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Chowdhary, K. R.
Fundamentals of discrete mathematical structures. 3rd edition.
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Publisher's description: This updated text, now in its third edition, continues to provide the basic concepts of discrete mathematics and its applications at an appropriate level of rigour. The text teaches mathematical logic, discusses how to work with discrete structures, analyzes combinatorial approach to problem-solving and develops an ability to create and understand mathematical models and algorithms essentials for writing computer programs. Every concept introduced in the text is first explained from the point of view of mathematics, followed by its relation to computer science. In addition, it offers excellent coverage of graph theory, mathematical reasoning, foundational material on set theory, relations and their computer representation, supported by a number of worked-out examples and exercises to reinforce the students' skill. Primarily intended for undergraduate students of computer science and engineering, and information technology, this text will also be useful for undergraduate and postgraduate students of computer applications. New to this edition: Incorporates many new sections and subsections such as recurrence relations with constant coefficients, linear recurrence relations with and without constant coefficients, rules for counting and shorting, Peano axioms, graph connecting, graph scanning algorithm, lexicographic shorting, chains, antichains and order-isomorphism, complemented lattices, isomorphic order sets, cyclic groups, automorphism groups, abelian groups, group homomorphism, subgroups, permutation groups, cosets, and quotient subgroups. Includes many new worked-out examples, definitions, theorems, exercises, and GATE level MCQs with answers. Contents: Preface. Preface to the first edition. 1. Discrete structures and set theory. 2. Induction, recursion and recurrences. 3. Combinatorics. 4. Discrete probability. 5. Mathematical logic. 6. Logical inferencing. 7. Predicate logic. 8. Graph theory. 9. Relations. 10. Transitive closure and Warshall's algorithm. 11. Equivalence and partial ordering relations. 12. Trees. 13. Algebraic systems. 14. Languages, automata and grammars. 15. Prime numbers and cryptosystems. Bibliography. Index.

Classification: N75 K25 K35