



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

U.G. DEGREE EXAMINATION – CHEMISTRY

THIRD SEMESTER – APRIL 2022

18/17/16UCH3MC02 – STEREOCHEMISTRY AND ORGANIC FUNCTIONAL GROUPS-I

Date: 27-06-2022

Dept. No.

Max. : 100 Marks

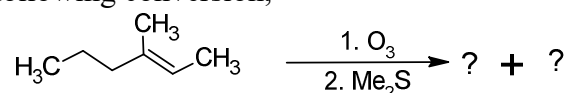
Time: 09:00 AM - 12:00 NOON

PART – A

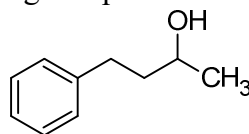
Answer ALL questions

(10 x 2 = 20 Marks)

- 1 Differentiate between optical and specific rotations.
- 2 Define Walden inversion.
- 3 Give an example for S_NAr reaction.
- 4 Identify the product in the following conversion,



- 5 Mention the significance of haloform reaction.
- 6 Provide the IUPAC name of the following compound.



- 7 Draw the structure of 18-crown-6.
- 8 Why is ether storage risky for a longer period?
- 9 How are nitro compounds classified?
- 10 Suggest a method to prepare aliphatic nitro compound.

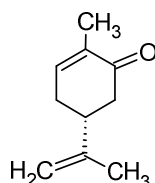
PART – B

Answer any EIGHT questions

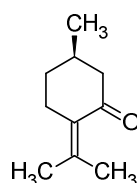
(8 x 5 = 40 Marks)

- 13 Designate the chiral centers in the following compounds with R & S notation. (5)

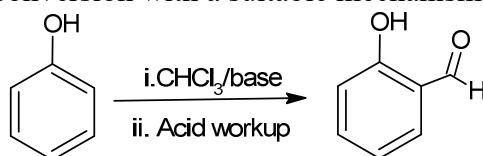
(i)



(ii)



- 12 Analyse the optical activity in compounds not containing asymmetric carbon atoms. (5)
- 13 Write a note on the preparation of phenols (5)
- 14 Explain S_Ni Mechanism with an example. (5)
- 15 Discuss the alkyl halide preparation by free radical mechanism. (5)
- 16 Account for the following conversion with a suitable mechanism. (5)



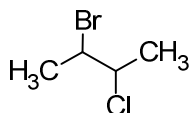
- 17 Describe any two methods of aromatic alcohols preparation. (5)
- 18 Analyze the mechanism of ether cleavage under acidic conditions, (5)
- 19 Suggest any two methods of epoxide preparations. (5)
- 20 Write a note on the classification of ethers with examples. (5)
- 21 Analyse the effect of substituents on the basicity of amines. (5)
- 22 How is o, m-dinitrobenzene prepared? (5)

PART – C

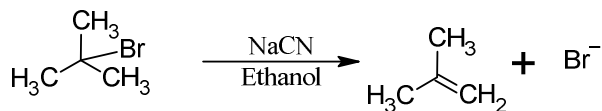
Answer any **FOUR** questions

(4 x 10 = 40 Marks)

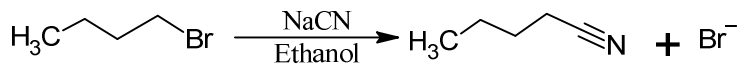
- 23 (a) Evaluate the various methods of asymmetric synthesis (5)
 (b) Illustrate the following compound with different projection formulae. (5)



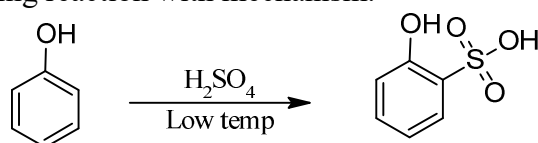
- 24 Analyse the mechanisms involved in the following conversions. (5+5)
 (i)



(ii)



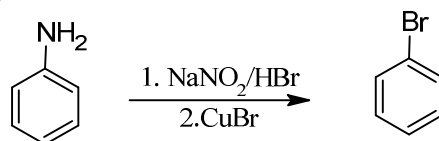
- 25 (a) Discuss the reactions of alcohols involving O-H bond cleavages. (5)
 (b) Analyse the following reaction with mechanism. (5)



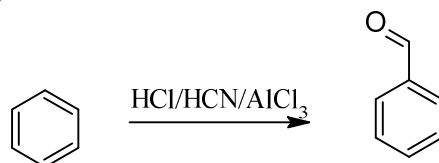
- 26 (a) Mention any two methods of ether preparation. (5)
 (b) Analyse the mechanisms of different ring opening reactions of epoxides (5)

- 27 (a) Justify the following with mechanism. (2+3)

(i)



(ii)



- (b) Write a note on sulpha drugs. (5)
 28 (a) Investigate the impact of different factors on a $\text{S}_{\text{N}}2$ substitution reactions (5)
 (b) Write a note on Kolbe's reaction. (5)

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