Carbon Nanomaterial-Based Adsorbents for Water Purification - Suprakas Sinha Ray

2020-06-27 The deterioration of water quality and unavailability of drinkable water are pressing challenges worldwide. The removal of toxic organic and inorganic pollutants from water is vital for a clean environment, as a response to water scarcity. Adsorption-based water technologies are among the most widely used because of their high efficiency and low cost, without relying on a complex infrastructure. In recent years, carbon nanomaterials (CNMs), such as graphene and derivatives, carbon nanotubes, carbon nanofibers, nanoporous carbon, fullerenes, graphitic carbon nitride, and nanodiamonds have been extensively exploited as adsorbents due to their extraordinary surface properties, ease of modification, large surface area, controlled structural varieties, high chemical stability, porosity, low density, ease of regeneration, and reusability. This book provides a thorough overview of the state of the art in carbon nanomaterials as they are used for adsorption applications in water purifications, as well as addressing their toxicological challenges. This volume primarily explores the fundamentals of adsorption, its mechanical aspects, synthesis and properties of CNMs, and adsorption performances of CNMs and their nanocomposites with organic and inorganic materials. Structural engineering and activation processes produce materials with enhanced adsorptive properties and separation efficiencies. Furthermore, the formation of CNMs with 2D and 3D macro-and microstructures and high porosities is a potential approach to improve adsorption performances and extend CNM use at the industrial level. The book also addresses important issues regarding these adsorbents that potentially affect future research and industrial applications of carbon-based nanoadsorbents in water security. Presents advances in multifunctional 3D superstructures of carbon nanomaterials and their composites for adsorption applications Outlines the fundamentals on synthesis and characterization techniques of carbon-based nanostructures and their composites Assesses the major toxicological challenges in using nanostructured materials as adsorbents for water purification

A Problem Book In CHEMISTRY for IIT JEE - Ranjeet Shahi 2018-04-20 Cracking JEE Main & Advanced requires skills to solve a variety of thought-provoking problems with requisite synthesis of many concepts and may additionally require tricky mathematical manipulations. A massive collection of the most challenging problems, the Selected Problems Series comprises of 3 books, one each for Physics, Chemistry and Mathematics to suit the practice needs of students appearing for upcoming JEE Main and Advanced exam. Ranjeet Shahi’s, 1500 Selected Problems Asked in Chemistry aims to sharpen your Problem-Solving Skills according to the exam syllabi, across 30 logically sequenced chapters. Working through these chapters, you will be able to make precise inferences while avoiding the pitfalls in applying various laws of Chemistry. The Step-by-Step solutions to the problems in the book train you in both- the general and specific problem-solving strategies essential for all those appearing in JEE Main & Advanced and all other Engineering
Entrance Examinations or anyone who is interested to Problem Solving in Chemistry.

**Green Chemistry**-Neeraj Kumar Mishra 2012-03-23 Green chemistry is chemistry for the environment. It is really a philosophy and way of thinking that can help chemistry in research and production to develop more eco-friendly solutions. Green chemistry is considered an essential piece of a comprehensive program to protect human health and the environment. In its essence, green chemistry is a science-based non-regulatory and economically driven approach to achieving the goals of environmental protection and sustainable development. Combining the technological progress with environmental safety is one of the key challenges of the millennium. In this context, this book describes the environmentally benign approaches for the industries as well as chemical laboratories. In order to provide an insight into step change technologies, this book was edited by green organic chemists.

**Catalytic Application of Nano-Gold Catalysts**-Neeraj Kumar Mishra 2016-08-31 Gold, considered catalytically inactive for a long time, is now a fascinating partner of modern chemistry, as scientists such as Bond, Teles, Haruta, Hutchings, Ito and Hayashi opened new perspectives for the whole synthetic chemist community. Recently gold has attracted significant attention due to its advantageous characteristics as a catalytic material and since it allows easy functionalization with biologically active molecules. In this context, when gold is prepared as very small particles, it turns out to be a highly active catalyst. However, such a phenomenon completely disappears when the gold particle size grows into the micrometer range. Therefore, the preparation for obtaining an active gold catalyst is so important. The primary objective of this book is to provide a comprehensive overview of gold metal nanoparticles and their application as promising catalysts.

