

Operations Research By V K Kapoor

The remarkable growth of financial markets over the past decades has been accompanied by an equally remarkable explosion in financial engineering, the interdisciplinary field focusing on applications of mathematical and statistical modeling and computational technology to problems in the financial services industry. The goals of financial engineering research are to develop empirically realistic stochastic models describing dynamics of financial risk variables, such as asset prices, foreign exchange rates, and interest rates, and to develop analytical, computational and statistical methods and tools to implement the models and employ them to design and evaluate financial products and processes to manage risk and to meet financial goals. This handbook describes the latest developments in this rapidly evolving field in the areas of modeling and pricing financial derivatives, building models of interest rates and credit risk, pricing and hedging in incomplete markets, risk management, and portfolio optimization. Leading researchers in each of these areas provide their perspective on the state of the art in terms of analysis, computation, and practical relevance. The authors describe essential results to date, fundamental methods and tools, as well as new views of the existing literature, opportunities, and challenges for future research. The authors have used numerical examples as the means for presentation of the underlying ideas of different operations research techniques. Accordingly, a large number of comprehensive solved examples, taken from a variety of fields, have been added in every chapter and they are followed by a set of unsolved problems with answers (and hints wherever required) through which readers can test their understanding of the subject matter. The book, in its present form, contains around 650 examples, 1,280 illustrative diagrams.

The principle aim of this book, entitled "Operations Research | Management Science at Work", is to provide a summary snapshot of recent research in and applications of Operations Research (OR)/ Management Science (MS) in the Asia-pacific region. The book emphasises research having potential industry interest, covering a wide range of topics from major fields of OR/MS in a systematic and coherent fashion and shows the elegance of their implementations. The book is intended to serve the needs of applied researchers who are interested in applications of OR/MS algorithms. The book includes descriptions of many real-world problems together with their solutions; we hope the reader will appreciate their applicability. The Asia-pacific region has embraced business applications of decision support systems in recent years. Given that many of these applications are unaffected by legacy models or systems it has meant that state of the art OR/MS techniques have been embedded in them. Moreover, the increased use of OR/MS techniques in this region provides opportunities for identifying methodological advances that are taking place as a result of the unique nature of the applications. These also provide opportunities for exploring synergies and interfaces that exist between OR/MS, from the point of view of applications as well as theoretical advances. This book constitutes revised selected papers from the 4th International Conference on Operations Research and Enterprise Systems, ICORES 2015, held in Lisbon, Portugal, in January 2015. The 14 papers presented in this volume were carefully reviewed and selection from a total of 89 submissions. They were organized in topical sections named: methodologies and technologies; and applications.

The Thirty-first Revised Edition of the book entitled “Company Law & Secretarial Practice” with Companies Act, 2013 (Schedules) for B.Com., B.Com. (Corporate Secretaryship), M.Com., IPCC, CS & LLB. The book is divided into two parts volume I Company Law contains 32 chapters and volume II Secretarial Practice contains 10 chapters having more than 270 Test Questions; 67 Practical Problems (with Hints and Solutions); 79 short Answer & Objective Type Question; 48 Multiple Choice, Presentation of Examples (10); Illustrative cases (12) etc., University Questions Papers have been added at the end of the book to give an idea about the pattern of questions asked.

In both rich and poor nations, public resources for health care are inadequate to meet demand. Policy makers and health care providers must determine how to provide the most effective health care to citizens using the limited resources that are available. This chapter describes current and future challenges in the delivery of health care, and outlines the role that operations research (OR) models can play in helping to solve those problems. The chapter concludes with an overview of this book – its intended audience, the areas covered, and a description of the subsequent chapters. **KEY WORDS** Health care delivery, Health care planning **HEALTH CARE DELIVERY: PROBLEMS AND CHALLENGES** 3 1.1 **WORLDWIDE HEALTH: THE PAST 50 YEARS** Human health has improved significantly in the last 50 years. In 1950, global life expectancy was 46 years [1]. That figure rose to 61 years by 1980 and to 67 years by 1998 [2]. Much of these gains occurred in low- and middle-income countries, and were due in large part to improved nutrition and sanitation, medical innovations, and improvements in public health infrastructure.

