

## Introduction Of Modern Inorganic Chemistry By S Z Haider

Dr. Alan Williams has acquired a considerable experience in work with transition metal complexes at the Universities of Cambridge and Geneva. In this book he has tried to avoid the variety of ephemeral and often contradictory rationalisations encountered in this field, and has made a careful comparison of modern opinions about chemical bonding. In my opinion this effort is fruitful for all students and active scientists in the field of inorganic chemistry. The distant relations to group theory, atomic spectroscopy and epistemology are brought into daylight when Dr. Williams critically and pedagogically compares quantum chemical models such as molecular orbital theory, the more specific L. C. A. O. description and related "ligand field" theory, the valence bond treatment (which has conserved great utility in antiferromagnetic systems with long inter nuclear distances), and discusses interesting, but not too well-defined concepts such as electronegativity (also derived from electron transfer spectra), hybridisation, and oxidation numbers. The interdisciplinary approach of the book shows up in the careful consideration given to many experimental techniques such as vibrational (infra-red and Raman), electronic (visible and ultraviolet), Mossbauer, magnetic resonance, and photoelectron spectra, with data for gaseous and solid samples as well as selected facts about solution chemistry. The book could not have been written a few years ago, and is likely to remain a highly informative survey of modern inorganic chemistry and chemical physics. Geneva, January 1979 C. K.

The updated second edition of the popular Inorganic Materials Chemistry Desk Reference remains a valuable resource in the preparation of solid-state inorganic materials by chemical processing techniques. It also expands upon new chemical precursors available to materials scientists, the applications of those materials, and existing or emerging topics where materials chemistry plays an important role, such as in microelectronics, surface science, and nanotechnology. This edition places additional emphasis on additives, characterization techniques and structure-property relationships, and materials classifications based on type and applications, including electronics, biomaterials, thin films, and coatings. Other new topics include combinatorial chemistry, nanostructures and technology, surface materials chemistry, biomimetic processing, and novel forms of carbon. The authors discuss the role of materials chemistry in micro- and nano-fabrication, self-assembly, scanning probe microscopy, and carbon fullerenes. The new edition adds forty black and white figures, over 200 new definitions, and 50% more new chemical precursors and their properties. With a new and improved reference format, Inorganic Materials Chemistry Desk Reference continues to be a constructive resource to specialists conducting research in materials chemistry.

Comprehensive Inorganic Chemistry II reviews and examines topics of relevance to today's inorganic chemists. Covering more interdisciplinary and high impact

areas, Comprehensive Inorganic Chemistry II includes biological inorganic chemistry, solid state chemistry, materials chemistry, and nanoscience. The work is designed to follow on, with a different viewpoint and format, from our 1973 work, Comprehensive Inorganic Chemistry, edited by Bailar, Emel us, Nyholm, and Trotman-Dickenson, which has received over 2,000 citations. The new work will also complement other recent Elsevier works in this area, Comprehensive Coordination Chemistry and Comprehensive Organometallic Chemistry, to form a trio of works covering the whole of modern inorganic chemistry. Chapters are designed to provide a valuable, long-standing scientific resource for both advanced students new to an area and researchers who need further background or answers to a particular problem on the elements, their compounds, or applications. Chapters are written by teams of leading experts, under the guidance of the Volume Editors and the Editors-in-Chief. The articles are written at a level that allows undergraduate students to understand the material, while providing active researchers with a ready reference resource for information in the field. The chapters will not provide basic data on the elements, which is available from many sources (and the original work), but instead concentrate on applications of the elements and their compounds. \* Provides a comprehensive review which serves to put many advances in perspective and allows the reader to make connections to related fields, such as: biological inorganic chemistry, materials chemistry, solid state chemistry and nanoscience.\* Inorganic chemistry is rapidly developing, which brings about the need for a reference resource such as this that summarise recent developments and simultaneously provide background information. \* Forms the new definitive source for researchers interested in elements and their applications; completely replacing the highly cited first edition, which published in 1973.