**Essential Physical Chemistry**-Ranjeet Shahi

**Blockchain, Big Data and Machine Learning**-Neeraj Kumar 2020-09-25 Present book covers new paradigms in Blockchain, Big Data and Machine Learning concepts including applications and case studies. It explains dead fusion in realizing the privacy and security of blockchain based data analytic environment. Recent research of security based on big data, blockchain and machine learning has been explained through actual work by practitioners and researchers, including their technical evaluation and comparison with existing technologies. The theoretical background and experimental case studies related to real-time environment are covered as well. Aimed at Senior undergraduate students, researchers and professionals in computer science and engineering and electrical engineering, this book: Converges Blockchain, Big Data and Machine learning in one volume. Connects Blockchain technologies with the data centric applications such Big data and E-Health. Easy to understand examples on how to create your own blockchain supported by case studies of blockchain in different industries. Covers big data analytics examples using R. Includes illustrative examples in python for blockchain creation.
Machine Learning in Cognitive IoT-Neeraj Kumar 2020-08-20 This book covers the different technologies of Internet, and machine learning capabilities involved in Cognitive Internet of Things (CIoT). Machine learning is explored by covering all the technical issues and various models used for data analytics during decision making at different steps. It initiates with IoT basics, its history, architecture and applications followed by capabilities of CIoT in real world and description of machine learning (ML) in data mining. Further, it explains various ML techniques and paradigms with different phases of data pre-processing and feature engineering. Each chapter includes sample questions to help understand concepts of ML used in different applications. Explains integration of Machine Learning in IoT for building an efficient decision support system Covers IoT, CIoT, machine learning paradigms and models Includes implementation of machine learning models in R Help the analysts and developers to work efficiently with emerging technologies such as data analytics, data processing, Big Data, Robotics Includes programming codes in Python/Matlab/R alongwith practical examples, questions and multiple choice questions

Hazardous Gases-Jaspal Singh 2021-07-30 Hazardous Gases: Risk Assessment on Environment and Human Health examines all relevant routes of exposure, inhalation, skin absorption and ingestion, and control measures of specifics hazardous gases resulting from workplace exposure from industrial processes, traffic fumes, and the degradation of waste materials and how they impacts the health and environment of workers. The book examines the risk assessment and effect of poisonous gases on the environment human health. It also covers necessary emergency guidelines, safety measures, physiological impact, hazard control measures, handling and storage of hazardous gases. Each chapter is formatted to include an introduction, historical background, physicochemical properties, physiological role discussing mechanisms of toxicity, its effect on human health as well as environment, followed by case studies and recent research on toxic gases. Hazardous Gases: Risk Assessment on Environment and Human Health is a helpful resource for academics and researchers in toxicology, occupational health and safety, and environmental sciences as well as those in the field who work to assess and mitigate the impact of toxic gases on the work environment and the health of the workforce. Emphasizes the environmental monitoring in the workplace of hazardous materials Includes all relevant storage and handling information required for detailing all personnel on the hazards and risks from the substances with which they work Offers practical examples and case studies related to toxic gases and their impact on health

Developability of Biotherapeutics-Sandeep Kumar 2015-11-18 Biopharmaceuticals are emerging as frontline medicines to combat several life-threatening and chronic diseases. However, such medicines are expensive to develop and produce on a commercial scale, contributing to rising healthcare costs. Developability of Biotherapeutics: Computational Approaches describes applications of computational and molecular modeling techniques that improve the overall process of discovery and development by removing empiricism. The concept of developability involves making rational choices at the pre-clinical stages of biopharmaceutical drug development that could positively impact clinical outcomes. The book also addresses a general lack of awareness of the many different contributions that computation can make to biopharmaceutical drug development. This informative and
practical reference is a valuable resource for professionals engaged in industrial research and development, scientists working with regulatory agencies, and pharmacy, medicine, and life science students and educators. It focuses primarily on the developability of monoclonal antibody candidates, but the principles described can also be extended to other modalities such as recombinant proteins, fusion proteins, antibody drug conjugates and vaccines. The book is organized into two sections. The first discusses principles and applications of computational approaches toward discovering and developing biopharmaceutical drugs. The second presents best practices in developability assessments of early-stage biopharmaceutical drug candidates. In addition to raising awareness of the promise of computational research, this book also discusses solutions required to improve the success rate of translating biologic drug candidates into products available in the clinic. As such, it is a rich source of information on current principles and practices as well as a starting point for finding innovative applications of computation towards biopharmaceutical drug development.