This book constitutes refereed proceedings of the 19th International Conference on Mathematical Optimization Theory and Operations Research, MOTOR 2020, held in Novosibirsk, Russia, in July 2020. Due to the COVID-19 pandemic the conference was held online. The 25 full papers and 8 short papers presented in this volume were carefully reviewed and selected from a total of 102 submissions. The papers in the volume are organised according to the following topical headings: ?combinatorial optimization; mathematical programming; global optimization; game theory and mathematical economics; heuristics and metaheuristics; machine learning and data analysis.

This book contains a selection of refereed papers presented at the “International Conference on Operations Research (OR 2013)” which took place at Erasmus University Rotterdam September 3-6, 2013. The conference was jointly organized by the German and the Dutch OR Society. More than 800 scientists and students from over 50 countries attended OR 2013 and presented more than 600 papers in parallel topical streams, as well as special award sessions. The theme of the conference and its proceedings is "Impact on People, Business and Society".

This book contains a selection of refereed papers presented at the “International Conference on Operations Research (OR 2011)” which took place at the University of Zurich from August 30 to September 2, 2011. The conference was jointly organized by the German speaking OR societies from Austria (ÖGOR), Germany (GOR) and Switzerland (SVOR) under the patronage of SVOR. More than 840 scientists and students from over 50 countries attended OR 2011 and presented 620 papers in 16 parallel topical streams, as well as special award sessions. The conference was designed according to the understanding of Operations Research as an interdisciplinary science focusing on modeling complex socio-technical systems to gain insight

into behavior under interventions by decision makers. Dealing with "organized complexity" lies in the core of OR and designing useful support systems to master the challenge of system management in complex environment is the ultimate goal of our professional societies. To this end, algorithmic techniques and system modeling are two fundamental competences which are also well-balanced in these proceedings.

This book presents work on healthcare management and engineering using optimization and simulation methods and techniques. Specific topics covered in the contributed chapters include discrete-event simulation, patient admission scheduling, simulation-based emergency department control systems, patient transportation, cost function networks, hospital bed management, and operating theater scheduling. The content will be valuable for researchers and postgraduate students in computer science, information technology, industrial engineering, and applied mathematics.

The volume contains a selection of manuscripts of lectures presented at the International Symposium on Operations Research (SOR 96). The Symposium took place at the Technical University of Braunschweig, September 3-6, 1996. SOR 96 was organized under the auspices of the two German societies of Operations Research, Deutsche Gesellschaft für Operations Research (DGOR) and Gesellschaft für Mathematik, Ökonomie und Operations Research (GMOOR) in cooperation with the Working Group Discrete Optimization of the IFIP (WG7.4). Since 1995, DGOR and GMOOR jointly prepare the Symposium as a common annual conference. In particular, the annual general meetings of the DGOR, the GMOOR and the WG7.4 took place during the conference. The Symposium had 527 participants from 32 countries around the world, including 92 participants from Eastern Europe. The Symposium obviously attracts an international audience of workers fully covering the broad spectrum of Operations Research and related areas in economics, mathematics and computer science. The importance of a highly interdisciplinary field as Operations Research is increasing owing to the growth in applications in related disciplines. Technological advances in computer science and algorithmic mathematics are crucial for attacking the great challenges waiting in the areas of applications of Operations Research effectively. As a participant of SOR 96 one could well observe the current pace of achievements. Many of these results are in these proceedings. The program consisted of two plenary, 17 semiplenary, and 335 contributed lectures in 18 sections.

A single source guide to operations research (OR) techniques, this book covers emerging OR methodologies in a clear, concise, and unified manner. Building a bridge between theory and practice, it begins with coverage of fundamental models and methods such as linear, nonlinear, integer, and dynamic programming, networks, simulation, queuing, inventory, stochastic processes, and decision analysis. The book then explores emerging techniques including multiple criteria optimization, metaheuristics, robust optimization, and complexity and large scale networks. Each chapter gives an overview of a particular methodology, illustrates successful applications, and provides references to computer software availability.

