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25-CH-42

**M.Sc. IV SEMESTER [MAIN/ATKT] EXAMINATION
MAY - JUNE 2025**

CHEMISTRY
Paper - II
[Solid State Chemistry]

*[Max. Marks : 75]**[Time : 3:00 Hrs.]**[Min. Marks : 26]*

Note : Candidate should write his/her Roll Number at the prescribed space on the question paper.
Student should not write anything on question paper.
Attempt all five questions. Each question carries an internal choice.
Each question carries **15 marks**.

- Q. 1** Explain co-precipitation as a precursor to solid state reaction and kinetics of solid state reactions in detail ?

OR

Explain general principles of solid state reaction and write the experimental procedures involved in solid state reactions ?

- Q. 2** Write note on (**any two**) -

- i) Line and Plane defects.
- ii) Color Centres.
- iii) Non - Stoichiometry and defects.

OR

Explain Schottky and Frenkel defects and write the thermodynamics of Frenkel defects ?

- Q. 3** Write notes on **any two** -

- i) Semi - conductors.
- ii) Insulators.
- iii) P-n Junctions.

OR

Explain Band theory in detail along with band structures of metals, insulators and semi-conductors ?

P.T.O.

Q. 4 Explain conductivity in Poly-P-Phenylene and doped Polyacetylene.

OR

Explain in detail organic metals charge transfer complex and their conductivity.

Q. 5 What are Liquid Crystals ? Explain types of Liquid crystals and their applications.

OR

Write notes on -

- i) Theories of Liquid Crystals.
- ii) Liquid Crystal Display (LCD).

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