



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – CHEMISTRY

FIFTH SEMESTER – NOVEMBER 2011

CH 5505 - ORGANIC FUNCTIONAL GROUPS - II

Date : 31-10-2011
Time : 9:00 - 12:00

Dept. No.

Max. : 100 Marks

SECTION-A

ANSWER ALL THE QUESTIONS

(10x2=20)

1. Name the product obtained when nitrobenzene is reduced electrolytically.
2. How is p-dinitrobenzene prepared?
3. Explain the tautomerism exhibited by nitro ethane.
4. How many optical isomers are possible for tartaric acid and what are they?
5. What is racemic mixture?
6. How is ethyl aceto acetate prepared?
7. What is cope rearrangement?
8. How will you convert furan into pyrrole?
9. Among furan, thiophene and pyrrole which is more reactive and why?
10. State isoprene rule.

SECTION-B

ANSWER ANY EIGHT QUESTIONS

(8x5=40)

11. Discuss the reduction of nitrobenzene under different media.
12. Which is more basic among $\text{CH}_3\text{N H}_2$, $\text{C}_6\text{H}_5\text{NH}_2$ and NH_3 ? Why?
13. Explain Hinsberg's method of separation of amines.
14. What is resolution? Explain any two methods of resolution.
15. What is Claisen ester condensation? Give its mechanism.
16. Discuss the optical activity of allenes.
17. How is diazomethane prepared? Discuss any four synthetic applications of diazomethane.

18. Explain Claisen rearrangement with a suitable example.
19. Discuss the conversion of benzil into benzilic acid.
20. Explain the general method of elucidation of alkaloids.
21. Outline the synthesis of nicotine.
22. How is pyridine prepared? Give two examples for electrophilic substitution reactions of pyridine.

SECTION-C

ANSWER ANY FOUR QUESTIONS

(4x10=40)

23. What is diazotization? How is benzene diazonium chloride useful in the synthesis of the following compounds?
a) Benzene b) Chlorobenzene c) Phenyl hydrazine d) Benzoic acid
24. a) What are diastereomers? Explain with an example.
b) What is Walden inversion? (7+3)
25. a) Explain why nitro group is deactivating and meta directing in the electrophilic substitution reactions.
b) How is TNT prepared?
26. How is malonic ester prepared? Explain the synthesis of the following compounds using malonic ester. (2 + 8)
a) n-butyric acid b) crotonic acid c) succinic acid d) adipic acid
27. Discuss the following reactions with mechanism:
a) Pinacol- pinacolone rearrangement. (5)
b) Beckmann rearrangement. (5)
28. a) Write the structure of piperine and give its synthesis. (5)
b) Give any one method for synthesis of quinoline. (5)

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