Every one relies on some kind of transportation system nearly every day. Going to work, shopping, dropping children at school and many other cultural or social activities imply leaving home, and using some form of transportation, which we expect to be efficient and reliable. Of course, efficiency and reliability do not occur by chance, but require careful and often relatively complex planning by transportation system managers, both in the public and private sectors. It has long been recognized that mathematics, and, more specifically, operations research is an important tool of this planning process. However, the range of skills required to cover both fields, even partially, is very large, and the opportunities to gather people with this very diverse expertise are too few. The organization of the NATO Advanced Studies Institute on "Operations Research and Decision Aid Methodologies in Traffic and Transportation Management" in March 1997 in Balatonfüred, Hungary, was therefore more than welcome and the group of

people that gathered for a very studious two weeks on the shores of the beautiful lake Balaton did really enjoy the truly multidisciplinary and high scientific level of the meeting. The purpose of the present volume is to report, in a chronological order, the various questions that were considered by the lecturers and the students at the institute. After a general introduction to the topic, the first week focused on issues related to traffic modeling, mostly in an urban context. From the Foreword by Marshall Fisher, The Wharton School, University of Pennsylvania: As generation of academics and practitioners follows generation, it is worthwhile to compile long views of the research and practice in the past to shed light on research and practice going forward. This collection of peer-reviewed articles is intended to provide such a long view. This book contains a collection of chapters written by leading scholars/practitioners who have continued their efforts in developing and/or implementing innovative OR/MS tools for solving real world problems. In this book, the contributors share their perspectives about the past, present and future of OR/MS theoretical development, solution tools, modeling approaches, and applications. Specifically, this book collects chapters that offer insights about the following topics:

- Survey articles taking a long view over the past two or more decades to arrive at the present state of the art while outlining ideas for future research. Surveys focus on use of a particular OR/MS approach, e.g., mathematical programming (LP, MILP, etc.) and solution methods for particular family of application, e.g., distribution system design, distribution planning system, health care.
- Autobiographical or biographical accounts of how particular inventions (e.g., Structured Modeling) were made. These could include personal experiences in early development of OR/MS and an overview of what has happened since.
- Development of OR/MS mathematical tools (e.g., stochastic programming, optimization theory).
- Development of OR/MS in a particular industry sector such as global supply chain management.
- Modeling systems for OR/MS and their development over time as well as speculation on future development (e.g., LINDO, LINGO, and What'sBest!)
- New applications of OR/MS models (e.g., happiness)

The target audience of this book is young researchers, graduate/advanced undergraduate students from OR/MS and related fields like computer science, engineering, and management as well as practitioners who want to understand how OR/MS modeling came about over the past few decades and what research topics or modeling approaches they could pursue in research or application.

Drawn from a conference honoring Gerald L. Thompson, the pioneer of operations research, this volume brings together some of the latest writings of major figures in the field. The volume is divided into four parts: the first part reviews the career and significance of Thompson, the second concentrates on linear and nonlinear optimization, the third looks at network and integer programming, and the fourth provides examples of applications-oriented research in manufacturing. This volume will be an invaluable resource for all scholars and researchers involved in theory and methodology in operations research and management science.

This book contains selected papers presented at the "International Annual Conference of the German Operations Research Society (OR2012)" which was held September 4 -7, 2012 at the Leibniz Universität Hannover, Germany. The international conference, which also serves as the annual meeting of the German Operations Research Society (GOR), attracted more than 500 participants from more than 39 countries. Special attention at the conference was given to the three topics "Energy, Markets and Mobility". The OR2012 conference has addressed these topics from an OR perspective, treating them not only in isolation, but also with respect to their numerous and exciting interconnections, such as new energy for new mobility concepts and new market mechanisms for sustainable energy production to name but a few. The proceedings show that this conference topic is an important and promising area to apply Operations Research. The book also contains numerous papers addressing the full scope of fields in Operations Research.

