

Physics By Navneet Gupta

This book brings together selective and specific chapters on nanoscale carbon and applications, thus making it unique due to its thematic content. It provides access to the contemporary developments in carbon nanomaterial research in electronic applications. Written by professionals with thorough expertise in similar broad area, the book is intended to address multiple aspects of carbon research in a single compiled edition. It targets professors, scientists and researchers belonging to the areas of physics, chemistry, engineering, biology and medicine, and working on theory, experiment and applications of carbon nanomaterials.

This book presents the proceedings of the International Conference on Recent Trends in Materials and Devices, which was conceived as a major contribution to large-scale efforts to foster Indian research and development in the field in close collaboration with the community of non-resident Indian researchers from all over the world. The research articles collected in this volume - selected from among the submissions for their intrinsic quality and originality, as well as for their potential value for further collaborations - document and report on a wide range of recent and significant results for various applications and scientific developments in the areas of Materials and Devices. The technical sessions covered include photovoltaics and energy storage, semiconductor materials and devices, sensors, smart and polymeric materials, optoelectronics,

nanotechnology and nanomaterials, MEMS and NEMS, as well as emerging technologies.

Resistivity -- Carrier and doping density -- Contact resistance and Schottky barriers -- Series resistance, channel length and width, and threshold voltage -- Defects -- Oxide and interface trapped charges, oxide thickness -- Carrier lifetimes -- Mobility -- Charge-based and probe characterization -- Optical characterization -- Chemical and physical characterization -- Reliability and failure analysis.

Plants and microbes have co-evolved and interacted with each other in nature.

Understanding the complex nature of the plant-microbe interface can pave the way for novel strategies to improve plant productivity in an eco-friendly manner. The microbes associated with plants, often called plant microbiota, are an integral part of plant life.

The significance of the plant microbiome is a reliable approach toward sustainability to meet future food crises and rejuvenate soil health. Profiling plant-associate

microbiomes (genome assemblies of all microbes) is an emerging concept in

understanding plant-microbe interactions. Microbiota extends the plant capacity to

acclimatize fluctuating environmental conditions through several mechanisms. Thus,

unraveling the mystery of plant-microbe dynamics through latest technologies to better understand the role of metabolites and signal pathway mechanisms is very important.

This book shares the latest insight on omics technologies to unravel plant-microbe dynamic interactions and other novel phytotechnologies for cleaning contaminated

soils. Besides, it also provides brief insight on the recently discovered clustered regularly interspaced short palindromic repeats CRISPR-Cas9, which is a genome editing tool to explore plant-microbe interactions and how this genome editing tool helps to improve the ability of microbes/plants to combat abiotic/biotic stresses.

This book gathers selected research papers presented at the Second International Conference on Energy Systems, Drives and Automations (ESDA 2019), held in Kolkata on 28–29 December 2019. It covers a broad range of topics in the fields of renewable energy, power management, drive systems for electrical machines and automation. Also discussing a variety of related tools and techniques, the book offers a valuable resource for researchers, professionals and students in electrical and mechanical engineering disciplines.

Divided into four parts: circuits, electronics, digital systems, and electromagnetics, this text provides an understanding of the fundamental principles on which modern electrical engineering is based. It is suitable for a variety of electrical engineering courses, and can also be used as a text for an introduction to electrical engineering.

This book disseminates the current knowledge of semiconductor physics and its applications across the scientific community. It is based on a biennial workshop that provides the participating research groups with a stimulating platform for interaction and collaboration with colleagues from the same scientific community. The book discusses the latest developments in the field of III-nitrides; materials & devices, compound semiconductors, VLSI technology, optoelectronics, sensors, photovoltaics, crystal growth, epitaxy and characterization, graphene

and other 2D materials and organic semiconductors.

The book covers recent trends in the field of devices, wireless communication and networking. It presents the outcomes of the International Conference in Communication, Devices and Networking (ICCDN 2018), which was organized by the Department of Electronics and Communication Engineering, Sikkim Manipal Institute of Technology, Sikkim, India on 2–3 June, 2018. Gathering cutting-edge research papers prepared by researchers, engineers and industry professionals, it will help young and experienced scientists and developers alike to explore new perspectives, and offer them inspirations on addressing real-world problems in the field of electronics, communication, devices and networking.

Sustainable Materials for Next Generation Energy Devices: Challenges and Opportunities presents the latest state-of-the-art knowledge and innovation related to environmentally-friendly functional materials that can be developed for, and employed in, producing a feasible next generation of energy storage and conversion devices. The book is broken up into three sections, covering Energy Storage, Energy Conversion and Advanced Concepts. It will be an important reference for researchers, engineers and students who want to gain extensive knowledge in green and/or sustainable functional materials and their applications. Provides a concise resource for readers interested in sustainable and green functional materials for energy conversion and storage devices Emphasizes sustainable and green concepts in the design of energy devices based on renewable functional materials Presents a survey of both the challenges and opportunities available for renewable functional materials in the development of energy devices

Contributed papers of the workshop held at IIT, Madras, in 2003.