Aimed at senior undergraduates and first-year graduate students, this book offers a principles-based approach to inorganic chemistry that, unlike other texts, uses chemical applications of group theory and molecular orbital theory throughout as an underlying framework. This highly physical approach allows students to derive the greatest benefit of topics such as molecular orbital acid-base theory, band theory of solids, and inorganic photochemistry, to name a few. Takes a principles-based, group and molecular orbital theory approach to inorganic chemistry The first inorganic chemistry textbook to provide a thorough treatment of group theory, a topic usually relegated to only one or two chapters of texts, giving it only a cursory overview Covers atomic and molecular term symbols, symmetry coordinates in vibrational spectroscopy using the projection operator method, polyatomic MO theory, band theory, and Tanabe-Sugano diagrams Includes a heavy dose of group theory in the primary inorganic textbook, most of the pedagogical benefits of integration and reinforcement of this material in the treatment of other topics, such as frontier MO acid--base theory, band theory of solids, inorganic photochemistry, the Jahn-Teller effect, and Wade's rules are fully realized Very physical in nature compare to other textbooks in the field,

taking the time to go through mathematical derivations and to compare and contrast different theories of bonding in order to allow for a more rigorous treatment of their application to molecular structure, bonding, and spectroscopy  
Informal and engaging writing style; worked examples throughout the text;  
unanswered problems in every chapter; contains a generous use of informative, colorful illustrations

This popular and comprehensive textbook provides all the basic information on inorganic chemistry that undergraduates need to know. For this sixth edition, the contents have undergone a complete revision to reflect progress in areas of research, new and modified techniques and their applications, and use of software packages. Introduction to Modern Inorganic Chemistry begins by explaining the electronic structure and properties of atoms, then describes the principles of bonding in diatomic and polyatomic covalent molecules, the solid state, and solution chemistry. Further on in the book, the general properties of the periodic table are studied along with specific elements and groups such as hydrogen, the 's' elements, the lanthanides, the actinides, the transition metals, and the "p" block. Simple and advanced examples are mixed throughout to increase the depth of students' understanding. This edition has a completely new layout including revised artwork, case study boxes, technical notes, and examples. All of the problems have been revised and extended and include notes to assist with approaches and solutions. It is an excellent tool to help students see how inorganic chemistry applies to medicine, the environment, and biological topics.

The 1982 revised second edition of W. E. Dasent's Inorganic Energetics, an established and important teaching text.

Informal, effective undergraduate-level text introduces vibrational and electronic spectroscopy, presenting applications of group theory to the interpretation of UV, visible, and infrared spectra without assuming a high level of background knowledge. 200 problems with solutions. Numerous illustrations. "A uniform and consistent treatment of the subject matter." — Journal of Chemical Education.

This book provides an up-to-date survey of modern industrial inorganic chemistry in a clear and concise manner. Production processes are described in close detail, aspects such as the disposition of raw materials and energy consumption, the economic significance of the product and technical applications, as well as ecological problems, being discussed. From reviews of the previous edition: '... Overall this is an extremely useful, authoritative reference book dealing with a topic in which it is often difficult to obtain up-to-date information. ...' Chemistry and Industry 'One of few texts available that concisely describes the current state of industrial inorganic chemistry. ...' The New York Public Library '... and as for modern uses of inorganic chemistry, I'd recommend this book as a welcome addition to any professional library...' Chemtech 'This book fills an important niche in its sector. Industrial scientists and engineers, academics, and students can be recommended to turn to it with reasonable confidence that the most important areas are described. ...' Endeavour '... it fills a currently existing gap in the market.' Journal of Chemical Technology and Biotechnology

