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Titolo	Topics in Combinatorics and Graph Theory / / by R. Rama
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ISBN	3-031-74252-4
Edizione	[1st ed. 2025.]
Descrizione fisica	1 online resource (X, 454 p. 257 illus., 1 illus. in color.)
Collana	Mathematics and Statistics Series
Disciplina	511.5
Soggetti	Graph theory Discrete mathematics Probabilities Graph Theory Discrete Mathematics Probability Theory Graph Theory in Probability
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Basics of Counting -- Induction and Pigeon Hole Principle -- Binomial Theorem and Binomial Identities Partitions -- Permutations -- Combinations and Cycles -- Generating Functions -- Recurrence Relations -- Inclusion Exclusion Principle -- Partial Order and Lattices -- Polya’s Theory -- More on Counting -- Discrete Probability -- Basic Concepts -- Paths Connectedness -- Trees -- Connectivity -- Eulerian and Hamiltonian Graphs -- Planar Graphs -- Independent Sets -- Coverings and Matchings -- Graph Coloring -- Ramsey Numbers and Ramsey Graphs -- Spectral Properties of Graphs -- Directed Graphs and Graph Algorithms.
Sommario/riassunto	The book covers all the basics of both the topics. The topics are sequenced in such a manner that there is a flow in understanding the advances. The first and second chapters cover all the basic methods and tools for counting. Chapter 3 is on binomial theorem and binomial identities. Topics such as partitions, permutations on multisets, generating functions, recurrence relation, principle of inclusion exclusion, repeated counting, partially ordered sets and Mobius inversion, Polya's counting are covered in different chapters. Some

basic chapters have some worked-out exercise. Information on Catalan numbers, Eulerian Numbers, Narayana Numbers, and Schroder Number are given in a chapter. The topic on "discrete probability" covers the connection between counting techniques and probability theory. There second part of the book covers topics in graph theory such as basics of graphs, trees,bipartite graphs, matching , planar graphs, Euler and Hamilton graphs, graph coloring, Ramsey theory, spectral properties, and some graph algorithms.Adequate exercise and examples are provided so as to enhance the reader's interest and understanding. Some interesting concepts like high hamiltonicity, power of graphs, domination, and matrix tree theorem are introduced.