

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



B.Sc. DEGREE EXAMINATION – CHEMISTRY

THIRD SEMESTER – NOVEMBER 2019

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

Date: 31-10-2019

Dept. No.

Max. : 100 Marks

Time: 01:00-04:00

PART A

(10x2=20)

Answer all the questions

1. What is atropisomerism?
2. Draw 2,3- dichlorobutane in Fischer and Newmann projections.
3. Which of the following mechanism will be followed when the leaving group is attached to a primary carbon? S_N1 or S_N2 . Account for your choice.
4. Predict the product in the reaction.
Ethyl Chloride + B^- ----- \rightarrow ?
5. Phenols are more acidic than alcohols. Why?
6. How will you prepare salicylaldehyde from phenol?
7. What are epoxides? Cite an example
8. Name any two organometallic reagents in ring opening reactions.
9. Write the conversion of aniline to phenol.
10. What is Gabriel Phthalimide synthesis?

PART B

(8x5=40)

Answer any eight questions

11. Can compounds not containing asymmetric carbon atoms exhibit optical activity? Explain with an example
12. What is resolution? Explain mechanical and biochemical resolution.
13. Define racemization. How does racemization occur due to substitution and tautomerism?
14. What are the conditions essential for optical activity? Define the terms prochirality and optical isomerism.
15. Compare S_N1 and S_N2 mechanisms.
16. What are the evidences for E2 mechanism?
17. How are aliphatic alcohols prepared by Hydroboration - Oxidation reaction?
18. Explain with a suitable example the reduction of carbonyl compounds.

19. How are aliphatic ethers prepared by Williamson's synthesis?
20. Write a note on the reduction of aromatic nitro compounds by acidic conditions.
21. How is trinitrobenzene prepared?
22. How are primary, secondary and tertiary amines differentiated?

PART C

(4x10=40)

Answer any four questions

23. Explain Cahn-Ingold-Prelog rules with any two examples.
24. How are aliphatic halides prepared by addition and substitution reactions?
25. Explain the following a) Friedel –Craft's reaction b) Kolbe's reaction (5+5)
26. Explain the preparation and properties of epoxides.
27. Explain the following reactions of diazonium salts a) Sandmeyer reaction
b) Gatterman reaction c) Coupling reaction. (4+3+3)
28. a) How are ortho and para dinitro benzene prepared? (3+3)
b) Write a short note on sulpha drugs. (4)

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