Class 12 Chemistry · Chapter 7: Alcohols, Phenols and Ethers

Worksheet · 20 marks · about 40 minutes · based on NCERT

Name _____ Class and section _____ Date _____

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1. 2-Methylpropene, $(CH_3)_2C=CH_2$, is treated with diborane and the product is oxidised with H_2O_2 in aqueous NaOH. The alcohol formed is [1]

(a) 2-methylpropan-2-ol
(b) 2-methylpropan-1-ol
(c) butan-1-ol
(d) butan-2-ol

2. Resorcinol is [1]

(a) benzene-1,2-diol
(b) benzene-1,4-diol
(c) benzene-1,3-diol
(d) 3-methylphenol

3. The IUPAC name of $HO-CH_2-CH(OH)-CH_2-CH_3$ is [1]

(a) butan-1,2-diol
(b) butane-1,2-diol
(c) butane-3,4-diol
(d) 1,2-dihydroxybutane

4. 4-Methylphenol is heated with chloroform and aqueous sodium hydroxide, and the mixture is then acidified. The main organic product is [1]

(a) 4-methylbenzaldehyde
(b) 2-hydroxy-5-methylbenzoic acid
(c) 2-hydroxy-5-methylbenzaldehyde
(d) 2-hydroxy-4-methylbenzaldehyde

5. Which of the following is a tertiary alcohol? [1]

(a) $(CH_3)_2CH-CH_2-OH$
(b) $CH_3-CH_2-C(CH_3)(OH)-CH_2-CH_3$
(c) $CH_3-CH(OH)-CH(CH_3)_2$
(d) $C_6H_5-CH_2-CH_2-OH$

6. A person has drunk spirit contaminated with methanol. (i) Name the two compounds into which the body oxidises methanol. (ii) Why is diluted ethanol given to the patient intravenously? [2]

7. Phenol does not give bromobenzene with HBr, yet it loses its oxygen when heated with zinc dust. Write the equation for the zinc dust reaction, and explain why HBr cannot replace the –OH of phenol. [2]

8. To make picric acid today, phenol is first treated with concentrated sulphuric acid and only then with concentrated nitric acid. (i) Name the compound formed in the first step. (ii) Why is picric acid a strong acid although phenol is not? [2]

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9. 2-Methylpropan-2-ol is dehydrated by 20% H_3PO_4 at 358 K, whereas ethanol needs concentrated H_2SO_4 at 443 K. Write, as numbered steps, the mechanism of dehydration of 2-methylpropan-2-ol, and use it to explain the difference. [3]

10. 2-Phenylbutan-2-ol, $C_6H_5–C(CH_3)(OH)–CH_2CH_3$, is to be made by a Grignard reaction. Give two different combinations of a carbonyl compound and a Grignard reagent that give it, and write the equations for one, showing the adduct. [3]

11. Show, with one equation each, that ethanol behaves (i) as a Brønsted acid and (ii) as a Brønsted base. (iii) Explain why sodium ethoxide is a stronger base than sodium hydroxide. [3]