This book constitutes the proceedings of the 9th International Conference on Discrete

Optimization and Operations Research, DOOR 2016, held in Vladivostok, Russia, in September 2016. The 39 full papers presented in this volume were carefully reviewed and selected from 181 submissions. They were organized in topical sections named: discrete optimization; scheduling problems; facility location; mathematical programming; mathematical economics and games; applications of operational research; and short communications. This book gathers a selection of peer-reviewed papers presented at the International Conference on Operations Research (OR 2019), which was held at Technische Universität Dresden, Germany, on September 4-6, 2019, and was jointly organized by the German Operations Research Society (GOR) the Austrian Operations Research Society (ÖGOR), and the Swiss Operational Research Society (SOR/ASRO). More than 600 scientists, practitioners and students from mathematics, computer science, business/economics and related fields attended the conference and presented more than 400 papers in plenary presentations, parallel topic streams, as well as special award sessions. The respective papers discuss classical mathematical optimization, statistics and simulation techniques. These are complemented by computer science methods, and by tools for processing data, designing and implementing information systems. The book also examines recent advances in information technology, which allow big data volumes to be processed and enable real-time predictive and prescriptive business analytics to drive decisions and actions. Lastly, it includes problems modeled and treated while taking into account uncertainty, risk management, behavioral issues, etc.

This book includes a selection of refereed papers presented at the "Annual International Conference of the German Operations Research Society (OR2016)," which took place at the Helmut-Schmidt-Universität / Universität der Bundeswehr Hamburg, Germany, Aug. 30 - Sept. 2, 2016. Over 700 practitioners and academics from mathematics, computer science, business/economics, and related fields attended the conference. The scientific program included around 475 presentations on the theme Analytical Decision Making, focusing on the process of researching complex decision problems and devising effective solution methods towards better decisions. The book presents papers discussing classical mathematical optimization, statistics and simulation techniques. Such approaches are complemented by computer science methods and tools for the processing of data and the design and implementation of information systems. The book also examines recent advances in information technology, which allow big data volumes to be treated and enable real-time predictive and prescriptive business analytics to drive decisions and actions. Further, it includes problems modeled and treated under consideration of uncertainty, risk management, behavioral issues, and strategic decision situations.

This book constitutes the proceedings of the 16th International Conference on Integration of Constraint Programming, Artificial Intelligence, and Operations Research, CPAIOR 2019, held in Thessaloniki, Greece, in June 2019. The 34 full papers presented together with 9 short papers were carefully reviewed and selected from 94 submissions. The conference brings together interested researchers from Constraint Programming (CP), Artificial Intelligence (AI), and Operations Research (OR) to present new techniques or applications and to provide an opportunity for researchers in one area to learn about techniques in the others. A main objective of this conference series is also to give these researchers the opportunity to show how the integration of techniques from different fields can lead to interesting results on large and complex problems.

This book gathers a selection of peer-reviewed papers presented at the International Conference on Operations Research (OR 2018), which was held at the Free University of Brussels, Belgium on September 12 - 14, 2018, and was jointly organized by the German Operations Research Society (GOR) and the Belgian Operational Research Society (ORBEL). 575 scientists, practitioners and students from mathematics, computer science,

business/economics and related fields attended the conference and presented more than 400 papers in parallel topic streams, as well as special award sessions. The respective papers discuss classical mathematical optimization, statistics and simulation techniques. These are complemented by computer science methods, and by tools for processing data, designing and implementing information systems. The book also examines recent advances in information technology, which allow big data volumes to be processed and enable real-time predictive and prescriptive business analytics to drive decisions and actions. Lastly, it includes problems modeled and treated while taking into account uncertainty, risk management, behavioral issues, etc.