General Knowledge is an important section of several competitive exams. Keeping an updated knowledge of it helps not only in exams, but at every aspects of life. General Knowledge 2020 has been revised for aspirants preparing for various upcoming exams to enhance eir general awareness so at ey can tackle e questions asked from numerous areas. It covers key subjects including History, Geography, Indian Polity, Indian Economy, General Science, and General Knowledge, wi latest facts and updates supported by figures, graphics and tables. It also provides a highly useful section on Current Affairs at e beginning which promotes factual knowledge from recent happening occurred at different areas. Providing accurate, perfect and complete coverage of facts, it is a complete general knowledge book, useful for e preparation of SSC, Bank, Railway, Police, NDA/CDS and various oer competitive exams. TOC Current Affairs, Indian History, Geography, Indian Polity, Indian Economy, General Science, General Knowledge

An in-depth review of sustainable concepts in water resources management under climate change Climate change continues to intensify existing pressures in water resources management, such as rapid population growth, land use changes, pollution, damming of rivers, and many others. Securing a reliable water supply—critical for achieving Sustainable Development Goals (SDGs)—requires understanding of the relation between finite water resources, climate variability/change, and various elements of sustainability. Water, Climate Change, and Sustainability is a timely and in-depth examination of the concept of sustainability as it relates to water resources management in the context of climate change risks. Featuring contributions by global authors, this edited volume is organized into three sections: Sustainability Concepts; Sustainability Approaches, Tools, and Techniques; and Sustainability

in Practice. Detailed chapters describe the linkage between water and sustainable development, highlight the development and use of new measuring and reporting methods, and discuss the implementation of sustainability concepts in various water use sectors. Topics include localizing and mainstreaming global water sustainability initiatives, resilient water infrastructure for poverty reduction, urban water security for sustainable cities, climate actions and challenges for sustainable ecosystem services, and more. This important resource:

- Reviews contemporary scientific research and practical applications in the areas of water, climate change and sustainability in different regions of the world
- Discusses future directions of research and practices in relation to expected patterns of climate changes
- Covers a wide range of concepts, theories, and perspectives of sustainable development of water resources
- Features case studies of field and modelling techniques for analyzing water resources and evaluating vulnerability, security, and associated risks
- Discusses practical applications of water resources in contexts such as food security, global health, clean energy, and climate action

Water, Climate Change, and Sustainability is an invaluable resource for policy makers water managers, researchers, and other professionals in the field, and an ideal text for graduate students in hydrogeology, climate change, geophysics, geochemistry, geography, water resources, and environmental science.

The book in its present form is due to my interaction with the students for quite a long time. It had been my long-cherished desire to write a book covering most of the topics that form the syllabi of the Engineering and Science students at the degree level. Many students, although able to understand the various topics of the

books, may not be able to put their knowledge to use. For this purpose a number of questions and problems are given at the end of each chapter.

Engineering Physics, 2e, provides a comprehensive overview of the subject for first year engineering students. It provides an excellent coverage of the syllabus for all major universities. The book emphasizes on tutorial approach (teach-by-example) towards the subject. Ample solved examples and rich pedagogical pool will help the students understand the subject matter and prepare them for the questions asked in examination. Salient Features: - Revised chapter on Nanoscience and Nanotechnology in view of recent advances in the field - New chapter on Simple Harmonic Motion and Sound Waves - Revised and updated topics like Sound Waves and Acoustics of Buildings, Applied Nuclear Physics and Quantum Mechanics - New topics on Ultrasonic Waves and Their Absorption, Length Contraction and Time Dilation - Rich pool of pedagogy -- Solved Examples : 540 -- Objective Type Questions : 480+ -- Short Answer Questions : 222 -- Practice Problems : 560 -- Unsolved Questions : 132

This book provides an overview of facts, theories and methods from hydrology, geology, geophysics, law, ethics, economics, ecology, engineering, sociology, diplomacy and many other disciplines with relevance for concepts and practice of water resources management. It provides comprehensive, but also critical

reading material for all communities involved in the ongoing water discourses and debates. The book refers to case studies in the form of boxes, sections, or as entire chapters. They illustrate success stories, but also lessons to be remembered, to avoid repeating the same mistakes. Based on consolidated state-of-the-art knowledge, it has been conceived and written to attract a multidisciplinary audience. The aim of this handbook is to facilitate understanding between the participants of the international water discourse and multi-level decision making processes. Knowing more about water, but also about concepts, methods and aspirations of different professional, disciplinary communities and stakeholders professionalizes the debate and enhances the decision making. This book focuses on the latest advances in the field of nanomaterials and their applications, and provides a comprehensive overview of the state-of-the-art of research in this rapidly developing field. The book comprises chapters exploring various aspects of nanomaterials. Given the depth and breadth of coverage, the book offers a valuable guide for researchers and students working in the area of nanomaterials.

