LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc.DEGREE EXAMINATION – **CHEMISTRY**

FOURTHSEMESTER – APRIL 2018

CH 4955- ORGANIC CHEMICAL TECHNOLOGY

Date: 09-05-2018   Dept. No.   Max. : 100 Marks
Time: 09:00-12:00

Part-A

Answer ALL questions.   (10 × 2 = 20)

1. Mention any two rheological properties of fluids.

2. What is inclined manometer? Give its advantages.

3. How is leaching process advantageous over washing and filtration processes.

4. What is Murphree efficiency?

5. Explain the term 'reflux ratio'.

6. What are the different types of chemical process kinetics?

7. Why is the concentration of sulphuric acid maintained very high during nitration of benzene?

8. Name any two blue and red dyes.

9. What are the different types of oxidation reactions carried out industrially?

10. How is paracetamol prepared?

Part-B

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

11. What are the various types of impellers? Give their applications.

12. Explain the working principle of concurrent leaching experiment.

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

14. Sketch temperature – length curve for counter flow and parallel flow of fluids.

15. Derive an expression for the overall material balance of distillation of two component system in a plate column.

16. Draw a complete set of continuous fractionating column with rectifying and stripping sections.

17. Why are ferrous metals used extensively as reactor materials? What are their merits and demerits?

18. How is aliphatic nitration carried out? What are the products formed when 2,3-dimethylpentane is nitrated? Write the mechanism of the reaction.

19. Draw Hough nitrator and explain the process of nitration of benzene.

20. How is benzenesulphonic acid prepared and purified industrially?

21. Write the industrial preparation of penicillin.

22. How is up-gradation from laboratory level to pilot plant done?

Part-C

Answer any FOUR questions.   (4 × 10 = 40)
23a. Discuss the energy balance in a steady flow process.   (5)

b.   Explain the hydrostatic equilibrium in a centrifugal field. (5)

24a. Discuss the energy equation for a potential flow process. (5)

  b. Derive an expression for the barometric equation. (5)

25a. What are complex series reactions? Explain them with examples. (5)

  b. Explain the working principle of concurrent leaching experiment. (5)

26a. Discuss the batch and flow processes. (5)

  b. Compare the merits and demerits of fixed and fluidized bed reactors. (5)

27a. Discuss the types and shapes of reactors used for industrial preparation. (6)

  b. Give any method of the preparation of titanium dioxide. (4)

28a. Why is chlorination reaction preferred often by industry over other halogenation reactions?

  b. How is Research and Development useful for the growth of an industry? (5 + 5)

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