Determining the structure of molecules is a fundamental skill that all chemists must learn. *Structural Methods in Molecular Inorganic Chemistry* is designed to help readers interpret experimental data, understand the material published in modern journals of inorganic chemistry, and make decisions about what techniques will be the most useful in solving particular structural problems. Following a general introduction to the tools and concepts in structural chemistry, the following topics are covered in detail: • computational chemistry • nuclear magnetic resonance spectroscopy • electron paramagnetic resonance spectroscopy • Mössbauer spectroscopy • rotational spectra and rotational structure • vibrational spectroscopy • electronic characterization techniques • diffraction methods • mass spectrometry The final chapter presents a series of case histories, illustrating how chemists have applied a broad range of structural techniques to interpret and understand chemical systems. Throughout the textbook a strong connection is made between theoretical topics and the real world of practicing chemists. Each chapter concludes with problems and discussion questions, and a supporting website contains additional advanced material. *Structural Methods in Molecular Inorganic Chemistry* is an extensive update and sequel to the successful textbook *Structural Methods in Inorganic Chemistry* by Ebsworth, Rankin and Cradock. It is essential reading for all advanced students of chemistry, and a handy reference source for the professional chemist.

Inorganic chemistry continues to generate much current interest due to its array of applications, ranging from materials to biology and medicine. *Techniques in Inorganic Chemistry* assembles a collection of articles from international experts who describe modern methods used by research students and chemists for studying the properties and structure

This volume examines the current state of research in several key areas of inorganic materials chemistry, including solid state chemistry, the analysis of inorganic thin films, and the preparation of organic thin films through self-assembly on various surfaces. Topics discussed in solid state chemistry include the synthesis and characterization of new inorganic phases, the use of porous materials in the separation of optically active organic compounds, the design of inorganic phases that can bind heavy element ions from aqueous waste streams, and new organic-based molecular magnets. For thin films the book covers deposition films with using chemical vapors, ternary nitrides for advanced diffusion barrier applications, and new methods for creating copper thin films and silicon-germanium-carbon films. The final section, on self-assembly, presents strategies for the modification of silicon surfaces with organic functional groups, the synthesis of new sulfur compounds for highly ordered thin films, the preparation of functionalized gold surfaces through formation of self-assembled monolayers, and methods for fabricating and characterizing nanometer-scale features beginning from self-assembled monolayers.

At the heart of coordination chemistry lies the coordinate bond, in its simplest sense arising from donation of a pair of electrons from a donor atom to an empty orbital on a central metalloid or metal. Metals overwhelmingly exist as their cations, but these are rarely met 'naked' – they are clothed in an array of other atoms, molecules or ions that involve coordinate covalent bonds (hence the name coordination compounds). These metal ion complexes are ubiquitous in nature, and are central to an array of natural and synthetic reactions. Written in a highly readable, descriptive and

accessible style. Introduction to Coordination Chemistry describes properties of coordination compounds such as colour, magnetism and reactivity as well as the logic in their assembly and nomenclature. It is illustrated with many examples of the importance of coordination chemistry in real life, and includes extensive references and bibliography. Introduction to Coordination Chemistry is a comprehensive and insightful discussion of one of the primary fields of study in Inorganic Chemistry for both undergraduate and non-specialist readers.

Introduction to Modern Inorganic Chemistry  
K.M. Mackay and R. Ann Mackay  
Introduction to Modern Inorganic Chemistry

The study of crystal structures has had an ever increasing impact on many fields of science such as physics, chemistry, biology, materials science, medicine, pharmacy, metallurgy, mineralogy and geology. Particularly, with the advent of direct methods of structure determination, the data on crystal structures are accumulating at an unbelievable pace and it becomes more and more difficult to oversee this wealth of data. A crude rationalization of the structures of organic compounds and the atom coordinations can be made with the well-known Kekule model, however, no such generally applicable model exists for the structures of inorganic and particularly intermetallic compounds. There is a need to rationalize the inorganic crystal structures, to find better ways of describing them, of denoting the geometrical relationships between them, of elucidating the electronic factors and of explaining the bonding between the atoms with the aim of not only having a better understanding of the known structures, but also of predicting structural features of new compounds.

