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<<车辆路径问题>>

图书基本信息

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内容概要

in the field of combinatorial optimization problems, the vehicle routing problem (vrp) is one of the most challenging. defined more than 40 years ago, the problem involves designing the optimal set of routes for fleets of vehicles for the purpose of serving a given set of customers . interest in vrp is motivated by its practical relevance as well as its considerable difficulty.

the vehicle routing problem covers both exact and heuristic methods developed for the vrp and some of its main variants, emphasizing the practical issues common to vrp. the book is composed of three parts containing contributions from well-known experts. the first part covers basic vrp, known more commonly as capacitated vrp. the second part covers three main variants of vrp: with time windows, backhauls, and pickup and delivery. the third part covers issues arising in real-world vrp applications and includes both case studies and references to software packages.

this book will be of interest to both researchers and graduate-level students in the communities of operations research and mathematical sciences. it focuses on a specific family of problems while offering a complete overview of the effective use of the most important techniques proposed for the solution of hard combinatorial problems. practitioners will find this book particularly useful.

reader need a basic knowledge of the main methods for the solution of combinatorial optimization problems.

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作者：（美国）托夫（Paolo Toth） （美国）Daniele VigoPaolo Toth is a Professor of Combinatorial Optimization at the Faculty of Engineering of the University of Bologna. His current research interests concern the design of algorithms for combinatorial optimization and graph theory problems and their application in real-world transportation, crew management and routing and loading problems. In July 1998, he was awarded the Euro Gold Medal. He has published more than 90 papers internationally,has co-authored and edited several books, and serves as editor for several journals. He is president of the International Federation of the Operational Research Societies (IFORS} for the period 2001-2003.Daniele Vigo is an Associate Professor of Operations Research at the Faculty of Engineering of the University of Bologna. His main research activities are in the field of combinatorial optimization, with particular interest in the design of algorithms for routing, cutting, packing, and crew management problems. He has published more than 30 papers internationally and serves as Associate Editor for the journal Operations Research.

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章节摘录

版权页：插图：In this section we give a formal definition, as graph theoretic models, of the basic problems of the vehicle routing class. These problems, which have received the greatest attention in the scientific literature, are examined in detail in the first two parts of the book. We first describe the Capacitated VRP, which is the simplest and most studied member of the family, then we introduce the Distance-Constrained VRP, the VRP with Time Windows, the VRP with Backhauls, and the VRP with Pickup and Delivery.For each of these problems, several minor variants have been proposed and examined in the literature, and often different problems are given the same name. Although in many cases the solution methods, particularly the heuristic ones, may be adapted to incorporate additional features, this indeterminacy in problem definition generally causes much confusion. Therefore, for each problem we first describe the basic version, i.e., the one that in this book is denoted by the corresponding acronym, and then we discuss the variants. In addition, we make an explicit distinction between the symmetric and asymmetric versions of a problem only if models and solution approaches proposed in the literature make use of this distinction.Also in this section, we introduce all the relevant notation and terminology used throughout the book. Additional notation and definitions required to describe particular variants and practical VRP problems are given in the appropriate chapters. Figure 1.1 summarizes the main problems described in this section and illustrates their connections. In the figure, an arrow moving from problem A to problem B means that B is an extension of A.

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