 LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FOURTH SEMESTER – APRIL 2012

# CH 4955 - ORGANIC CHEMICAL TECHNOLOGY

Date : 20-04-2012 Dept. No. Max. : 100 Marks

Time : 1.00 - 4.00

**PART-A**

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

01. Mention any two rheological properties of fluids.

02. What is inclined manometer? Give its advantages.

03. Define the following.

a) extraction battery b) diffusion battery

04. Give the correlation between different temperature units.

05. What is Couette flow?

06. What are the factors affecting chemical process kinetics?

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

08. What are mild hydrogenating catalysts? Why are they called so?

09. Write all the products obtained when cumene hydrogenperoxide is hydrolysed?

10. How is industrial bulk preparation different from fine chemicals?

**PART-B**

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

11. Explain the total energy balance of steady flow process.

12. Derive barometric equation.

13. Explain the working principle of concurrent leaching experiment.

14. Write short notes on impellers.

15. Discuss about the Hydrostatic equilibrium in a centrifugal field.

16. Explain the various terminologies involved in the material balance diagram in plate column.

17. Write the complete classification of various chemical reactors.

18. Write detailed notes on parallel reactions and how is the product distribution affected due to back mixing?

19. Explain the industrial chlorination of benzene. How are byproducts managed?

20. Classify in detail the oxidizing agents used for industrial preparations.

21. How is moisture control done to maintain proper DVS ratio during the industrial nitration of benzene?

22. Explain the industrial preparation of a Hansa yellow dye.

**PART-C**

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

23. a) Derive Bernoulli’s equation of flow of liquid in potential flow. (5)

b) How the types of fluid flow identified by Reynolds experiment? (5)

24. a) What is inclined manometer? Give its advantages. (4)

b) Write notes on types of agitators and mixers. (6)

25. a) Derive an expression for the overall material balance of distillation of two component system in a plate column. (5)

b) Explain the working principle of tray dryer. (5)

26. a) What are complex series reactions? Explain their importance. (5)

b) How is nitration of benzene done using Biazzi nitrator? (5)

27. a) Compare the reactivity of liquid SO3 and sulphuric acid towards sulphonation reactions. (4)

b) Explain the industrial preparation of penicillin. (6)

28. a) How is industrial scaling up done? (4)

b) Write the preparation of blue and red pigments. (6)

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