GEORGE CHRISTOU Indiana University, Bloomington I am no doubt representative of a large number of current inorganic chemists in having obtained my undergraduate and postgraduate degrees in the 1970s. It was during this period that I began my continuing love affair with this subject, and the fact that it happened while I was a student in an organic laboratory is beside the point. I was always enchanted by the more physical aspects of inorganic chemistry; while being captivated from an early stage by the synthetic side, and the measure of creation with a small c that it entails, I nevertheless found the application of various theoretical, spectroscopic and physicochemical techniques to inorganic compounds to be fascinating, stimulating, educational and downright exciting. The various bonding theories, for example, and their use to explain or interpret spectroscopic observations were more or less universally accepted as belonging within the realm of inorganic chemistry, and textbooks of the day had whole sections on bonding theories, magnetism, kinetics, electron-transfer mechanisms and so on. However, things changed, and subsequent inorganic chemistry teaching texts tended to emphasize the more synthetic and descriptive side of the field. There are a number of reasons for this, and they no doubt include the rise of diamagnetic organometallic chemistry as the dominant subdiscipline within inorganic chemistry and its relative narrowness vis-d-vis physical methods required for its prosecution.

General chemistry textbooks are usually lengthy and present chemistry to the student as an unconnected list of facts. In inorganic chemistry, emphasis should

be placed on the connections between valence shell electron configuration and the physical and chemical properties of the element. *Basic Principles of Inorganic Chemistry: Making the Connections* is a short, concise book that emphasises these connections, in particular the chemistry of the Main Group compounds. With reference to chemical properties, Lewis Structures, stoichiometry and spider diagrams, students will be able to predict or calculate the chemistry of simple polyatomic compounds from the valence shell configuration and will no longer be required to memorise vast amounts of factual chemistry. This book is ideal for students taking chemistry as a subsidiary subject as well as honours degree students.

Excerpt from *A Text-Book of Inorganic Chemistry, Vol. 1: Part I.-An Introduction to Modern Inorganic Chemistry; Part II.-The Inert Gases Again*, there are many subjects, such as the methods employed in the accurate determination of atomic weights, which are not generally regarded as forming part of Physical Chemistry. Yet these are subjects of supreme importance to the student of Inorganic Chemistry, and are accordingly included in this Introduction. About the Publisher Forgotten Books publishes hundreds of thousands of rare and classic books. Find more at [www.forgottenbooks.com](http://www.forgottenbooks.com) This book is a reproduction of an important historical work. Forgotten Books uses state-of-the-art technology to digitally reconstruct the work, preserving the original format whilst repairing imperfections present in the aged copy. In rare cases, an imperfection in the original, such as a blemish or missing page, may be replicated in our edition. We do, however, repair the vast majority of imperfections successfully; any imperfections that remain are intentionally left to preserve the state of such historical works.

This book covers the chemistry of the non-metallic elements (the halogens, boron, carbon, nitrogen, oxygen, silicon, phosphorus and sulfur) and uses their role in agriculture (for example, nitrogen and sulfur), industry (for example, sulfuric acid), and everyday life (for example, the chlorination of drinking water) to illustrate this chemistry. Their role in organic chemistry and biochemistry is also emphasized. Two interactive CD-ROMs accompany the book, incorporating electronic questions that facilitate revision/consolidation. This book is part of The Molecular World series which aims to provide a broad foundation in chemistry. Authoritative reference features extensive coverage of structural information as well as theory and applications. Helpful data on molecular geometries, bond lengths, and bond angles in tables and other graphics. 1991 edition.

The easy way to get a grip on inorganic chemistry Inorganic chemistry can be an intimidating subject, but it doesn't have to be! Whether you're currently enrolled in an inorganic chemistry class or you have a background in chemistry and want to expand your knowledge, *Inorganic Chemistry For Dummies* is the approachable, hands-on guide you can trust for fast, easy learning. *Inorganic Chemistry For Dummies* features a thorough introduction to the study of the synthesis and behavior of inorganic and organometallic compounds. In plain English, it explains

the principles of inorganic chemistry and includes worked-out problems to enhance your understanding of the key theories and concepts of the field. Presents information in an effective and straightforward manner Covers topics you'll encounter in a typical inorganic chemistry course Provides plain-English explanations of complicated concepts If you're pursuing a career as a nurse, doctor, or engineer or a lifelong learner looking to make sense of this fascinating subject, *Inorganic Chemistry For Dummies* is the quick and painless way to master inorganic chemistry.

