M.Pharm Even Semester Examination, May, 2025

PHARMACEUTICAL SCIENCES

(2nd Semester)

Course No: MPC-204T

(Pharmaceutical Process Chemistry)

FM: 75

Time: 3 Hours

The figures in the right margin indicate full marks for the question

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

1. Define validation of large scale process as per WHO and USFDA.
2. What is pilot-scaleup process?
3. What do you mean by polymorphs and hydrates?
4. What is the difference true nitration and formation of organic nitrates?
5. What are homogenous catalysts? Give an example with structure.
6. What is the general mechanism of electrophilic aromatic substitution?. Give an example.
7. Write down briefly the commercial production of a non-metallic oxidizing agent.
8. What do you mean by the term industrial safety?
9. What is free radical halogenation?

10. What is the kinetic of nitration with mixed acid and nitration in organic solvent?.

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

1. Describe a case study of an industrial halogenation with a schematic process diagram. 7+3=10

2. Explain the five types of oxidative reactions with examples. 5X2=10

3. What are the factors affecting crystallization and nucleation?.Explain the general methods of preparation of solvates and amorphous APIs. 6+4=10

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

1. Discuss the mechanism and workup procedure of ozonolysis reaction of alkenes. 5

2. What do you mean by MSDS? Mention four important Sections under GH system of classification and labelling of chemicals. 1+4=5

3. Write a note on Dakin oxidation reaction with mechanism and synthetic applications. 5

4. Discuss metal hydride reduction with reactions. 5

5. Why is bromination is more regioselective than chlorination?. Explain with energy diagram. 5

6. Discuss briefly a case study on inustrial halogenation process with proper diagram? 5

7. What are the various sources and types of genotoxic impurities? 5

8. What are the purposes and basic principle of process validation? 5

9. Explain Biazzi nitrator for technical nitration with neat and labelled diagram. 5

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