II. Long answers (Answer two out of three questions) 10x2=20

1. Discuss the various ways by which aromatic nitration is accomplished. What are the kinetics of aromatic nitration 7+3=10
2. Explain the five types of oxidative reactions depending upon the types of bond changes involved. 5X2=10
3. Discuss the crystallization from aqueous and non-aqueous solutions. What are the factors affecting crystallization? 6+4=10

III. Short answers (Answer seven out of nine questions) 5x7=35

1. Give the mechanism of free radical nitration and Ter-Meer reaction. 2.5+2.5=5
2. Write a note on Ipso nitration giving the mechanism of nitration of an aryl caboxylic acid. 5
3. What are the purposes and basic principle of process validation? 5
4. Why is bromination regioselective than chlorination?. Explain with energy diagram. 5
5. Explain any one of the process equipment for technical nitration with neat and labelled diagram. 5
6. Discuss briefly a case study on inustrial halogenation process with proper diagram? 5
7. Write a note on metal hydride reduction giving emphasis on synthetic applications. 5
8. Discuss the mechanism and application of ozonolysis reaction of alkenes. 5
9. What do you mean by MSDS? Mention various section formats of MSDS. 5

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PG (CBCS) EVEN SEMESTER EXAMINATION, 2024

PHARMACEUTICAL SCIENCES
(M.Pharm. 2nd Semester)

Course No: MPC 204T

(Pharmaceutical Process Chemistry)

Full Marks : 75

Time : 3 hours

The figures in the margin indicate full marks for the questions

I. Objective type (Answer the following in brief) 2x10=20

1. What do you mean by hydrates and solvates?
2. What is pilot-scaleup process?
3. What is the difference between batch and continuous nitration?
4. What is the difference between heterogenous and homogenous catalyst? Give examples.
5. What is the product when 2-methylpent-1-ene is treated with ozone and DMS? Give necessary reaction.
6. What is the specific product obtained after anti-addition of bromine to cis and trans alkene?
7. What is Balz-Schiemann reaction? Give reaction.
8. What do you mean by the term genotoxic impurities?
9. Give the structure of a MACHO catalyst?
10. Give four example of nonmetallic oxidizing agents.