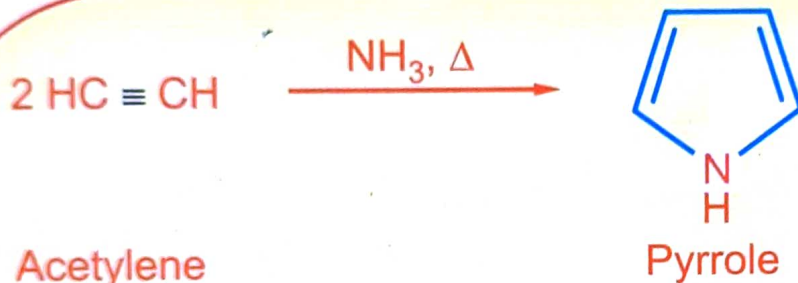


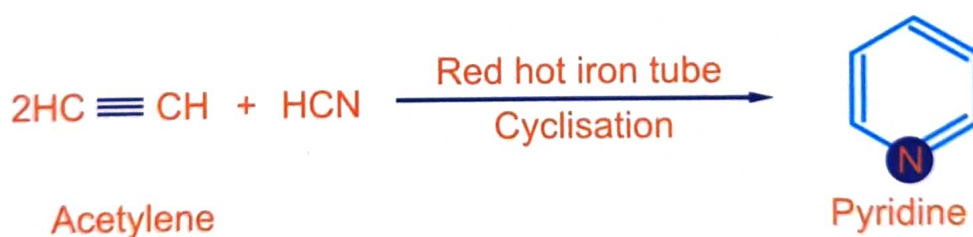
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Preface

This book is basically intended for B.Sc.-I students for Semester-I Course of Shivaji University, Kolhapur. This book is written according to new revised NEP - 2020 pattern syllabus being implemented from June 2023 prescribed by Shivaji University, Kolhapur.

It is our great pleasure to present this book to the students and respected teachers in proper time. The subject matter is presented in simple and lucid language. This book covers all the chapters mentioned in the syllabus. The material is presented in a comprehensive way and the sequence of articles in each chapter helps the students to understand the subject with ease.

Different diagrams and illustrative description is provided to enhance the learning and understanding of the matter by students as well as to enable the teachers to explain the difficult concepts properly. The solved numerical examples, long answer type questions, short answer type questions including multiple type questions are given at the end of each chapter.

We are thankful to Nirali Prakashan, Pune for making us a part of their team of Authors. We thank **Mr. Dineshbhai Furia** and **Mr. Jignesh Furia** for publishing this book.

Last but not the least we are very much indebted to Mr. Virbhaval Shinde (Marketing Executive, Kolhapur District) and Mr. Ashok Nanavare (Marketing Executive, Sangli District) for their nice co-operation. We are very much thankful to Mr. Kiran Kamble (Proof Reading), Ms. Chaitali Takle (Graphic Design) and Mr. Akbar Shaikh for a neat and error free D.T.P. of this book.

We hope that this book will be found useful by students and teachers. We will appreciate any suggestions for the improvement of the book.

Authors



Syllabus

Unit I: Fundamentals of Organic Chemistry (09 Hrs)

- Introduction, Curved Arrow Notations.
- Cleavage of Bonds: Homolysis and Heterolysis.
- Organic Molecular Species: Nucleophiles and Electrophiles.
- Electronic Displacements: Inductive Effect, Electromeric Effect, Resonance and Hyperconjugation Effect.
- Reactive Intermediates: Generation, Structure, Stability and Reactions of Carbocations, Carbanions, Carbon Free Radicals, Carbene and Nitrene.

Unit II: Stereochemistry (09 Hrs)

- Introduction
- Types of Stereoisomerism
- Representation of Organic Molecules using Wedge, Fischer, Sawhorse and Newman Formula
- Optical Isomerism: Concept of Chirality
- Elements of Symmetry
- Optical Isomerism in Tartaric Acid, 2, 3 Dihydroxybutanoic Acid
- Enantiomerism
- Diastereomerism and Meso Compounds
- Geometrical Isomerism in $C=C$, $C=N$ and Alicyclic Compounds
- Nomenclature of Stereoisomers: D and L, Erythro and Threo, R and S, E and Z.

Unit III: Aromaticity (06 Hrs)

- Introduction
- Characteristic Properties of Aromatic Compounds
- Meaning of Terms : Aromatic, Non-aromatic, Anti-aromatic, Pseudoaromatic
- Classification of Aromatic Compounds
- Structure of Benzene: Kekule Structure, Resonance Structure, M.O. Picture, Modern Theory of Aromaticity
- Mechanism of Electrophilic Substitution Reactions: Nitration, Sulphonation, Halogenation and Friedel-Crafts Reaction.

Unit IV: Heterocyclic Compounds (06 Hrs)

- Introduction, Classification and Nomenclature of Heterocyclic Compounds.
- Nitrogen Heterocycles:
 - (a) **Pyrrole**: Introduction, Synthesis, Physical and Chemical Properties.
 - (b) **Pyridine**: Introduction, Synthesis, Physical and Chemical Properties.



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| 4. Heterocyclic Compounds | 4.1 - 4.26 |



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