



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – CHEMISTRY

FOURTH SEMESTER – APRIL 2015

CH 4955 - ORGANIC CHEMICAL TECHNOLOGY

Date : 20/04/2015
Time : 09:00-12:00

Dept. No.

Max. : 100 Marks

Part-A

Answer all questions. Each question carries two marks. (10x2=20)

1. Mention the advantages of inclined monometer.
2. What are adiabatic and non-adiabatic dryers?
3. What is Murphree efficiency? How it is correlated with overall efficiency?
4. How leaching process is advantageous over washing and filtration process?
5. Mention any two rheological properties of fluids.
6. What are the factors that affect chemical process kinetics?
7. What is DVS ratio? What is its value for the mono and dinitration of benzene?
8. Name any two industrial oxidation reactions.
9. How is mild hydrogenation done? Give any one example.
10. How is paracetamol prepared?

Part-B

Answer any eight questions. Each question carries five marks. (8x5=40)

11. Give the SI units for mass, length, time, temperature, and mole.
12. What are Newtonian and non-Newtonian fluids?
13. Explain the 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 principle of moving-bed leaching machine.
17. Classify various chemical reactors and explain each one briefly.
18. Explain the effect of back-mixing on product distribution in parallel and series reactions.
19. Draw Hough nitrator and how is it useful to prepare *o*- and *p*-chloronitrobenzene?
20. Discuss the design and reactor material used for various types of chlorination processes.
21. How important is the quality control unit in industry? What are its functions?
22. Explain the industrial preparation of penicillin.

Part-C

Answer any four questions. Each question carries ten marks. (4x10=40)

23. Discuss the energy balance in steady flow process.

24a. Explain the theory of plate efficiency.

b. Describe the principle and working of flash distillation of binary mixtures.

25a. Describe the working of moving-bed leaching equipment.

b. Write briefly on different types of impellers.

26a. What are fixed and fluidized bed reactors? Explain them in detail.

b. Explain complex series reactions? How does back mixing affect product distribution and holding time of these reactions?

27a. What are the different types of nitrating agents? Explain the mechanism of nitration of benzene based on industrial preparation.

b. Explain in detail the preparation of red pigment.

28a. How is benzene chlorinated industrially and what are the methods used to separate chlorobenzene from the byproducts?

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