Operations Research (OR) began as an interdisciplinary activity to solve complex military problems during World War II. Utilizing principles from mathematics, engineering, business, computer science, economics, and statistics, OR has developed into a full fledged academic discipline with practical application in business, industry, government and military. Currently regarded as a body of established mathematical models and methods essential to solving complicated management issues, OR provides quantitative analysis of problems from which managers can make objective decisions. Operations Research and Management Science (OR/MS) methodologies continue to flourish in numerous decision making fields. Featuring a mix of international authors, Operations Research and Management Science Handbook combines OR/MS models, methods, and applications into one comprehensive, yet concise volume. The first resource to reach for when confronting OR/MS difficulties, this text – Provides a single source guide in OR/MS Bridges theory and practice Covers all topics relevant to OR/MS Offers a quick reference guide for students, researchers and practitioners Contains unified and up-to-date coverage designed and edited with non-experts in mind Discusses software availability for all OR/MS techniques Includes contributions from a mix of domestic and international experts The 26 chapters in the handbook are divided into two parts. Part I contains 14 chapters that cover the fundamental OR/MS models and methods. Each chapter gives an overview of a particular OR/MS model, its solution methods and illustrates successful applications. Part II of the handbook contains 11 chapters discussing the OR/MS applications in specific areas. They include airlines, e-commerce, energy systems, finance, military, production systems, project management, quality control, reliability, supply chain management and water resources. Part II ends with a chapter on the future of OR/MS applications.

This volume contains the proceedings of the 2001 International Conference on Operations Research (OR 2001) held at the Gerhard-Mercator-University Duisburg, September 3-5, 2001. OR 2001 was organized under the auspices of the German Society of Operations Research, Gesellschaft für Operations Research (GOR e. V.). The conference and the annual general meeting were attended by 360 participants from 20 countries. The presentation of 220 papers was organized in 15 sections. According to Duisburg as hosting city for this event OR 2001 emphasized on contributions of OR in the areas of energy, transport and traffic. The program consisted of 2 plenary lectures (Reinhard Selten and Jörg Hennerkes) and 15 invited semi-plenary lectures. 97 papers were submitted for publication. Following the advice of the section chairs the program committee decided to accept 59 papers for this volume. The selected manuscripts will be published also in electronic form on the World Wide Web at <http://www.uni-duisburg.de/or2001>. We want to thank all referees and authors for delivering their final manuscript in due time. We are also grateful to the other members of the local organizing committee and especially to Stefan Krebs, Corinna Schu and David Betge for the perfect conference management. Roland Düsing, Ralph Gollmer and Steffen Stock supported us in editing the abstracts and the final version of this proceeding volume. Last but not least thanks to all the assistants and student assistants for their operations on OR 2001 in Duisburg. This book is a comprehensive survey of the mathematical concepts and principles of industrial mathematics. Its purpose is to provide students and professionals with an understanding of the

fundamental mathematical principles used in Industrial Mathematics/OR in modeling problems and application solutions. All the concepts presented in each chapter have undergone the learning scrutiny of the author and his students. The illustrative material throughout the book was refined for student comprehension as the manuscript developed through its iterations, and the chapter exercises are refined from the previous year's exercises.

The Seventh Revised Edition of "Business Law" as per Tamil Nadu University syllabus for all BBA, B.Com. students. The new edition, like its predecessors, attempts to present the basic principles of Law in a way that makes the subject easily intelligible even to a non-specialist. This object has been achieved by dividing into IV units: Unit I – The Indian Contract Act consists of 157 Illustrative Cases, 213 Test Questions, 326 Practical Problems (with Hints and Solutions), 174 Multiple-choice Questions, 194 True & False Questions and 644 Examples with the idea of testing the depth of knowledge of the reader, basic understanding of concepts and his ability to apply whatever he has learnt to a particular situation or problem. Unit II – The Sale of Goods Act, 1930. Unit III – Law Relating to The Indian Partnership Act, 1932 and The Limited Liability Partnership Act, 2008. It facilitate the reader in understanding the Nature of Partnership, Relations of Partners & Dissolution of Firm followed by a chapter on 'Limited Liability Partnership' popularly known as LLP has been added in the present edition. LLP combines the advantage of both the Company and Partnership into a single form of organization. The Limited Liability Partnership Act, 2008 was published in Official Gazette of India on 9th January, 2009 and has been notified with effect from 31st March, 2009. Unit IV – The Companies Act, 2013 as Amended upto 2019. The Companies Act, 2013 (Schedules) which has been thoroughly updated and amended upto 2019 to our esteemed readers.