This unique text is ingeniously organized by class of compound and by property or reaction type, not group by group or element by element (which requires students to memorize isolated facts).

A comprehensive introduction to inorganic chemistry and, specifically, the science of metal-based drugs, *Essentials of Inorganic Chemistry* describes the basics of inorganic chemistry, including organometallic chemistry and radiochemistry, from a pharmaceutical perspective. Written for students of pharmacy and pharmacology, pharmaceutical sciences, medicinal chemistry and other health-care related subjects, this accessible text introduces chemical principles with relevant pharmaceutical examples rather than as stand-alone concepts, allowing students to see the relevance of this subject for their future professions. It includes exercises and case studies.

Part A.: Overviews of biological inorganic chemistry : 1. Bioinorganic chemistry and the biogeochemical cycles -- 2. Metal ions and proteins: binding, stability, and folding -- 3. Special cofactors and metal clusters -- 4. Transport and storage of metal ions in biology -- 5. Biominerals and biomineralization -- 6. Metals in medicine. -- Part B.: Metal ion containing biological systems : 1. Metal ion transport and storage -- 2. Hydrolytic chemistry -- 3. Electron transfer, respiration, and photosynthesis -- 4. Oxygen metabolism -- 5. Hydrogen, carbon, and sulfur metabolism -- 6. Metalloenzymes with radical intermediates -- 7. Metal ion receptors and signaling. -- Cell biology, biochemistry, and evolution: Tutorial I. -- Fundamentals of coordination chemistry: Tutorial II.

The essential introduction to the understanding of the structure of inorganic solids and materials. This revised and updated 2nd Edition looks at new developments and research results within Structural Inorganic Chemistry in a number of ways, special attention is paid to crystalline solids, elucidation and description of the spatial order of atoms within a chemical compound. Structural principles of inorganic molecules and solids are described through traditional concepts, modern bond-theoretical theories, as well as taking symmetry as a leading principle.

*Modern Inorganic Synthetic Chemistry, Second Edition* captures, in five distinct sections, the latest advancements in inorganic synthetic chemistry, providing materials chemists, chemical engineers, and materials scientists with a valuable reference source to help them advance their research efforts and achieve breakthroughs. Section one includes six chapters centering on synthetic chemistry under specific conditions, such as high-temperature, low-temperature and cryogenic, hydrothermal and solvothermal, high-pressure, photochemical and fusion conditions. Section two focuses on the synthesis and related chemistry problems of highly distinct categories of inorganic compounds, including superheavy elements, coordination compounds and coordination polymers, cluster compounds, organometallic compounds, inorganic polymers, and nonstoichiometric compounds. Section three elaborates on the synthetic chemistry of five important classes of inorganic functional materials, namely, ordered porous materials, carbon materials, advanced ceramic materials, host-guest materials, and hierarchically structured materials. Section four consists of four chapters where the synthesis

of functional inorganic aggregates is discussed, giving special attention to the growth of single crystals, assembly of nanomaterials, and preparation of amorphous materials and membranes. The new edition's biggest highlight is Section five where the frontier in inorganic synthetic chemistry is reviewed by focusing on biomimetic synthesis and rationally designed synthesis. Focuses on the chemistry of inorganic synthesis, assembly, and organization of wide-ranging inorganic systems Covers all major methodologies of inorganic synthesis Provides state-of-the-art synthetic methods Includes real examples in the organization of complex inorganic functional materials Contains more than 4000 references that are all highly reflective of the latest advancement in inorganic synthetic chemistry Presents a comprehensive coverage of the key issues involved in modern inorganic synthetic chemistry as written by experts in the field

