

M. SC. IN CHEMISTRY
(MSCCHEM)

Term-End Examination

June, 2026

MCHE-013 : SUPRAMOLECULAR CHEMISTRY

Time : 2 Hours

Maximum Marks : 50

Note : Attempt any *five* questions.

1. (a) With the help of suitable examples explain cation- π interactions. 5
- (b) Explain van der Waals interactions and give its role in supramolecular chemistry. 5
2. (a) What are the different types of cooperativity in supramolecular chemistry ? Explain them with the help of suitable examples. 5

- (b) What is meant by selectivity regarding a functional host-guest system ? What are its types ? Discuss their important features. 5
3. (a) With the help of suitable diagrams explain the development of a supramolecular system from molecular building blocks. 5
- (b) Give various ways by which pre-organisation reduces the entropic penalty during binding. 5
4. (a) What is enthalpy-entropy contribution and how does it influence supramolecular binding ? 5
- (b) Discuss how supramolecular systems have been designed to mimic the structure or function of more complex biological systems. Give any *two* examples. 5

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5. (a) What are rotaxanes ? Give a suitable diagram for it. 5
- (b) Give the details of self-assembling coordination compounds with an example. 5
6. (a) Write a short note on tectons and synthons. 5
- (b) Differentiate between cavitands and clathrands giving suitable representative diagram. 5
7. (a) List various shapes/geometries exhibited by anions. Also give a suitable example for each of them. 5
- (b) Discuss the advantages and limitations of cyclodextrons. 5

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