M.Sc., Paper-III

Organic Chemistry

Part - I

NALANDA OPEN UNIVERSITY
BISCOMAUN BHAWAN, PATNA

Course Preparation Team

Prof. Jagdamba Singh
Department of Chemistry
University of Allahabad
(Units 1 to 9)

Chief Course Co-ordinator
KRIPA SHANKAR SINHA
Former Prof. & Head
Deptt. of Chemistry
Magadh University, Bodh Gaya.

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Further Information, if any, regarding courses of the Nalanda Open University may be obtained from the University Office at 3rd Floor, Biscomaun Bhawan, Gandhi Maidan, Patna-800 001

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M.SC., PART – I, PAPER-III

ORGANIC CHEMISTRY

Unit-1 :-	NATURE OF BONDING IN ORGANIC CHEMISTRY Delocalised chemical bonding, Conjugation, Cross Conjugation, Resonance, Hyperconjugation, Tautomerism, Aromaticity or Aromatic Character, Annulenes, Alternant and Non-Alternant Hydrocarbon, Huckel Molecular Orbital Theory	**1-18**
Unit-2 :-	STEREOCHEMISTRY Conformations of Cycloalkanes, Conformations of Fused Rings: Decalins, Effect of Conformation on Reactivity, Steric Strain due to unavoidable Crowding, Elements of Symmetry	**19-37**
Unit-3 :-	REACTION MECHANISM, STRUCTURE AND REACTIVITY Types of Reactions, Hammond's Postulate, Curtin-Hammett Principle, Carboanion, Carbocation, Carbene	**38-65**
Unit-4 :-	AROMATIC ELECTROPHILIC SUBSTITUTION Arenium Ion Mechanism, Orientation and Reactivity in Monosubstituted Benzenes, Steric Effect and Ortho/Para Ratios in Aromatic Electrophilic Substitution, Orientation in Other Ring System, Diazonium Coupling, Gattermann-Koch Reaction	**66-81**
Unit-5 :-	AROMATIC NUCLEOPHILIC SUBSTITUTION REACTION Aromatic nucleophilic Substitution (ArSN), ArSN1 Reaction, ArSN2 Reaction, Aromatic Nucleophilic Substitution Reaction via Benzyne (Arynes), SRN1 Mechanism, Factors affecting Reactivity in Aromatic Nucleophlic Substitutions	**82-91**
Unit-6 :-	FREE RADICAL REACTIONS Types of free Radical Reactions, Free Radical Substitution Mechanisms, Neghbouring Group Assistance in Free Radical Reactions, Reactivity, Hunsdiecker Reaction, Free Radical Rearrangement.	**92-103**

Unit-7 :-	ELIMINATION REACTION The E2 (Elimination Bimolecular) Reaction, Effects of the structure of the substrate, strength and concentration of the base, and effect of the leaving group on the rate of the E2 Reaction, E1 (Unimolecular Elimation) Reaction, Effects of the structure of substrate, strength of base, nature of leaving group and solvent on the rate of E1 reaction, E1cb Reaction	**104-118**
Unit-8 :-	ADDITION TO CARBON : CARBON MULTIPLE BONDS Electrophilic Addition to Carbon-Carbon Double Bond, Structural Orientation and Regioselectivity, Stereochemistry of Addition Reactions, Nucleophilic Addition, Michael Addition, Free Radical Addition	**119-134**
Unit-9 :-	ADDITION TO CARBON-HETERO MULTIPLE BONDS Aldol Reaction or Aldol Addition Reaction, Knoevengel Reaction, Perkin Reaction, Mannich Reaction, Benzoin Condensation, Claisen Ester Condensation	**135-158**