

MANONMANIAM SUNDARANAR UNIVERSITY

DIRECTORATE OF DISTANCE AND CONTINUING EDUCATION

INTERNAL ASSIGNMENT FOR MAY 2025 EXAMINATIONS

M. Sc Chemistry – First Semester

Organic Reaction Mechanism - I

Sub-Code: SCHM11

- 1.) (A) i) Discuss Hammond's postulate.
ii) Comment on kinetically and thermodynamically controlled reactions

(OR)

- (B) Explain: i) Hammett equation
ii) Curtin-Hammett principle with examples.

- 2.) (A) Explain the stereo chemistry of spiranes allenes and Anza compounds with suitable examples.

(OR)

- (B) i.) Discuss the neighbouring group participation of π – and σ – bonds.
ii) Explain cahn Ingold – Prelog rules

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M. Sc Chemistry – First Semester

Structure and Bonding in Inorganic Compounds

Sub-Code: SCHM12

- 1.) (A) Discuss the M.O.T. of heteronuclear diatomic and triatomic molecules.

(OR)

- (B) Comment on the structure and bonding in Boranes and Carboranes.

- 2.) (A) i.) Discuss the structure and bonding features of silicates and silicones
ii) Describe the structural feature of Rock salt, Zinc blende & wurtzite

(OR)

- (B) i) Explain the crystal systems and lattices.
ii) Discuss the defects in crystals and their effect on electrical and optical property.

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M. Sc Chemistry – First Semester

Nano Materials and Nano Technology

Sub-Code: SCHE11

- 1.) (A) i.) Describe the synthesis of nanomaterials by chemical methods.
ii.) Give the synthesis of nanoparticles by sol gel and hydrothermal method.

(OR)

- (B) i.) Explain the synthesis of Au & Ag nanoparticles
ii.) Discuss the synthetic route of metaloxide nanomaterials.

- 2.) (A) Discuss the classification and electrical properties of semiconductor materials.

(OR)

- (B) Explain the principle, instrumentation and applications of SEM, TEM and AFM techniques.

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M. Sc Chemistry – First Semester

Molecular Spectroscopy

Sub-Code: SCHE12

- 1.) (A) Give the principle, theory and applications of photoelectron spectroscopy.

(OR)

- (B) Derive the expression for harmonic and anharmonic oscillator and discuss the selection rule and energy expression for vibrational molecules.

- 2.) (A) Discuss the various ionization techniques in mass spectrometry.

(OR)

- (B) Explain the 2D NMR Spectroscopy (COSY , NOESY and HETCOR)