**NCERT Solutions Physics Class 11th**-Nipendra Bhatnagar 2014-01-01 NCERT Textbooks play the most vital role in developing student’s understanding and knowledge about a subject and the concepts or topics covered under a particular subject. Keeping in mind this immense importance and significance of the NCERT Textbooks in mind, Arihant has come up with a unique book containing Questions-Answers of NCERT Textbook based questions. This book containing solutions to NCERT Textbook questions has been designed for the students studying in Class XI following the NCERT Textbook for Physics. The present book has been divided into 15 Chapters namely Physical World, Motion in a Plane, Laws of Motion, Work, Energy & Power, Gravitation, Thermodynamics, Kinetic Theory, Oscillations, Waves, Motion in a Straight Line, Thermal Properties of Matter, Mechanical Properties of Solids, etc covering the syllabi of Physics for Class XI. This book has been worked out with an aim of overall development of the students in such a way that it will help students define the way how to write the answers of the Physics textbook based questions. The book covers selected NCERT Exemplar Problems which will help the students understand the type of questions and answers to be expected in the Class XI Physics Examination. Also each chapter in the book begins with a summary of the chapter which will help in effective understanding of the theme of the chapter and to make sure that the students will be able to answer all popular questions concerned to a particular chapter whether it is Long Answer Type or Short Answer Type Question. For the overall benefit of students the book has been designed in such a way that it not only gives solutions to all the exercises but also gives detailed explanations which will help the students in learning the concepts and will enhance their thinking and learning abilities. As the book has been designed strictly according to the NCERT Textbook of Physics for Class XI and contains simplified text material in the form of class room notes and answers to all the questions in lucid language, it for sure will help the Class XI students in an effective way for Physics.

**Nanotoxicology**-Hemant Kumar Daima 2021-07-15 The field of nanomedicine has risen quickly due to the increasing number of designer-made nanomaterials. These nanomaterials have the potential to manage diseases and change the way medicine is currently studied. However, the increased practice of using nanomaterials has shed light on how many
concepts of nanomedicine and nanotoxicity have been overlooked. Nanotoxicology: Toxicity Evaluation of Nanomedicine Applications addresses the existing gaps between nanomedicine and nanotoxicity. This book also brings together up-to-date knowledge on advances toward safe-by-design nanomaterials and existing toxicity challenges. This book delivers a comprehensive coverage in the field with fundamental understanding, serving as a platform to convey essential concepts of nanotoxicology and how these concepts can be employed to develop advanced nanomaterials for a range of biomedical applications. This book is an effort to answer some of the thoughtful nanotoxicological complications and their auspicious probable solutions with new approaches and careful toxicity assessment. Key Features: Reveals novel nanoscale approaches, toxicity assessment, and biomedical applications. Includes importance of nanotoxicity concepts in developing smart nanomaterials. Highlights unique contributions and "A to Z" aspects on the state-of-the-art from global leaders. Offers a complete package to learn fundamentals with recommendations on nanomaterials toxicity and safe-by-design nanomedicines. Nanotoxicology: Toxicity Evaluation of Nanomedicine Applications illuminates the high potential of many innovative nanomaterials, ultimately demonstrating them to be promising substitutes for available therapies that can be effectively used in fighting a myriad of biomedical complications. Further, this book reports legal, ethical, safety, and regulatory issues associated with nanomaterials, which have often been neglected, if not overlooked in literature and limiting clinical translation at nanoscale level. It will equip readers with cutting-edge knowledge of promising developments in nanomedicine and nanotoxicology, along with potential future prospects.

**Advanced Problems in Organic Chemistry for Competitive Examinations**- Akshay Choudhary

Advanced Problems in Organic Chemistry for competitive examinations comprises 10 chapters which are designed in a coherently to aid problem solving. The exercises in the book have been divided into two levels. The first level will help candidates to practice fundamental problems involving concepts learnt in the chapters. The second level contains advance level problems for students. Workbook exercises have also been added at the end of important chapters to give aspirants an extra edge to crack the examinations.