The book discusses the properties, characteristics, applications and limitations of engineering materials. Its emphasis is on materials available locally. It also incorporates useful data from the manufacturer's catalogues. The book gives a

comprehensive coverage of the subject, with numerous illustrations for easy understanding. ISI standards are quoted wherever applicable. The book will serve as an excellent text for diploma, Degree and AMIE Students. It will also be a valuable reference book for industrial organizations.

• It is strictly according to the latest CBSE guidelines

- It contains all NCERT Lab Manual Questions, fully solved

- It contains more than sufficient viva voce questions for practice

- It also includes brief description of each activity/experiment, which will help students in practicing and completing their lab work. "

Understanding the recent developments in renewable energy is crucial for a range of fields in today's society. As environmental awareness and the need for a more sustainable future continues to grow, the uses of renewable energy, particularly in areas such as smart grid, must be considered and studied thoroughly to be implemented successfully and move society toward a more sustainable future. Optimal Planning of Smart Grid With Renewable Energy Resources offers a detailed guide to the new problems and opportunities for sustainable growth in engineering by focusing on modeling diverse problems occurring in science and engineering as well as novel effective theoretical methods and robust optimization theories,

which can be used to analyze and solve multiple types of problems. Covering topics such as electric drives and energy systems, this publication is ideal for researchers, academicians, industry professionals, engineers, scholars, instructors, and students.

The first introductory textbook to explain the properties and performance of practical nanotube devices and related applications.

A New Paradigm: We require systems which run parallel to natural ones, not against them. For example, regional, closed-loop (No waste, cradle to cradle), self-sufficient, & decentralized systems (Horizontal vs. Hierarchical). Sustainable systems which are NOT based on constant economic growth & consumption. The organization of self-managed, egalitarian, and highly cooperative societies. This will require a shift in consciousness which recognizes our interconnectedness and interdependence on each other and nature. A shift from ego-systems to eco-systems. Politicians are merely puppets (Pawns, proxies), of private interests. The media & governments role in two words- "controlled opposition" (Corporate tools). The fundamental problem is this entire unsustainable system driven by consumption & economic growth. A fraction of the resources spent on the military industrial complex, corporate welfare, etc. would solve all the ecological, social, and economic problems we face.

A contemporary, thoroughly researched geography series for class 6-8 based on the latest ICSE syllabus, this series helps the learner to explore the natural and human environment and understand their continuous interaction.

This book presents articles from the International Conference on Modelling, Simulation and Intelligent Computing (MoSiCom 2020), held at Birla Institute of Technology and Science Pilani, Dubai Campus, Dubai, UAE, in January 2020. Modelling and simulation are becoming

increasingly important in a wide variety of fields, from Signal, Image and Speech Processing, and Microelectronic Devices and Circuits to Intelligent Techniques, Control and Energy Systems, and Power Electronics. Further, Intelligent Computational techniques are gaining significance in interdisciplinary engineering applications, such as Robotics and Automation, Healthcare Technologies, IoT and its Applications. Featuring the latest advances in the field of engineering applications, this book serves as a definitive reference resource for researchers, professors and practitioners interested in exploring advanced techniques in the field of modelling, simulation and computing.

Emerging Technologies in Computing: Theory, Practice, and Advances reviews the past, current, and future needs of technologies in the computer science field while it also discusses the emerging importance of appropriate practices, advances, and their impact. It outlines emerging technologies and their principles, challenges, and applications as well as issues involved in the digital age. With the rapid development of technologies, it becomes increasingly important for us to remain up to date on new and emerging technologies. It draws a clear illustration for all those who have a strong interest in emerging computing technologies and their impacts on society. Features: Includes high-quality research work by academicians and industrial experts in the field of computing Offers case studies related to Artificial Intelligence, Blockchain, Internet of Things, Multimedia Big Data, Blockchain, Augmented Reality, Data Science, Robotics, Cybersecurity, 3D Printing, Voice Assistants and Chatbots, and Future Communication Networks Serves as a valuable reference guide for anyone seeking knowledge about where future computing is heading

DECISIONS DECIDE DESTINY. YOU ARE WHAT YOU CHOOSE.. YES Or NO.

