LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – **CHEMISTRY**

FIFTH SEMESTER – **NOVEMBER 2016**

CH 5510 – ORGANO-NITROGEN COMPOUNDS & STEREOCHEMISTRY

Date: 01-11-2016 Dept. No. Max. : 100 Marks

Time: 09:00-12:00

PART-A

Answer ALL questions. Each question carries TWO marks: (10 x 2 =20 marks)

1. How is nitroethane prepared?
2. Write the reaction of nitrobenzene with Sn/HCl?
3. How is pyridine prepared?
4. State isoprene rule.
5. Write the stable conformers of 1,2 and 1,3 dimethyl cyclohexane.
6. What are conformers?
7. Write the D and L forms of glyceraldehyde.
8. What are atropisomerism?
9. Give an example for free radical rearrangement.
10. Explain OxyCope rearrangement.

PART-B

Answer any EIGHT questions. Each question carries FIVE marks: (8 x 5 =40 marks)

11. How will you synthesis 1,3,5-trinitrobenzene from toluene?
12. Discuss the relative basic character of ammonia, methylamine and aniline.
13. Write a note on coupling reactions.
14. Explain: Electrophilic substitution in the case of furan takes place preferentially at 2 or 5 positions.
15. Discuss the extraction of alkaloids from plants and their general properties.
16. Write the mechanism of Skraup synthesis of quinoline.
17. Explain the various conformers of cyclohexane.
18. Explain various methods of distinguishing geometrical isomers.
19. Explain Walden inversion.
20. Describe a method of racemisation.
21. Explain intermolecular rearrangement with suitable example.
22. Write the mechanism of benzilic acid rearrangement.

PART-C

Answer any FOUR questions. Each question carries TEN marks: **(4 x 10 =40 marks)**

23. (a) Explain the electrolytic method of reduction of nitro compounds. (5)

    (b) How are secondary and tertiary amines prepared from aniline? (5)

24. (a) How are terpenes classified? (5)

    (b)Write the mechanism of Sandmeyer reaction. (5)

25. Describe structural elucidation of piperine.

26. Explain the conformational analysis of n-butane.

27. (a) State Cahn-Ingold-Prelog rules. (5)

    (b) Describe the optical activity of spiranes. (5)

28. Write the reaction mechanism of the following rearrangements: (5+5)

    (a) Hoffmann (b) Claisen.

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