



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – CHEMISTRY

THIRD SEMESTER – NOVEMBER 2016

CH 3951 - APPLIED ORGANIC CHEMISTRY

Date: 07-11-2016
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

Part-A

Answer ALL questions.

(10 x 2= 20)

1. Define the term velocity gradient in a steady flow process.
2. Draw and interpret the boiling point diagram of a two component system.
3. Give an example to show the displacement of tosyloxy group with $R_2Cu Li$.
4. Mention the use of organoselenium compounds in the synthesis of naphthols from β -ketoesters.
5. What are green solvents? Give examples.
6. Define % atom economy.
7. What is acoustic cavitation?
8. List out the advantages of microwave heating over conventional heating.
9. What are the various types of phase transfer catalytic reactions?
10. Discuss the role of phase transfer catalyst in polymerization reaction.

Part-B

Answer any EIGHT questions.

(8 x 5= 40)

11. Discuss the applications of extraction techniques in the separation process.
12. Write an explanatory note on Newtonian and non-Newtonian fluids.
13. Explain the mechanism of McMurry reaction.
14. How is Gilman reagent prepared? Explain its use.
15. Write a note on high nucleophilicity and hard nature of organolithium compounds.
16. Compare the atom economy of substitution and elimination reactions.
17. Discuss the uses of dimethyl carbomate as a green reagent.
18. Describe the mechanism involved in microwave heating of materials.
19. Compare the conventional method with microwave irradiation of deprotection of esters.
20. Discuss the effect of ultrasound in the following reactions:
(a) Solvolysis and (b) Substitution
21. Explain the mechanism of phase transfer catalysis in the reaction between 1-chlorooctane and sodium cyanide.
22. Briefly explain the role of phase transfer catalyst in etherification and esterification reactions.

Part-C

Answer any **FOUR** questions.

(4 x 10= 40)

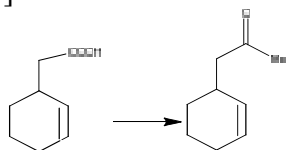
23 a. Write a note on industrial scale nitration. (6)

b. What are the types of flow? What is meant by energy of balance? (4)

24a. How are organo aluminium compounds prepared? Explain any two reactions of organoaluminium compounds. (6)

b. Effect the following conversions: (4)

i]



ii] Formidine \longrightarrow Tetrahydroisoquinoline

25a. Explain the reaction mechanism of pinacolic coupling. (5)

b. How are organo selenium compounds synthesised? Explain the use of organo selenium compounds in any one of the syntheses of organic compounds. (5)

26a. Discuss the principles of green chemistry. (5)

b. Write the importance of polymer supported catalyst citing an example. (5)

27. Describe the microwave assisted organic reactions carried out in the presence of solvents and in solvent free conditions.

28a. Discuss the synthesis of quaternary ammonium salts and macrocyclic ethers. (5)

b. Draw the structure of purple benzene and discuss its importance in organic synthesis. (5)
