

MANONMANIAM SUNDARANAR UNIVERSITY

DIRECTORATE OF DISTANCE AND CONTINUING EDUCATION

INTERNAL ASSIGNMENT FOR 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)