This textbook is divided into six parts: theoretical concepts and hydrogen, the s-block, the p-block, the d-block, the f-block, and other topics (the nucleus and spectra). It also focuses on the commercial exploitation of inorganic chemicals and the treatment of the inorganic aspects of environmental chemistry has also been extended.· Atomic structure and the Periodic table· Introduction to bonding· The ionic bond· The covalent bond· The metallic bond· General properties of the elements· Coordination compounds· Hydrogen and the hydrides· Group 1 - The alkali metals· The chlor-alkali industry· Group 2 - The alkaline earth elements· The group 13 elements· The group 14 elements· The group 15 elements· Group 16 - the chalcogens· Group 17 - the halogens· Group 18 - the noble gases· An introduction to the transition elements· Group 3 - The scandium group· Group 4 - The titanium group· Group 5 - The vanadium group· Group 6 - The chromium group· Group 7 - The manganese group· Group 8 - The iron group· Group 9 - The cobalt group· Group 10 - The nickel Group· Group 11 - The copper group: Coinage metals· Group 12 - The zinc group· The lanthanide series· The actinides· The atomic nucleus· Spectra

Presenting the basic systematic chemistry of the elements, this book follows the Periodic Table arrangement giving emphasis to the compounds with oxygen and the halogens. Further chapters complement this arrangement with discussions of selected topics in greater depth. While the boundaries between the areas of chemistry traditionally labeled as inorganic, organic and physical are gradually diffusing, the practical techniques adopted by workers in each of these areas are often radically different. The breadth and variety of research classed as "inorganic chemistry" is readily apparent from an inspection of some of the leading international journals, and can be quite daunting for newcomers to this domain who are likely to have only limited experience of the methodologies involved. This book has therefore been written to provide guidance for those unfamiliar with the techniques most often encountered in synthetic inorganic / metalorganic chemistry, with an emphasis on procedures for handling air-sensitive compounds. One chapter is devoted to more specialized techniques such as metal vapor synthesis, and a review of preparative methods for a selection of starting materials is included as an aid to those planning research projects. While this book is aimed primarily at postgraduate and advanced undergraduate students involved in inorganic research projects, synthetic organic chemists and industrial chemists will also find much useful information within its pages. Similarly, it serves as a useful reference source for materials and polymer scientists who wish to take advantage of recent progress in precursor synthesis and catalyst development.

In 1988 the Mossbauer effect community completed 30 years of continual contribution to the fields of nuclear physics, solid state science, and a variety of related disciplines. To celebrate this anniversary, Professor Gonser of the Universitat des Saarlandes has contributed a chapter to this volume on the history of the effect. Although Mossbauer spectroscopy has reached its mature

years, the chapters in this volume illustrate that it is still a dynamic field of science with applications to topics ranging from permanent magnets to biological mineralization. During the discussion of a possible chapter for this volume, a potential author asked, "Do we really need another Mossbauer book?" The editors responded in the affirmative because they believe that a volume of this type offers several advantages. First, it provides the author with an opportunity to write a personal view of the subject, either with or without extensive pedagogic content. Second, there is no artificially imposed restriction on length. In response to the question, "How long should my chapter be?," we have responded that it should be as long as is necessary to clearly present, explain, and evaluate the topic. In this type of book, it is not necessary to condense the topic into two, four, or eight pages as is now so often a requirement for publication in the research literature.

Now in its fifth edition, Housecroft & Sharpe's *Inorganic Chemistry*, continues to provide an engaging, clear and comprehensive introduction to core physical-inorganic principles. This widely respected and internationally renowned textbook introduces the descriptive chemistry of the elements and the role played by inorganic chemistry in our everyday lives. The stunning full-colour design has been further enhanced for this edition with an abundance of three-dimensional molecular and protein structures and photographs, bringing to life the world of inorganic chemistry. Updated with the latest research, this edition also includes coverage relating to the extended periodic table and new approaches to estimating lattice energies and to bonding classifications of organometallic compounds. A carefully developed pedagogical approach guides the reader through this fascinating subject with features designed to encourage thought and to help students consolidate their understanding and learn how to apply their understanding of key concepts within the real world. Features include:

- Thematic boxed sections with a focus on areas of Biology and Medicine, the Environment, Applications, and Theory engage students and ensure they gain a deep, practical and topical understanding
- A wide range of in-text self-study exercises including worked examples, reflective questions and end of chapter problems aid independent study
- Definition panels and end-of-chapter checklists provide students with excellent revision aids
- Striking visuals throughout the book have been carefully crafted to illustrate molecular and protein structures and to entice students further into the world of inorganic chemistry

*Inorganic Chemistry* 5th edition is also accompanied by an extensive companion website, available at [www.pearsoned.co.uk/housecroft](http://www.pearsoned.co.uk/housecroft). This features multiple choice questions and rotatable 3D molecular structures.

