



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – CHEMISTRY

FIFTH SEMESTER – APRIL 2019

CH 5510– ORGANO-NITROGEN COMPOUNDS & STEREOCHEMISTRY

Date: 23-04-2019
Time: 09:00-12:00

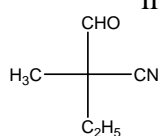
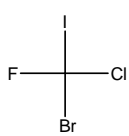
Dept. No.

Max. : 100 Marks

SECTION A

ANSWER ALL QUESTIONS:

(10x2=20)

1. Write the preparation of N,N-Dimethylaniline from aniline.
2. What happens when 1-nitropropane is treated with Fe/HCl ?
3. Predict the product when furan reacts with acetic anhydride.
4. Why is piperidine more basic than pyridine?
5. How are cis and trans isomers differentiated by their physical property?
6. Write the most stable conformation of 4-tertiary butyl cyclohexanol.
7. Predict 'R' and 'S' for the following
 - i) 
 - ii) 
8. Draw the Erythro and Threo forms of 2,3-dibromobutane.
9. What is Beckmann rearrangement?
10. What is a pinacolone? Cite an example.

SECTION B

ANSWER ANY EIGHT QUESTIONS:

(8x5=40)

11. How is toluene converted to 1,3,5-trinitrobenzene?
12. Write a note on the basicity of aliphatic and aromatic amines.
13. Pyridine undergoes electrophilic substitution at C-3 whereas furan undergoes at C-2. Explain.
14. Explain any one chemical method by which pyrrole and thiophene can be prepared.
15. Briefly explain the general methods by which the structure of an alkaloid can be determined.
16. i) What are conformers? Cite an example.(2)
ii) Explain torsional strain with an example.(3)

17. Write a note on cis –trans isomerism exhibited by cyclohexane with suitable examples.
18. What is asymmetric synthesis? Illustrate with an example.
19. Write a note on optical activity of substituted biphenyls.
20. i) What is optical isomerism?
ii) What are the conditions for a compound to exhibit optical activity?
21. Explain Hoffmann rearrangement with an example.
22. Write the mechanism of Claisen rearrangement with an example.

SECTION- C

ANSWER ANY FOUR QUESTIONS:

(4 X 10=40)

23. i) What are coupling reactions? Explain with an example. **(5)**
ii) Explain the significance of Sandmeyer reaction with reference to preparation of chloro benzene. **(5)**
24. i) Explain Gomberg reaction with mechanism. **(5)**
ii) Write a note on electrophilic substitution on quinoline with an example. **(5)**
25. i) What is isoprene rule? Write its application. **(5)**
ii) Describe the structural elucidation of citral. **(5)**
26. Explain in detail the conformational analysis of n-butane with structures and energy diagram.
27. i) Explain briefly Cahn-Ingold-Prelog rules.
ii) Write a note on chiral axis and chiral plane.
28. Explain with mechanism Cope and benzilic acid rearrangements. **(5+5)**