Optimization and Operations Research is a component of Encyclopedia of Mathematical Sciences in the global Encyclopedia of Life Support Systems (EOLSS), which is an integrated compendium of twenty one Encyclopedias. The Theme on Optimization and Operations Research is organized into six different topics which represent the main scientific areas of the theme: 1. Fundamentals of Operations Research; 2. Advanced Deterministic Operations Research; 3. Optimization in Infinite Dimensions; 4. Game Theory; 5. Stochastic Operations Research; 6. Decision Analysis, which are then expanded into multiple subtopics, each as a chapter. These four volumes are aimed at the following five major target audiences: University and College students Educators, Professional Practitioners, Research Personnel and Policy Analysts, Managers, and Decision Makers and NGOs.

This volume contains a selection of papers referring to lectures presented at the symposium Operations Research 2006 held at the University of Karlsruhe. The symposium presented the state of the art in Operations Research and related areas in Economics, Mathematics, and Computer Science and demonstrated the broad applicability of its core themes, placing particular emphasis on Basel II, one of the most topical challenges of Operations Research.

The art and science of executive decisions; Formulation of linear optimization models; Algebraic and geometric representations of linear optimization models; Simplex method of solution; Sensitivity testing and duality; Transportation problem; Shortest-route and other network models; Introduction to dynamic optimization models; Dynamic optimization of inventory scheduling; Other examples of dynamic programming; Decision-making over an unbounded horizon; Optimization methods for an unbounded horizon; Integer programming and combinatorial models.

Basically five problem areas are addressed by operations research specialists in the manufacturing domain: theoretical and practical aspects in production planning, facility layout, inventory control, tool management and scheduling. Some of these problems can be solved off-line, while others must be treated as real-time problems impacted by the changing state of the system. Additionally, all of these problems have to be dealt with in an integrated systems framework. Several new topics have recently appeared in the scientific literature which now attract the interest of operations researchers. These include distributed real-time scheduling, hierarchical and heterarchical control systems, integrated algorithms for design, process planning, and equipment level programming, material handling in a finite capacity resource environment, and designing and implementing distributed data management systems. The contributions of these proceedings represent new and unique theoretical developments and applications related to these new topics. They deal with modelling production structures and applying expert systems or neural networks to production systems. Mathematical programming, control theory, simulation, genetic algorithms, tabu search, and simulated annealing are applied as solution techniques.

The volume comprises a collection of 172 extended abstracts of talks presented at the 16th Symposium on Operations Research held at the University of Trier in September 1991. It is designed to serve as a quickly published documentation of the scientific activities of the conference. Subjects and areas touched upon include theory, modelling and computational methods in optimization, combinatorial optimization and discrete mathematics, combinatorial problems in VLSI, scientific computing, stochastic and dynamic optimization, queuing, scheduling, stochastics and econometrics, mathematical economics and game theory, utility, risk, insurance, financial engineering, computer science in business and economics, knowledge engineering and production and manufacturing.

This proceedings volume contains extended abstracts of talks presented at the 18th Symposium on Operations Research held at the University of Cologne, September 1-3, 1993. The Symposia on Operations Research are the annual meetings of the Gesellschaft für Mathematik, Ökonometrie und Operations Research (GMOOR), a scientific society providing a link between research and applications in the areas of applied mathematics, economics and operations research. The broad range of interests and scientific activities covered by

GMOOR and its members was demonstrated by about 250 talks presented at the 18th Symposium. As in recent years, emphasis was placed on optimization and stochastics, this year with a special focus on combinatorial optimization and discrete mathematics. We appreciate that with sections on parallel and distributed computing and on scientific computing also new fields could be integrated into the scope of the GMOOR. This book contains extended abstracts of most of the papers presented at the conference. Long versions and full papers of the talks are expected to appear elsewhere in refereed periodicals. The contributions were divided into sixteen sections: (1) Theory of Optimization, (2) Computational Methods of Optimization, (3) Combinatorial Optimization and Discrete Mathematics, (4) Scientific Computing, (5) Decision Theory, (6) Mathematical Economics and Game Theory, (7) Banking, Finance and Insurance, (8) Econometrics, (9) Macroeconomics and Economic Theory, (10) Stochastics, (11) Production and Logistics, (12) System and Control Theory, (13) Routing and Scheduling, (14) Knowledge Based Systems, (15) Information Systems and (16) Parallel and Distributed Computing.