The only introduction into the exciting chemistry of Lanthanides and Actinides. The book is based on a number of courses on "f elements" The author has a long experience in teaching this field of chemistry Lanthanides have become very common elements in research and technology applications; this book offers the basic knowledge The book offers insights into a vast range of applications, from

lasers to synthesis The Inorganic Chemistry: A Textbook series reflects the pivotal role of modern inorganic and physical chemistry in a whole range of emerging areas, such as materials chemistry, green chemistry and bioinorganic chemistry, as well as providing a solid grounding in established areas such as solid state chemistry, coordination chemistry, main group chemistry and physical inorganic chemistry. Lanthanide and Actinide Chemistry is a one-volume account of the Lanthanides (including scandium and yttrium), the Actinides and the Transactinide elements, intended as an introductory treatment for undergraduate and postgraduate students. The principal features of these elements are set out in detail, enabling clear comparison and contrast with the Transition Elements and Main Group metals. The book covers the extraction of the elements from their ores and their purification, as well as the synthesis of the man-made elements; the properties of the elements and principal binary compounds; detailed accounts of their coordination chemistry and organometallic chemistry, from both preparative and structural viewpoints, with a clear explanation of the factors responsible for the adoption of particular coordination numbers; spectroscopy and magnetism, especially for the lanthanides, with case studies and accounts of applications in areas like magnetic resonance imaging, lasers and luminescence; nuclear separations and problems in waste disposal for the radioactive elements, particularly in the context of plutonium. Latest developments are covered in areas like the synthesis of the latest man-made elements, whilst there is a whole chapter on the application of lanthanide compounds in synthetic organic chemistry. End-of-chapter questions suitable for tutorial discussions are provided, whilst there is a very comprehensive bibliography providing ready access to further reading on all topics.

The importance of metals in biology, the environment and medicine has become increasingly evident over the last twenty five years. The study of the multiple roles of metal ions in biological systems, the rapidly expanding interface between inorganic chemistry and biology constitutes the subject called Biological Inorganic Chemistry. The present text, written by a biochemist, with a long career experience in the field (particularly iron and copper) presents an introduction to this exciting and dynamic field. The book begins with introductory chapters, which together constitute an overview of the concepts, both chemical and biological, which are required to equip the reader for the detailed analysis which follows. Pathways of metal assimilation, storage and transport, as well as metal homeostasis are dealt with next. Thereafter, individual chapters discuss the roles of sodium and potassium, magnesium, calcium, zinc, iron, copper, nickel and cobalt, manganese, and finally molybdenum, vanadium, tungsten and chromium. The final three chapters provide a tantalising view of the roles of metals in brain function, biomineralization and a brief illustration of their importance in both medicine and the environment. Relaxed and agreeable writing style. The reader will not only find the book easy to read, the fascinating anecdotes and footnotes will give him pegs to hang important ideas on. Written by a biochemist. Will

enable the reader to more readily grasp the biological and clinical relevance of the subject. Many colour illustrations. Enables easier visualization of molecular mechanisms Written by a single author. Ensures homogeneity of style and effective cross referencing between chapters

Advanced Inorganic Chemistry - Volume II is a concise book on basic concepts of inorganic chemistry. Beginning with Coordination Chemistry, it presents a systematic treatment of all Transition and Inner-Transition chemical elements and their compounds according to the periodic table. Special topics such as Pollution and its adverse effects, chromatography, use of metal ions in biological systems, to name a few, are discussed to provide additional relevant information to the students. It primarily caters to the undergraduate courses (Pass and Honours) offered in Indian universities.

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