**Nanomaterials**- R. Praveen Kumar 2021-05-19

Nanomaterials: Application in Biofuels and Bioenergy Production Systems looks at how biofuels and bioenergy can be part of the "sustainable" solution to the world's energy problems. By addressing bioenergy products compared to their fossil energy counterparts, covering research and development in biofuels applied with nanomaterials this book analyzes the future trends and how biofuels and bioenergy can contribute to its optimization. Starting from fundamentals up to synthesis, characterization and applications of nanomaterials in biofuels and bioenergy production systems, the chapters include the procedures needed for introducing nanomaterials in these specific sectors along with the benefits derived from their applications. Including the hazards and environmental effects of nanomaterials in bioenergy applications, sustainability issues and a techno-economic analysis of the topic, this book provides researchers in bioscience, energy & environment and bioengineering with an up to date look at the full life cycle assessment of nanomaterials in bioenergy. Provides a one stop solution manual for
applications of nanomaterials in bioenergy and biofuels. Includes biofuel applications with compatible global application case studies. Addresses the demand for environmental and techno-economic analysis of nanomaterials applications.

**Hard and Soft Acids and Bases** - Ralph G. Pearson 1973

**Advanced Materials and Technologies for Wastewater Treatment** - Sreedevi Upadhyayula 2021-09-28

Advanced Materials and Technologies for Wastewater Treatment discusses the methods and technologies of physical, chemical, biological, and thermo-catalytic treatment techniques. It includes the treatment of waste generated by municipal, agro-industry, and other industries, including chemical, biomedical, pharmaceutical, textile, and other sectors. FEATURES: Covers implementation of advanced water and wastewater treatment techniques, with a focus on pollutant or pathogen removal. Includes qualitative and quantitative analyses. Focuses on physical, chemical, and biological treatment technologies. Discusses the advancements of materials and technologies applicable to both potable water and wastewater from industrial and municipal sources. Explores future challenges and viable solutions. This book is aimed at chemical and environmental engineers and researchers seeking a thorough treatment of innovative water treatment materials and techniques for practical applications.

**Internet of Energy for Smart Cities** - Anish Jindal 2021-07-19

Machine learning approaches have the capability to learn and adapt to the constantly evolving demands of large Internet-of-energy (IoE) network. The focus of this book is on using the machine learning approaches to present various solutions for IoE network in smart cities to solve various research gaps such as demand response management, resource management, and effective utilization of the underlying ICT network. It provides in-depth knowledge to build the technical understanding for the reader to pursue various research problems in this field. Moreover, the example problems in smart cities and their solutions using machine learning are provided as relatable to the real-life scenarios. Aimed at Graduate Students, Researchers in Computer Science, Electrical Engineering, Telecommunication Engineering, Internet of Things, Machine Learning, Green computing, Smart Grid, this book: Covers all aspects of Internet of Energy (IoE) and smart cities including research problems and solutions. Points to the solutions provided by machine learning to optimize the grids within a smart city set-up. Discusses relevant IoE design principles and architecture. Helps to automate various services in smart cities for energy management. Includes case studies to show the effectiveness of the discussed schemes.

**Ethics, Integrity and Aptitude** - Reddy, Nanda Kishore

Based on the prescribed UPSC syllabus, Ethics, Integrity and Aptitude, authored by two serving Indian Information Services (IIS) officers, gives a holistic perspective of the various ethical theories, values, and dilemmas that confront administrators and managers in the course of their professional careers. Conceived and developed on a strong theoretical base, the book has plenty of case studies based on practical experience and research from various government sources. The
educational background of the authors in subjects like Public Administration, Sociology and Philosophy and their practical experience in government has been put to effective use.