The 14th Revised Edition of the book "Corporate Accounting" includes the provision of the Companies Act, 2013, SEBI rules and regulations and Accounting Standards, wherever applicable. The whole book has been updated and corrections made wherever required. Theory and accounting treatment has been revised as per Accounting Standards – 4 (Revised) and Companies (Amendment) Act, 2019. Each aspect of a chapter has been discussed in detail in order to meet the requirements of the syllabus prescribed by different universities and professional institutes. Salient Features of the Book The following features are worth nothing in the present text: • The illustrations and assignment material has been made to conform to the requirements of Schedule III of the Companies Act, 2013. The relevant problems/ solutions has also been revised. • The revised revision of Paragraph 14 of Accounting Standards — 4 concerning Financial Statements regarding Proposed final dividend has been incorporated at relevant pages and the illustrations amended accordingly. • The relevant provisions of Ind AS — 7: Statements of Cash Flows dealing with Bank Overdraft and Proposed Dividend have also been taken care of in this book. • In the chapter of Redemption of Debentures, the treatment of interest on Debenture Redemption Funds Investments or Profit (or Loss) on the sale of DRFI have been also summerised in the chapter. • All chapters have been revised and udapted. Problem of each chapter have been suitably graded and edited to include questions of topical interest. We are confident that the book in its revised form will be more useful for B.Com (Pass and Hons.), M.Com, M.B.A., C.A., I.P.C.E, C.A.(Final), I.C.M.A. (Stage II) and Company Secretaries (Executive Programme) Examinations.

This book constitutes the proceedings of the 15th International Conference on Integration of Artificial Intelligence and Operations Research Techniques in Constraint Programming for Combinatorial Optimization Problems, CPAIOR 2018, held in Delft,

The Netherlands, in June 2018. The 47 full papers presented together with 3 abstracts of invited talks and 3 abstracts of fast-track journal papers were carefully reviewed and selected from 111 submissions. The conference brings together interested researchers from constraint programming, artificial intelligence, and operations research to present new techniques or applications in the intersection of these fields and provides an opportunity for researchers in one area to learn about techniques in the others, and to show how the integration of techniques from different fields can lead to interesting results on large and complex problems.

The contributions to this volume have all been translated from the first volume of the Russian journal *Discrete Analysis and Operational Research*, published at the Sobolev Institute of Mathematics, Siberian Branch of the Russian Academy of Sciences, Novosibirsk, Russia, in 1994. The papers collected here give an excellent overview of recent Russian research in topics such as analysis of algorithms, combinatorics, graphs, lower bounds for complexity of Boolean functions, packing and coverings, scheduling theory, search and sorting, linear programming, and testing. Audience: This book will be of interest to specialists in discrete mathematics and computer science, and engineers.

This book gathers a selection of refereed papers presented at the “International Conference on Operations Research OR2015,” which was held at the University of Vienna, Austria, September 1-4, 2015. Over 900 scientists and students from 50 countries attended this conference and presented more than 600 papers in parallel topic streams as well as special award sessions. Though the guiding theme of the conference was “Optimal Decision and Big Data,” this volume also includes papers addressing practically all aspects of modern Operations Research.

The power grid can be considered one of twentieth-century engineering’s greatest achievements, and as grids and populations grow, robustness is a factor that planners must take into account. Power grid robustness is a complex problem for two reasons: the underlying physics is mathematically complex, and modeling is complicated by lack of accurate data. This book sheds light on this complex problem by introducing the engineering details of power grid operations from the basic to the detailed; describing how to use optimization and stochastic modeling, with special focus on the modeling of cascading failures and robustness; providing numerical examples that show how things work; and detailing the application of a number of optimization theories to power grids. ÷

[Copyright: 875f61b92347b12c9a83afe66af4cd06](#)