



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – CHEMISTRY

THIRD SEMESTER – NOVEMBER 2015

CH 3951 - APPLIED ORGANIC CHEMISTRY

Date : 11/11/2015

Dept. No.

Max. : 100 Marks

Time : 09:00-12:00

Part-A

Answer ALL questions.

(10 × 2 = 20)

1. Explain the boiling point diagram of a two component system.
2. What is Reynold's number? Mention its characteristics.
3. Give equation for the following name reactions.
(a) Normant reaction (b) McMurray reaction
4. Give the advantages of batch process over continuous process.
5. What is acoustic cavitation?
6. Draw the structure of purple benzene and mention its importance.
7. Mention the importance of biocatalysis in green synthesis with an example.
8. What are the advantages of phase transfer catalysts in organic synthesis?
9. Write the limitations of a microwave based organic synthesis.
10. What are ionic liquids? Give an example

Part-B

Answer any EIGHT questions.

(8 × 5 = 40)

11. Explain energy balance for single-stream process.
12. Write a note on the factors which influence the process scaling.
13. Explain the applications of leaching and extraction techniques in the separation processes.
14. Describe the working principle of tray dryers.
15. Write a short note on pinacol coupling reaction with a suitable example.
16. Discuss the mechanism and stereochemistry of reduction of alkyl halides by SmI_2 .
17. What is sonochemistry? Discuss its importance in synthetic organic chemistry.
18. Briefly discuss the principle and instrumentation of microwave assisted organic synthesis.
19. Discuss polymer supported catalysis in green chemistry with example.
20. Explain the concept of selectivity with its types towards green synthesis.
21. Discuss the synthesis of quaternary ammonium salts and macrocyclic ethers.
22. Explain the mechanism of a phase transfer catalytic reaction.

Part-C

Answer any FOUR questions.

(4 × 10 = 40)

- 23a. Explain the various components involved in continuous fractionating column with rectifying and stripping section.
- b. Mention the various classifications of fluid dynamics. How are they correlated by shear stress and shear rate? **(6+4)**
- 24a. Explain the use of rate equation in reactor design.
- b. Write a short note on agitation and mixing processes. **(5+5)**
- 25a. Explain the mechanism of preparation of organomagnesium reagent and give its reaction with methylformate.
- b. What is McMurray olefination? Explain the role of TiCl_4 in McMurray olefination. **(6+4)**
26. Explain the choice of starting material, reagents and solvents in green synthesis.
27. Write any five organic reactions carried out by microwave irradiation and mention its advantages over conventional methods.
- 28a. What are phase transfer catalysts (PTCs)? Explain their types with examples. **(5)**
- b. Discuss the importance of PTC in the esterification and condensation reactions. **(5)**
