K25P 0968

Reg. No. : .....

Name : .....

IV Semester M.Sc. Degree (C.B.C.S.S. – OBE-Regular) Examination, April 2025
(2023 Admission)
CHEMISTRY
MSCHE04E01 : Interdisciplinary Topics and Instrumentation Techniques

Time : 3 Hours Max. Marks : 60

SECTION – A

Answer **any 5**. **Each** question carries **3** marks.

1. Define supramolecular chemistry and mention its significance.
2. Explain host-guest chemistry.
3. Explain any three principles of green chemistry.
4. Explain the role of phase transfer catalysts in green synthesis.
5. Define nanostructures and provide two examples.
6. Mention any three applications of nanotechnology in the biomedical field.

(5×3=15)

SECTION – B

Answer **any 3**. **Each** question carries **6** marks.

7. Discuss different types of molecular forces involved in supramolecular chemistry.
8. Compare Aldol condensation in classical vs. green chemistry approaches.
9. Explain lithography and self-assembly in nanostructure formation.
10. Describe the principles and applications of Nephelometry and Turbidimetry.
11. Explain the significance of Mossbauer spectroscopy in studying oxidation states of iron.

(3×6=18)

P.T.O.

SECTION – C

Answer **any 3**. **Each** question carries **9** marks.

12. Discuss in detail multiple recognition mechanisms and their applications.

13. Explain microwave organic synthesis and its advantages in green chemistry.

14. Discuss various nanostructures like tubes, fibres and bricks and their applications.

15. Explain the basic principles of Electron Spin Resonance (ESR) spectroscopy and its applications.

16. Describe the Mossbauer effect and its relevance to chemical isomer shifts.

(3×9=27)