**Khaki Files**- Neeraj Kumar 2019-10-24 December 13, 2001: Pak-based terrorists carry out an audacious attack on the Indian Parliament killing eight security personnel and a gardener; all five terrorists are killed in their gun-battle with policemen deployed at the citadel of Indian democracy; the case is solved and all accused arrested within 72 hours. December 16, 2012: a 23-year-old physiotherapist is brutally gang raped in a moving bus in Delhi; the case is cracked within five days despite the lack of initial leads; a head constable loses his life in the line of duty during riots that follow the dastardly crime. In Khaki Files, Neeraj Kumar, a former Delhi Police Commissioner revisits many such high profile police cases of his career - from investigation of one of the biggest lottery frauds in the country to foiled ISI attempt to kill Tarun Tejpal and Anirudh Behal of Tehalka - bringing to light numerous achievements of the country's police force, otherwise largely reviled and ridiculed.

**Essentials of Physical Chemistry**- Arun Bahl Essentials of Physical Chemistry is a classic textbook on the subject explaining fundamentals concepts with discussions, illustrations and exercises. With clear explanation, systematic presentation, and scientific accuracy, the book not only helps the students clear misconceptions about the basic concepts but also enhances students' ability to analyse and systematically solve problems. This bestseller is primarily designed for B.Sc. students and would equally be useful for the aspirants of medical and engineering entrance examinations.

**Biodegradable Polymers in Clinical Use and Clinical Development**- Abraham J. Domb 2011-05-12 This book focuses on biodegradable polymers that are already in clinical use or under clinical development. Synthetic and natural polymers will be included. This excludes polymers that have been investigated and did not reach clinical development. The purpose of this book is to provide updated status of the polymers that are clinical use and those that are now being developed for clinical use and hopefully will reach the clinic during the next 5 years. The book provides information that of interest to academics and practicing researchers including chemists, biologists and bioengineers and users: physicians, pharmacists.

**Employee Relations Management**- P. N. Singh 2010 The introduction of the new economic policy in 1991 had a significant bearing on industrial relations. Coupled with liberalization, these policies changed the way industries functioned in India. It forced the government, employers and trade unions to align themselves to new realities. There is an ongoing transition in industrial relations on the global scale as well. The focus is gradually shifting from traditional industrial relations, characterized by conflict resolution, to employee relations management, characterized by collaborative partnerships between the employers and the employees. Employee Relations Management focuses on this ongoing transition from industrial relations to employee relations. It introduces readers to the
fundamental concepts and relevant pieces of legislation against the backdrop of globalization and the new economic policy.

**Conceptual Problems In Organic Chemistry (Volume I)**-Singh 2009-09

**Numerical Chemistry**-PRATESH BAHADUR 1994

**Materials Physics and Chemistry**-Satya Bir Singh 2020-11-02 This volume focuses on the development and application of fundamental concepts in mechanics and physics of solids as they pertain to the solution of challenging new problems in diverse areas, such as materials science and micro- and nanotechnology. In this volume, emphasis is placed on the development of fundamental concepts of mechanics and novel applications of these concepts based on theoretical, experimental, or computational approaches, drawing upon the various branches of engineering science and the allied areas within applied mathematics, materials science, and applied physics. Materials Physics and Chemistry: Applied Mathematics and Chemo-Mechanical Analysis emphasizes the basics, such as design, equilibrium, material behavior, and geometry of deformation in simple structures or machines. Readers will find a thorough treatment of stress, strain, and the stress-strain relationships. Meanwhile it provides a solid foundation upon which readers can begin work in composite materials science and engineering. Many chapters include theory components with the equations students need to calculate different properties.

**Probabilistic Data Structures for Blockchain-Based Internet of Things Applications**-Neeraj Kumar 2021-01-28 This book covers theory and practical knowledge of Probabilistic data structures (PDS) and Blockchain (BC) concepts. It introduces the applicability of PDS in BC to technology practitioners and explains each PDS through code snippets and illustrative examples. Further, it provides references for the applications of PDS to BC along with implementation codes in python language for various PDS so that the readers can gain confidence using hands on experience. Organized into five sections, the book covers IoT technology, fundamental concepts of BC, PDS and algorithms used to estimate membership query, cardinality, similarity and frequency, usage of PDS in BC based IoT and so forth.

**Computational Catalysis**-Aravind Asthagiri 2013-10-31 This book presents a comprehensive review of the methods and approaches being adopted to push forward the boundaries of computational catalysis.

