

D4ACH2302

(2 Pages)

Name

Reg. No.

FOURTH SEMESTER M.Sc. DEGREE EXAMINATION, APRIL 2025
(Regular/Improvement/Supplementary)

CHEMISTRY

FCHE4E05 - SUPRA-MOLECULAR, MEDICINAL AND GREEN CHEMISTRY

Time: 3 Hours

Maximum Weightage: 30

Section A: Short answer questions. Answer any *eight* questions. Each question carries *one* weightage.

1. What is meant by π - π stacking interactions in supramolecular chemistry?
2. Explain the need for green chemistry.
3. Give the structure of uracil and thymine.
4. Differentiate between a prodrug and a normal drug?
5. What is QSAR? Outline its role in drug discovery process.
6. Illustrate Baldwin rules for *exo* and *endo* cyclisation systems.
7. What is meant by Mitsunobu reaction? Give an example.
8. Highlighting the criteria, explain click reactions.
9. Emphasizing an example, write down the main principle of combinatorial chemistry.
10. Write a short note on the types of mechanically interlocked molecules in supramolecular chemistry.
11. What is meant by research hypothesis?
12. Highlight the various steps of research planning.

(8 × 1 = 8 weightage)

Section B: Short essay questions. Answer any *four* questions. Each carries *three* weightage.

13. Discuss the applications of supramolecular chemistry in medicine and molecular sensors.
14. State any 9 of the 12 principles of green chemistry.
15. Discuss briefly the principle of ultrasound assisted reactions with suitable examples.
16. Explain Julia and Peterson olefination reactions with suitable examples.

(P.T.O.)

17. Explain the following.
i) Passerini reaction; ii) Ugi-4-component reaction.
18. What is Sharpless azide-alkyne cycloaddition reaction? Explain its mechanism.
19. Write notes on the following.
i) INFLIBNET; ii) Impact factor; iii) Web of science

(4 × 3 = 12 weightage)

Section C: Essay questions. Answer any two questions. Each carries five weightage.

20. Discuss the different classifications of molecular receptors in supramolecular chemistry.
21. Give a detailed account on the principle of Merrifield solid phase peptide synthesis.
22. Discuss the synthesis of:
i) Quinoline; ii) Benzoxazole; iii) Benzothiophene; iv) Indole.
23. Explain the various factors governing drug design.

(2 × 5 = 10 weightage)