



# Organic Chemistry

## Structure

**R. Mukherjee & D. C. Ghosh**



*Platinum Publishers*

# ORGANIC CHEMISTRY

## (Structure)

### Vol. I

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**Platinum Publishers**

1, Meher Ali Road ◦ 1st Floor ◦ Kolkata-700 017 ◦ India

# ORGANIC CHEMISTRY (Structure)

by Rathindranath Mukherjee  
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**First Published : 2017**

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**Type Setting :** Platinum Publishers

ISBN : 978-81-89874-42-1

**Published by :** Platinum Publishers,  
1, Meher Ali Road, (1st Floor), Kolkata-700 017, India

**Printed by :** Graphic Print, Kolkata

**Price : ₹ 550/-**



## PREFACE

This book mainly deals with the fundamental principles involved in understanding the basic structure of organic molecules. The aim of this book is to find the simple methods helpful for the beginners learning advanced organic chemistry in the light of modern ideas. Conventions to express organic molecules, present day idea on the molecular structure, various stereochemical aspects, principles involved in assessing the comparative physical properties and stability, spectral investigations into the structures etc. have been discussed lucidly. Simple methods have been illustrated so that the learners will be able to grasp the idea in a self-learning method and feel confident in solving the problems. All sorts of suggestions are earnestly solicited.

We express our gratitude to Mr. Kamaluddin, Mr. Kader, Mr. Sukumar Patra, Mr. Soumen Mukherjee, Mrs. Gayatri Guha and all other staff of Platinum Publishers, who helped to make the publication of this book possible. We are also grateful to Dr. Pulak Gangopadhyay, R.K. Mission Residential College Narendrapur, Dr. Subhojit Ghosh, A.P.C. College, New Barrackpore and Dr. Anupa Saha, Scottish Church College, Kolkata for providing necessary corrections and encouragement with valuable guidelines.

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# 1

## Lewis Structure

### Thoughts for learning

- ➔ Octet (duplet for H) configuration of the valence shell plays the key role in developing the molecular structure of organic species.
- ➔ Development of electronic configurations of atoms and construction of Lewis structures of molecules, polyatomic ions and functional groups have been illustrated using easy methods thereof.

### 1.1 IMPORTANCE OF CONVENTIONS

Learning of chemistry has been progressed through understanding of the stages related with

- (i) Collection of facts related to chemical phenomena
- (ii) Evolution of concept from correlation of facts
- (iii) Adoption of conventions for communication

Facts are collected from observations in natural and artificial changes in the material world. Correlation of the facts develops laws and theories. Logical analysis and interpretation of observations help to evolve ideas. Speculations regarding chemical phenomena becomes possible which promotes inventional aptitude. Emergence of newer views introduces rethinking of the older ideas.

A historical review on advancement of learning chemistry helps one to realise how the mystery in the chemical world has been unfolded gradually.

To communicate the ideas and facts regarding chemical phenomenologies a conventional language of its own was felt to be adopted. Use of symbols, formula, chemical equations, systematic naming, notations etc. in the specified abbreviated form came in practice to communicate the facts and ideas in the international chemical society. A learner should be acquainted with the usage of this conventional language with perfection. The importance of application of this conventional language is illustrated with few examples.

- (a) Symbol of cobalt is Co whereas Carbon monoxide is expressed as CO. The difference in the expressions is the letter 'O' as 'small' and 'capital' letters.
- (b) 'cm' is the expression of centimetre whereas coulomb-metre is expressed as C m.
- (c) Atomic weight data of chlorine as 35.453 and 35.4530 do not bear the same meaning. Here the data presentations follow the statistical methods. From the

# Organic Chemistry Structure

## About the Book

This text provides a close look at the basic structure of organic molecules and mechanistic patterns that are fundamental to organic chemistry. The text brings exceptional clarity and coherence to the subject by focusing on the conventions to express organic molecules, present day idea on the molecular structure, various stereochemical aspects, principles involved in assessing the comparative physical properties and stability, spectral investigations into the structures etc. Simple methods have been illustrated to enable the readers to grasp the concepts and applications in a self – learning method.

Overall, the book successfully lays emphasis on connecting the basic principles of organic chemistry to real world challenges.

## Key Features

- ◆ Modern methods of structural analysis including NMR spectroscopy have been utilized.
- ◆ Students/ aspirants preparing for JAM, GATE and NET examinations will find this book immensely helpful.

## About the Authors

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E-mail : platinum@platinumpublishers.org

www.platinumpublishers.org

₹. 550/-

ISBN : 978-8189874-42-1



9 788189 874421