LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FIFTH SEMESTER – **NOVEMBER 2017**

CH 5505 – ORGANIC FUNCTIONAL GROUPS - II

Date: 01-11-2017   Dept. No.   Max. : 100 Marks
Time: 09:00-12:00

PART-A

Answer ALL the questions. Each question carries two marks.   **(10 x 2 =20 marks)**

1.   How will you prepare nitrobenzene from benzene?

2.   How will you convert nitrobenzene into aniline?

3.   Define D and L configurations.

4.   Draw the Newmann projections of ethane.

5.   Write the method of preparation of diazomethane.

6.   Give an example for intermolecular rearrangement.

7.   Write the reaction of Fries rearrangement.

8.   How will you convert furan into pyrrole?

9.   Write the structures of piperine and nicotine.

10. Write a note on Isoprene rule.

PART-B

Answer EIGHT questions. Each question carries five marks.   **(8 x 5 =40 marks)**

11. Starting from nitrobenzene, propose a scheme for the synthesis of p-dinitrobenzene.

12. Take aniline and N-methylaniline as typical examples, discuss the effect of substituents on the basicity of aromatic amines.

13. Explain the mechanism of diazotization .

14. What is a racemic mixture? How a racemic mixture is separated by biochemical method?

15. Discuss about asymmetric synthesis.

16. How will you synthesis propanoic acid and succinic acid from ethyl acetoacetate?

17. Describe the synthetic applications of diazoacetic ester.

18. Discuss the mechanism of Hoffmann rearrangement.

19. Discuss Claisen rearrangement with suitable example and give evidence for its intramolecular nature.

20. Give Skraup's synthesis of quinoline.

21. What happens when quinoline and isoquinoline are oxidised with alkaline $KMnO_4$?

22. Describe the estimation of groups present in alkaloids.

PART-C

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

23. a. Discuss the reduction of nitrobenzene in acid, alkaline and neutral medium.

    b. Starting from benzene diazonium chloride, how will you obtain

    (i) Chlorobenzene   (ii) biphenyl

24. a. Give the structure of the following.

    (i) S-2-butanol   (ii) R-2-hydroxypropanoic acid   (iii) 2R,3S-dibromobutane

    b. Explain optical activity in allene compounds.

25. a. How will you synthesize the following compounds from diethyl malonate?

    (i) adipic acid   (ii) glycine

    b. Describe the synthetic uses of ethyl cyanoacetate.

26. a. Explain the Cope and Oxycope rearrangements.

    b. Discuss the mechanism of pinacol-pinacolone rearrangement and also discuss the migratory aptitude of this rearrangement.

27. a. Write a short note on Hinsberg test.

    b. Write a note on nucleophilic substitution in pyridine.

28. a. Describe the general properties of alkaloids.

    b. How are terpenes isolated from natural sources?

****