ether.

(iv) Kolbe’s reaction.

Q.5 How will you convert :

(i) Phenol to benzoquinone

(ii) Propanone to 2-methylpropan-2-ol

(iii) Propene to propan-2-ol

Q.6 Give equations of the following reactions:

(i) Oxidation of propan-1-ol with alkaline KMnO_4 solution.

(ii) Bromine in CS_2 with phenol.

(iii) Dilute HNO_3 with phenol.

(iv) Treating phenol with chloroform in presence of aqueous NaOH .

Q.7 Draw the structure and name the product formed if the following alcohols are oxidized. Assume that an excess of oxidizing agent is used.

(i) $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$

(ii) 2-butanol

(iii) 2-methyl-1-propanol

Q.8 (i) Draw the structural formulas and write IUPAC names of all the isomeric alcohols with the molecular formula $C_5H_{12}O$.

(ii) Classify the isomers of alcohols given in part (a) as primary, secondary and tertiary alcohols.

Q.9 During dehydration of alcohols to alkenes by heating with concentrated H_2SO_4 , the initiation step is:

- (a) elimination of (b) formation of an ester
(c) protonation of alcohol molecule (d) formation of carbocation

Q.10 Phenol does not undergo nucleophilic substitution reaction easily due to:

- (a) instability of phenoxide ion
(b) acidic nature of phenol
(c) partial double bond character of C—OH bond
(d) partial double bond character of C—C bond

Q.11 Long time nitration of phenol with mixture of conc. HNO_3 and concentrated H_2SO_4 gives:

- (a) picric acid (b) *o*-nitrophenol
(c) nitrobenzene (d) *p*-nitrophenol

Q.12 It's called ether when the alkyl groups connected to either side of the oxygen atom in an ether are different.

- (a) mixed (b) symmetrical (c) simple (d) diethyl

Q.13 To get carboxylic acids directly from alcohol, which of the following oxidising agents is used?

- (a) Alkaline $KMnO_4$ (b) Aqueous $KMnO_4$
(c) Acidified $KMnO_4$ (d) Anhydrous CrO_3

Q.14 Complete the following

