M.Pharm Even Semester Examination, May, 2025

PHARMACEUTICAL SCIENCES

(2nd Semester)

Course No: MPC-202T

(Advanced Organic Chemistry-II)

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. What is acoustic cavitation and how does it assist in ultrasound-mediated reactions?
2. Explain the term 'superheating effect' in microwave-assisted organic synthesis.
3. How does the choice of solvent influence microwave-assisted reactions?
4. Give two advantages of solid-phase peptide synthesis over solution-phase peptide synthesis.
5. What is the importance of purification after peptide synthesis? Name one method used.
6. Mention two characteristics common to all pericyclic reactions.
7. Define optical activity. How is it measured?
8. What is a meso compound? Give one example
9. Define *cis-trans* isomerism with an example.

Turn Over

10. What is the importance of Fischer projection in stereochemistry?

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

1. Discuss the mechanism of microwave heating.Write in details aboutthe application of microwave-assisted reactions in various organic reactions and synthesis of heterocycles. 6+4

2. What are peptides? Discus with examples how the t-BOC and FMOC strategies can be utilized for synthesis of peptides. 3+7

3. Describe the basic principles involved in photochemical reactions. Discuss in details about various classes of photochemical reactions. 3+7

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

1. Discuss in details about the principles of green chemistry. 5

2. Write a note on various coupling reagents used in peptide synthesis. 5

3. Define pericyclic reaction. Classify and discuss various types of pericyclic reactions with proper examples. 1+4

4. Discuss Cahn-Ingold-Prelog (CIP) Sequence rule for determining absolute stereochemistry of a molecules. 5

5. Elaborate the instrumentation and synthetic applications of continuous flow reactions. 2+3

6. Define geometric isomerism and describe *cis-trans* isomerism with suitable examples. 1+4

7. Write a short note on various solid supports and linkers used in solid phase peptide synthesis. 5

8. Define stereoisomerism. Differentiate various classes of isomers with proper examples. 1+4

9. Discuss the principle and instrumentation of ultrasound assisted synthesis. 5

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