 LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FOURTH SEMESTER – APRIL 2011

# CH 4955 - ORGANIC CHEMICAL TECHNOLOGY

 Date : 09-04-2011 Dept. No. Max. : 100 Marks

 Time : 9:00 - 12:00

**PART-A**

*Answer* ***ALL*** *questions*. (10 × 2 = 20 marks)

01. Give the correlation between different temperature units.

02. Define the term velocity gradient.

03. Mention the advantages of inclined monometer over monometer.

04. Define the following.

a) extraction battery b) diffusion battery

05. Compare the characteristics of distillation and extraction processes.

06. How is the formation of nitronium ion from nitration mixture detected and confirmed?

07. How is the DVS ratio of a mixed acid calculated?

08. Why chlorination reaction is more important for industry?

09. How are temperature controlled reactions performed industrially?

10. How is spent acid from nitration reaction recycled?

**PART-B**

*Answer any* ***EIGHT*** *questions*. (8 × 5 = 40 marks)

11. What are the standards of five basic SI units for mass, length, time, temperature, and mole?

12. What are Newtonian and non-Newtonian fluids?

13. Explain the working principle of centrifugal decanter for immiscible liquids.

14. Derive an expression for the barometric equation.

15. Explain the material balances in plate column with reference to two-component systems.

16. Explain the working principle of moving-bed leaching machine.

17. Classify various chemical reactors and give a brief account on each.

18. Write detailed notes on complex series reactions.

19. Draw Hough nitrator and explain the method of preparation of mononitrobenzene.

20. Explain in detail the types of oxidizing agents used for industrial preparations.

21. How various types of reactors built for halogenation reactions? Explain.

22. Explain the preparation of a dye industrially?

**PART-C**

*Answer any* ***FOUR*** *questions*. (4 × 10 = 40 marks)

23. Discuss the energy for single-stream process.

24. a) Define the following
 (i) Murphree efficiency (ii) Shank process

 b) Explain the factors influencing plate efficiency.

25. a) Explain the method of leaching by percolation through stationary solid beds.

 b) Write short notes on different types of impellers.

26. a) Compare batch reactor and longitudinal flow reactor for their performance and types of reactions.

b) What is back mixing? Explain the effect of back mixing in consecutive reactions.

27. a) What are different types of nitrating agents? Explain the mechanism of each reaction.

b) List out various workup procedures to isolate sulphonated products. Explain each one in detail.

28. With a complete flow chart, explain the industrial preparation of penicillin.

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