



Applications of Graph Theory

By Ashay Dharwadker, Shariefuddin Pirzada

Createspace, United States, 2011. Paperback. Book Condition: New. 279 x 216 mm. Language: English . Brand New Book ***** Print on Demand *****. Graph theory is becoming increasingly significant as it is applied to other areas of mathematics, science and technology. It is being actively used in fields as varied as biochemistry (genomics), electrical engineering (communication networks and coding theory), computer science (algorithms and computation) and operations research (scheduling). The powerful combinatorial methods found in graph theory have also been used to prove fundamental results in other areas of pure mathematics. This book, besides giving a general outlook of these facts, includes new graph theoretical proofs of Fermat's Little Theorem and the Nielson-Schreier Theorem. New applications to DNA sequencing (the SNP assembly problem) and computer network security (worm propagation) using minimum vertex covers in graphs are discussed. We also show how to apply edge coloring and matching in graphs for scheduling (the timetabling problem) and vertex coloring in graphs for map coloring and the assignment of frequencies in GSM mobile phone networks. Finally, we revisit the classical problem of finding re-entrant knight's tours on a chessboard using Hamiltonian circuits in graphs.

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