



**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**

**M.Sc. DEGREE EXAMINATION - CHEMISTRY**

**THIRD SEMESTER – NOVEMBER 2013**

**CH 3951 - APPLIED ORGANIC CHEMISTRY**

Date : 12/11/2013

Dept. No.

Max. : 100 Marks

Time : 9:00 - 12:00

**Part-A**

*Answer all questions. Each question carries two marks.*

01. Explain the following: (a) relative volatility and (b) reflux ratio.
02. Write Fourier law of heat conduction.
03. What is Murphree efficiency? How it is correlated with overall efficiency?
04. What is D.V.S. ratio? Mention its significance.
05. Give any two methods of preparation of  $\text{SmI}_2$ .
06. Grignard reaction is not considered as green reaction. Why?
07. Explain the advantage of Diels-Alder reaction carried out by sonication over the other methods.
08. Write the importance of use of auxiliary substances in green chemistry.
09. Give any four applications of phase transfer catalysts.
10. What is piezoelectric effect?

**Part-B**

*Answer eight questions. Each question carries five marks*

11. Explain briefly about azeotropic and extractive distillation processes.
12. What are the various factors which affect the plate efficiency?
13. Write Bernoulli equation and give its significance.
14. Describe various mechanisms by which heat flows.
15. Discuss the synthetic applications of  $\text{SmI}_2$  in organic synthesis.
16. Write short note on stirrers.
17. Explain the concept of atom economy for a Claisen rearrangement.
18. Write and explain the role of chlorofluorocarbon on ozone layer.
19. What is meant by phase transfer catalyst? Explain their functions.
20. Discuss the effect of ultrasound in the following reactions:  
(a) Solvolysis and (b) substitution
21. Explain the advantages of sonochemistry in the following reactions:  
(a) Diels-Alder addition and (b) Reduction.
22. Write short notes on *green solvents*.

**Part-C**

*Answer four questions. Each question carries ten marks*

23. (a) What is Reynold's number? How are the types of flow identified in Reynold's experiment? (5)  
(b) Draw a complete set of continuous fractionating column with rectifying and stripping sections. (5)
24. (a) Sketch the acid operation flow chart of a nitration process. (5)  
(b) Explain the working principle of Schmid nitrator. (5)
25. Discuss the twelve principles of green chemistry in detail. (10)
26. Discuss the importance of following towards green synthesis.  
(i) Designing green synthesis (ii) Biocatalysts (5 + 5)
27. Write any five organic syntheses carried out in ultrasound and explain their advantages over other conventional methods. (10)
28. (a) Explain the mechanism of a phase transfer catalyst reaction. (5)  
(b) Give any two synthetic applications of organocadmium and organocopper. (5)

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