**Theory of Machines**-RS Khurmi | JK Gupta 2008 While writing the book, we have continuously kept in mind the examination requirements of the students preparing for U.P.S.C. (Engg. Services) and A.M.I.E. (I) examinations. In order to make this volume more useful for them, complete solutions of their examination papers up to 1975 have also been included. Every care has been taken to make this treatise as self-explanatory as possible. The
subject matter has been amply illustrated by incorporating a good number of solved, unsolved and well graded examples of almost every variety.

**Big Data Analytics**-Kiran Chaudhary 2022-01-19

Big Data Analytics: Applications in Business and Marketing explores the concepts and applications related to marketing and business as well as future research directions. It also examines how this emerging field could be extended to performance management and decision-making. Investment in business and marketing analytics can create value through proper allocation of resources and resource orchestration process. The use of data analytics tools can be used to diagnose and improve performance. The book is divided into five parts. The first part introduces data science, big data, and data analytics. The second part focuses on applications of business analytics including: Big data analytics and algorithm Market basket analysis Anticipating consumer purchase behavior Variation in shopping patterns Big data analytics for market intelligence The third part looks at business intelligence and features an evaluation study of churn prediction models for business intelligence. The fourth part of the book examines analytics for marketing decision-making and the roles of big data analytics for market intelligence and of consumer behavior. The book concludes with digital marketing, marketing by consumer analytics, web analytics for digital marketing, and smart retailing. This book covers the concepts, applications and research trends of marketing and business analytics with the aim of helping organizations increase profitability by improving decision-making through data analytics.

**Educative JEE Mathematics**-K.D. Joshi 2004-03

**Organic chemistry**-Nimai Tewari 2019-05-25

Organic Chemistry is primarily intended for the third year students pursuing B.Sc Chemistry (Honours) at the University of Calcutta and other major universities across eastern India. It offers 'learning by practice' approach and provides an up-to-date and comprehensive account of the subject matter.

**Atkins' Physical Chemistry 11e**-Peter Atkins 2019-08-20

Atkins' Physical Chemistry: Molecular Thermodynamics and Kinetics is designed for use on the second semester of a quantum-first physical chemistry course. Based on the hugely popular Atkins' Physical Chemistry, this volume approaches molecular thermodynamics with the assumption that students will have studied quantum mechanics in their first semester. The exceptional quality of previous editions has been built upon to make this new edition of Atkins' Physical Chemistry even more closely suited to the needs of both lecturers and students. Re-organised into discrete 'topics', the text is more flexible to teach from and more readable for students. Now in its eleventh edition, the text has been enhanced with additional learning features and maths support to demonstrate the absolute centrality of mathematics to physical chemistry. Increasing the digestibility of the text in this new approach, the reader is brought to a question, then the math is used to show how it can be answered and progress made. The expanded and redistributed maths support also includes new 'Chemist's toolkits' which provide students with succinct reminders of mathematical concepts and
techniques right where they need them. Checklists of key concepts at the end of each topic add to the extensive learning support provided throughout the book, to reinforce the main take-home messages in each section. The coupling of the broad coverage of the subject with a structure and use of pedagogy that is even more innovative will ensure Atkins' Physical Chemistry remains the textbook of choice for studying physical chemistry.

**STOICHIOMETRY AND PROCESS CALCULATIONS**-K. V. NARAYANAN 2006-01-01 This textbook is designed for undergraduate courses in chemical engineering and related disciplines such as biotechnology, polymer technology, petrochemical engineering, electrochemical engineering, environmental engineering, safety engineering and industrial chemistry. The chief objective of this text is to prepare students to make analysis of chemical processes through calculations and also to develop in them systematic problem-solving skills. The students are introduced not only to the application of law of combining proportions to chemical reactions (as the word ‘stoichiometry’ implies) but also to formulating and solving material and energy balances in processes with and without chemical reactions. The book presents the fundamentals of chemical engineering operations and processes in an accessible style to help the students gain a thorough understanding of chemical process calculations. It also covers in detail the background materials such as units and conversions, dimensional analysis and dimensionless groups, property estimation, P-V-T behaviour of fluids, vapour pressure and phase equilibrium relationships, humidity and saturation. With the help of examples, the book explains the construction and use of reference-substance plots, equilibrium diagrams, psychrometric charts, steam tables and enthalpy composition diagrams. It also elaborates on thermophysics and thermochemistry to acquaint the students with the thermodynamic principles of energy balance calculations.

