Santosh Kumar Yadav

Discrete Mathematics with Graph Theory

This book is designed to meet the requirement of undergraduate and postgraduate students pursuing computer science, information technology, mathematical science, and physical science course. No formal prerequisites are needed to understand the text matter except a very reasonable background in college algebra. The text contains in-depth coverage of all major topics proposed by professional institutions and universities for a discrete mathematics course. It emphasizes on problem-solving techniques, pattern recognition, conjecturing, induction, applications of varying nature, proof technique, algorithmic development, algorithm correctness, and numeric computations. A sufficient amount of theory is included for those who enjoy the beauty in development of the subject and a wealth of applications as well as for those who enjoy the power of problem-solving techniques.

Biographical sketches of nearly 25 mathematicians and computer scientists who have played a significant role in the development of the field are threaded into the text to provide a human dimension and attach a human face to major discoveries. Each section of the book contains a generous selection of carefully tailored examples to classify and illuminate various concepts and facts. Theorems are backbone of mathematics. Consequently, this book contains the various proof techniques, explained and illustrated in details. Most of the concepts, definitions, and theorems in the book are illustrated with appropriate examples. Proofs shed additional light on the topic and enable students to sharpen thin problem-solving skills. Each chapter ends with a summary of important vocabulary, formulae, properties developed in the chapter, and list of selected references for further exploration and enrichment.

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