As Per New Syllabus (CBCS Pattern and NEP 2020)

Shivaji University, Kolhapur

B.Sc. Part-III : Semester-V

ORGANIC CHEMISTRY

CHEMISTRY (DSE-E6) : PAPER-X

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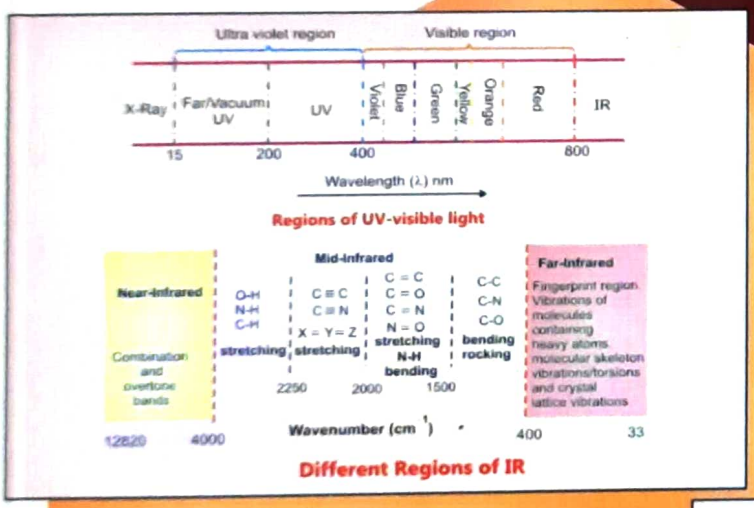

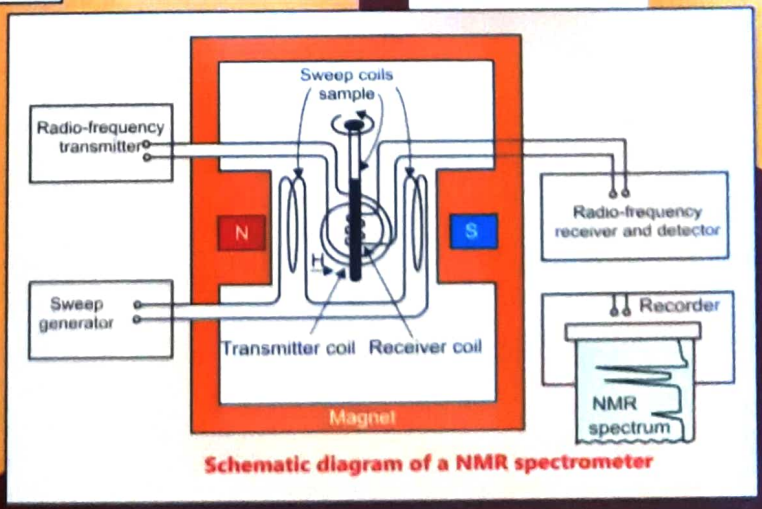

NIRALI PRAKASHAN

ADVANCEMENT OF KNOWLEDGE

A Text Book Of

ORGANIC CHEMISTRY

DSE - E6 : Paper - X

FOR

B.Sc. Part - III : Semester - V

As Per New Revised CBCS and NEP 2020 (1.0)
Pattern Syllabus of Shivaji University, Kolhapur w.e.f. June 2024

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Preface

This book is basically intended for B.Sc. Part-III students for Semester V Course of Shivaji University, Kolhapur. This book is written according to new NEP-2020 (1.0) pattern syllabus being implemented from June 2024 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. Virdhaval 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), Mrs. Anjali Muley (Graphic Design) and Mr. Malik 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 1. Introduction to Spectroscopy [03]

1. Meaning of spectroscopy.
2. Nature of electromagnetic radiation : Wavelength, frequency, energy, amplitude, wave number and their relationship.
3. Different units of measurement of wavelength and frequency.
4. Different regions of electromagnetic radiations.
5. Interaction of radiation with matter : Absorption, emission, fluorescence and scattering.
6. Types of spectroscopy and advantages of spectroscopic methods.
7. Energy types and energy levels of atoms and molecules.

Unit 2. UV-Visible Spectroscopy [04]

1. Introduction.
2. Beer-Lamberts law, Absorption of U.V. radiation by organic molecule leading to different excitations.
3. Terms used in U.V. spectroscopy: Chromophore, auxochrome, bathochromic shift, hypsochromic shift, hyperchromic and hypochromic effect.
4. Modes of electromagnetic transitions.
5. Effect of conjugation on the position of U.V. band.
6. Calculation of λ_{max} by Woodward and Fisher rules for dienes and enones.
7. Colour and visible spectrum.
8. Applications of U.V. spectroscopy.

Unit 3. IR Spectroscopy [05]

1. Introduction.
2. Principle of IR spectroscopy.
3. IR Instrumentation - Schematic diagram.
4. Fundamental modes of vibrations - Types and calculations.
5. Conditions for absorption of IR radiations.
6. Regions of IR spectrum, fundamental group region, finger print region.
7. Hooke's law for calculation of vibrational frequency.

8. Factors affecting on IR absorption frequency.
9. Characteristics of IR absorption of following functional groups : (a) Alkanes, alkenes, alkynes, (b) Alcohol and phenols, (c) Ether (d) Carbonyl compounds, (e) Amines, (f) Nitro compounds ar (g) Aromatic compounds.

Unit 4. NMR Spectroscopy

1. Introduction. [0
2. Principles of PMR spectroscopy.
3. NMR - Instrumentation, Schematic diagram.
4. Magnetic and Non-magnetic nuclei.
5. Chemical shift : Definition, measurement, calculation, factor affecting chemical shift.
6. Shielding and Deshielding.
7. Peak integration.
8. Merits of TMS as PMR reference compounds.
9. Coupling constant.
10. Types of coupling constant.
11. Spin-spin splitting (n + 1 rule).
12. Applications of NMR Spectroscopy

Unit 5. Introduction to Mass Spectroscopy [06

1. Introduction.
2. Principles of mass spectroscopy.
3. Mass spectrometer - Schematic diagram.
4. Types of ions produced during fragmentation
5. Nitrogen rule.
6. Fragmentation patterns of : Alkanes, alkenes and carbony compounds.
7. McLafferty rearrangement.
8. Applications of mass Spectroscopy.

Unit 6. Combined Spectroscopic Problems Based on UV, IR and NMR Spectral Data [05]

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Contents

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INTRODUCTION TO SPECTROSCOPY

Contents ...

1.1 INTRODUCTION

Spectroscopy is a versatile and indispensable tool in scientific research and analytical chemistry. It can be applied across various disciplines, including organic and inorganic chemistry, biochemistry, astrophysics, and environmental science. By examining how molecules absorb, emit, or scatter light, spectroscopy enables scientists to unlock the secrets of matter at the atomic and molecular levels, paving the way for advancements in materials science, medicine, and technology. In essence, spectroscopy is a key to unraveling the hidden language of light and matter, offering a profound understanding of the building blocks of our physical world.

Whenever an unknown compound is synthesized or isolated from natural sources, the first and the foremost job of a modern organic chemist is to determine its structure; since all the physical and chemical properties are directly dependent on the structure of the molecule. Thus,