**Key Features :** • SI units are used throughout the book. • Presents a thorough introduction to basic chemical engineering principles. • Provides many worked-out examples and exercise problems with answers. • Objective type questions included at the end of the book serve as useful review material and also assist the students in preparing for competitive examinations such as GATE.

**Understanding Physics Electricity & Magnetism**-D C Pandey

**Chemistry3**-Andrew Burrows 2021-09-12 Chemistry3 establishes the fundamental principles of all three strands of chemistry; organic, inorganic and physical. Using carefully-worded explanations, annotated diagrams and worked examples, it builds on what students have learned at school to present an approachable introduction to chemistry and its relevance to everyday life.

**Nanotechnology**-Taylor & Francis Group 2022-02-28 This reference text introduces advances in the field of nanotechnology and its applications in diverse areas in a single volume. It will serve as a useful text for senior undergraduate, graduate students and professionals in the fields of electrical engineering, electronics engineering, nanoscience and nanotechnology.
Advances in Modern Sensors-G R Sinha 2020-11-19 Sensors are integral to modern living and are found in a huge number of applications in science, engineering and technology thus it is critical for scientists and technologists to understand the physical principles behind sensor types as well as their characteristics, applications, and how they can be suitably employed in sensor technologies. Whilst there exists a vast literature on the physics and characteristics of traditional sensors, this book provides a broad overview of the range of sensor technologies and attendant topics needed to optimise and utilise these devices in the modern world. Not only reviewing sensors by classification, the book encompasses the physics, design characteristics, simulation and interface electronics, and it includes case studies, future challenges and several other aspects of wider sensor technology to provide an overview of modern sensors and their applications. The broad scope will appeal to industrial and academic researchers and application engineers, especially those developing and implementing real-time hardware implementations employing smart sensors for emerging applications. Key Features Features a broad review of sensor types, including MEMS, wearable and smart sensors Presents application of modern sensors and emerging research directions Incorporates case studies Reviews wider associated technologies such as simulation, materials and interface electronics Interdisciplinary appeal making the text suitable for industrial and academic researchers as well as application engineers

Iron Porphyrins-A. B. P. Lever 1989-03-31 Porphyrins play a vital role in many biological functions including oxygen transport, electron transfer and catalyzing the incorporation of oxygen into other molecules. This current survey discusses the use of modern physical techniques to probe porphyrin structure and function. The authors review the data available through a particular technique and show what can be learned therefrom about the (electronic) structure and function of biologically important porphyrins. The techniques include magnetic circular dichroism, X-ray absorption fine structure (EXAFS) and Mössbauer spectroscopies. All contributors are well known in their respective fields, enjoying world-wide reputation.

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Bioremediation for Environmental Sustainability - Vineet Kumar 2020-08-28
Bioremediation for Environmental Sustainability: Approaches to Tackle Pollution for Cleaner and Greener Society discusses many recently developed and successfully applied bio/phytoremediation technologies for pollution control and minimization, which are lacking more comprehensive coverage in previous books. This book describes the scope and applications of bio/phytoremediation technologies and especially focuses on the associated eco-environmental concerns, field studies, sustainability issues, and future prospects. The book also examines the feasibility of environmentally friendly and sustainable bio/phytoremediation technologies to remediate contaminated sites, as well as future directions in the field of bioremediation for environmental sustainability. Illustrates the importance of microbes and plants in bio/phytoremediation and wastewater treatment. Includes chapters on original research outcomes pertaining to pollution, pollution abatement, and associated bioremediation technologies Covers emerging bioremediation technologies, including electro-bioremediation, microbial fuel cell, nano-bioremediation, constructed wetlands, and more Highlights key developments and challenges in bioremediation and phytoremediation technologies Describes the roles of relatively new approaches in bio/phytoremediation, including molecular engineering and omics...
technologies, microbial enzymes, biosurfactants, plant-microbe interactions, genetically engineered organisms, and more

A Guidebook to Mechanism in Organic Chemistry - Peter Sykes 1986-09
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