Model Question Paper

Hydroxy Derivatives - Part II

12th Standard

Chemistry

Reg.No. : | | | | | | |

I.Answer all the questions.

II.Use blue pen only.

Time : 01:30:00 Hrs

Total Marks : 70

Part-A

5 x 1 = 5

1) When alcohols are converted to alkyl chlorides by thionyl chloride in presence of pyridine the intermediate formed is

(a) Sulphonium ion (b) Chlorosulphonic acid (c) alkyl chlorosulphite (d) chlorosulphite

2) On oxidation of an alcohol gives an aldehyde having the same number of carbon atoms as that of alcohol. The alcohol is

(a) 1° alcohol (b) 2° alcohol (c) 3° alcohol (d) None

3) A compound that gives a positive iodoform test is

(a) 1-pentanol (b) 2-pentanone (c) 3-pentanone (d) pentanal

4) The compound that reacts fastest with Lucas reagent is

(a) butan-1-ol (b) butan-2-ol (c) 2-methyl propan-1-ol (d) 2-methyl propan-2-ol

5) The ionization constant of phenol is higher than that of ethanol because

(a) phenoxide ion is bulkier than ethoxide (b) phenoxide ion is stronger base than ethoxide (c) phenoxide ion is stablized through delocalisation

(d) phenoxide ion is less stable than ethoxide ion

Part-B

5 x 3 = 15

6) Write the mechanism briefly when alcohols are treated with anhydrous zinc chloride and HCl.

7) Why is that tertiary alcohols show greater reactivity towards hydrogen halides than secondary and primary alcohols?

8) How do primary,Secondary and tertiary alcohols differ in terms of their oxidation?

9) How will you convert C_2H_5OH to $C_2H_5OC_2H_5$?

10) Complete the reaction and write the names of products. $C_2H_5OH \quad + \quad NH_3 \xrightarrow[Al_2O_3]{360^\circ C}$

Part-C

6 x 5 = 30

11) Compound (A) C6H12O2 on reduction with LiAlH4 yields two compounds B and C. The compound (B) on oxidation gave (D) which on treatment with aqueous alkali and subsequent heating furnished E. The latter on catalytic hydrogenation gave (C). Compound (D) on oxidation gave monobasic acid (molecular formula weight = 60). Deduce the structure of (A), (B), (C), (D) and (E).

12) How is the following conversion effected ?

Ethyl alcohol---------> Ethylene glycol

13) Give the IUPAC names of

(i) $CH_3CH(OH)CH_2OH$

(ii) $HO–CH_2–CH_2–OH$

(iii) $CH_3–CH(OH)–COOH$

14) When tertiary butyl alcohol and 1-butanol are separately treated with a few drops of KMnO4, in one case only the purple colour disappears and a brown precipitate is formed. Which of the two alcohols gives the above reaction and what is that brown precipitate.

15) Give all the isomers of alcohols differing only in the position of –OH

with molecular formula $C_5H_{10}O$.

16) Give any two methods of preparing alcohol from aldehyde

Part-D

2X10=20

17) a) By oxidation method how are primary, secondary and tertiary alcohols distinguished?

b) How would you obtain (i) ethylene from glycol and (ii) glycol from ethylene?

18) a) Write different oxidation reactions of ethylene glycol with dilute nitric acid?

b) Give the various addition reactions by which dihydric alcohols are prepared.

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