



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – CHEMISTRY

FIFTH SEMESTER – NOVEMBER 2017

CH 5510 – ORGANO-NITROGEN COMPOUNDS & STEREOCHEMISTRY

Date: 01-11-2017

Dept. No.

Max. : 100 Marks

Time: 09:00-12:00

PART-A

Answer ALL the questions.

(10 x 2 =20)

1. Give any one method of preparation of nitroalkanes.
2. How will you prepare nitrobenzene from aniline?
3. Name the alkaloid isolated from tobacco and write its structure.
4. Give a method of preparation of thiophene.
5. How many geometrical isomers are possible for 2,4-hexadiene? Draw the possible structures.
6. Define dihedral angle.
7. What is the meaning of (+) and (-) signs?
8. Explain Walden inversion.
9. Give an example for intermolecular rearrangement reaction.
10. What is oxycope rearrangement?

PART-B

Answer EIGHT questions.

(8 x 5 =40)

11. Describe a method of separation of mixture of primary, secondary and tertiary amines.
12. Arrange the following bases in the increasing order of their basicity. Give reason.
 $\text{NH}_3, (\text{CH}_3)_3\text{N}, (\text{CH}_3)_2\text{NH}, \text{CH}_3\text{NH}_2$
13. How will you prepare o- and m-dinitrobenzenes?
14. Discuss the oxidation reactions of quinoline and isoquinoline.
15. Explain the mechanism of electrophilic substitution reaction of pyridine with suitable example.
16. Outline the synthesis of Coniine.
17. Describe the methods of distinguishing geometrical isomers.
18. Draw the different conformational isomers of n-butane and comment on their stability.
19. Describe any one method of asymmetric synthesis with suitable example.
20. Discuss the optical activity exhibited by suitably substituted biphenyls.
21. Explain the mechanism involved in benzilic acid rearrangement.
22. Predict the product and explain the mechanism of the following reaction.



PART-C

Answer any FOUR questions.

(4 x 10 =40)

23. Write a note on the following

(4+3+3)

(a) sulphur drug (b) diazotization (c) coupling reaction

24. (a) Explain the reduction of nitrocompounds by electrolytic method.

(4)

(b) Discuss the general methods of determination of alkaloids.

(6)

25. Discuss the structural elucidation of camphor.

26. (a) What are the conformers of cyclohexane? Explain them.

(5)

(b) How are E, Z notations advantageous over cis and trans nomenclature? Explain. **(5)**

27. (a) Draw the Fischer, Newmann and Sawhorse projections of 2,3-dihydroxy-1,4-butanedioic acid.

(5)

(b) Describe the mechanical and biochemical methods of resolution. **(5)**

28. Explain in detail about the following rearrangement reactions.

(5+5)

(a) Curtius (b) Claisen