A JOURNEY FROM ORDINARY TO EXTRAORDINARY.. YES Or NO- A Revolt Against Yourself....here begins a battle, an eternal war against your soul, your very own conscience and wisdom grieving for a positive transformation changing your life forever. Yes or no, a revolt against yourself is a search for a more meaningful life. Decisions decide destiny. You are what you choose. A single yes or no of yours have the power to create a dent in the world. A right decision at right time can turn your life into a miraculous one illuminating it with endless lights of happiness, joy, peace and pleasure. Life is a beautiful gift from God.

Therefore, take life simply and just chill. Answer all the complexities of life in simple yes or no. Once you master the technique of positively responding to the situations you can turn your life from an ordinary to an extra-ordinary one. So are you ready to tint your life with that extraordinary magic factor? Yes or no? If yes, then hold this book tight. And get ready for an exciting transformation in your life taking you to the top of the world bringing endless happiness, glory, success and recognition you waited for so long. You can know more about Deepshikha by visiting www.authordeepshikha.com.

This book describes the physical operation of the Tunnel Field-effect Transistor (TFET) and circuits built with this device. Whereas the majority of publications on TFETs describe in detail the device, its characteristics, variants and performance,

this will be the first book addressing TFET integrated circuits (TFET ICs). The authors describe the peculiarities of TFET ICs and their differences with MOSFETs. They also develop and analyze a number of logic circuits and memories. The discussion also includes complex circuits combining CMOS and TFET, as well as a potential fabrication process in Silicon.

Handbook of Physics Formulae Book For IIT-JEE, NEET, KVPY, NTSE, Olympiad and all other Engineering Entrance Exams Many excellent books are available in the market & each of them represents the subject matter in a highly explanatory manner. However, the students preparing for the competitive examinations also need a comprehensive book on formulae for quick reference and revision. This hand-book of Physics Formulae, therefore, will address this need of students. This little book is an attempt to present the basic formulae in a quick reference format. A student may find this book as a handy aid for gaining rapid insight into the new formulae. Whether a student is doing exercises, homework, or preparing for the tests, this book will give them a quick easy reference to the formulae. The book contains most of the formulae from the syllabus of competitive examination, covering all the topics. Additionally, a systematic index incorporated at the beginning of the hand-book allows a user to locate the required formulae swiftly and simply. We have tried our best to keep

errors out of this book. Though we shall be grateful to the readers if they point out any errors and/or make constructive suggestions. We wish to utilize the opportunity to place on record our special thanks to all members of the Content Development team for their efforts to create this wonderful book. Career Point Ltd, Kota (Rajasthan)

This open access book presents the proceedings of the 3rd Indo-German Conference on Sustainability in Engineering held at Birla Institute of Technology and Science, Pilani, India, on September 16–17, 2019. Intended to foster the synergies between research and education, the conference is one of the joint activities of the BITS Pilani and TU Braunschweig conducted under the auspices of Indo-German Center for Sustainable Manufacturing, established in 2009. The book is divided into three sections: engineering, education and entrepreneurship, covering a range of topics, such as renewable energy forecasting, design & simulation, Industry 4.0, and soft & intelligent sensors for energy efficiency. It also includes case studies on lean and green manufacturing, and life cycle analysis of ceramic products, as well as papers on teaching/learning methods based on the use of learning factories to improve students' problem-solving and personal skills. Moreover, the book discusses high-tech ideas to help the large number of unemployed engineering graduates looking for jobs become tech

entrepreneurs. Given its broad scope, it will appeal to academics and industry professionals alike.

Antenna design and wireless communication has recently witnessed their fastest growth period ever in history, and these trends are likely to continue for the foreseeable future. Due to recent advances in industrial applications as well as antenna, wireless communication, and 5G technology, we are witnessing a variety of developing and expanding new technologies. Compact and low-cost antennas are increasing the demand for ultra-wide bandwidth in next-generation (5G) wireless communication systems and the Internet of Things (IoT). Enabling the next generation of high-frequency communication, various methods have been introduced to achieve reliable high data rate communication links and enhance the directivity of planar antennas. 5G technology can be used in many applications, such as in smart city applications and in smartphones. This technology can satisfy the fast rise in user and traffic capacity in mobile broadband communications. Therefore, different planar antennas with intelligent beamforming capability play an important role in these areas. The purpose of this book is to present the advanced technology, developments, and challenges in antennas for next-generation antenna communication systems. This book covers advances in next-generation antenna design and application domain in all related

areas. It is a detailed overview of cutting-edge developments and other emerging topics and their applications in all areas of engineering that have achieved great accuracy and performance with the help of the advancement and challenges in next generation antennas. Whether a refresher for veteran engineers hoping to stay abreast of the latest advances and developing concepts in the field, an introduction to new engineers moving into the field, or a textbook for students and faculty, this groundbreaking new volume is a must-have for any library.

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