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Titolo	Discrete Mathematics with Cryptographic Applications : A Self-Teaching Introduction
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Descrizione fisica	1 online resource (382 pages)
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Nota di contenuto	Frontmatter -- Contents -- Preface -- Chapter 1: A Brief Survey of Elementary Functions -- Chapter 2: Propositional Algebra -- Chapter 3: Naïve and Formal (Axiomatic) Set Theory -- Chapter 4: Groups, Rings, and Fields -- Chapter 5: Predicates and Quantifiers—Algebraic Theory -- Chapter 6: Binary Relations and Relational Databases -- Chapter 7: Combinatorics -- Chapter 8: Elements of Number Theory -- Chapter 9: Boolean Functions -- Chapter 10: Hashing Functions and Cryptographic Maps -- Chapter 11: Generating Polynomials and Inversion Formulas -- Chapter 12: Systems of Representatives -- Chapter 13: Boolean Algebras -- Chapter 14: Combinatorial Circuits -- Chapter 15: Complete Systems of Boolean Functions and Bases -- Chapter 16: Introductory Graph Theory, Euler's Formula, and Unbreakable Ciphers -- Chapter 17: Trees and Digraphs -- Chapter 18: Computations and Algorithms -- Chapter 19: Finite Automata -- Chapter 20: Introduction to Game Theory -- Chapter 21: Information Theory and Coding -- Chapter 22: Probability Theory with a Finite Sample Space and the Birthday Problem -- Chapter 23: Turing Machines, P and NP Classes, and Other Models of Computation -- Chapter 24: Answers and Solutions to Selected Exercises -- Bibliography -- Index
Sommario/riassunto	This book covers discrete mathematics both as it has been established after its emergence since the middle of the last century and as its

elementary applications to cryptography. It can be used by any individual studying discrete mathematics, finite mathematics, and similar subjects. Any necessary prerequisites are explained and illustrated in the book. As a background of cryptography, the textbook gives an introduction into number theory, coding theory, information theory, that obviously have discrete nature. FEATURES: Designed in a “self-teaching” format, the book includes about 600 problems (with and without solutions) and numerous examples of cryptographyCovers cryptography topics such as CRT, affine ciphers, hashing functions, substitution ciphers, unbreakable ciphers, Discrete Logarithm Problem (DLP), and more.