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Nota di contenuto	Front Cover; Stochastic Models in Queueing Theory; Copyright Page; Contents; Preface; Chapter 1. Stochastic Processes; 1.1 Introduction; 1.2 Markov Chains; 1.3 Continuous-Time Markov Chains; 1.4 Birth-and-Death Processes; 1.5 Poisson Process; 1.6 Randomization: Derived Markov Chains; 1.7 Renewal Processes; 1.8 Regenerative Processes; 1.9 Markov Renewal Processes and Semi-Markov Processes; Problems; References and Further Reading; Chapter 2. Queueing Systems: General Concepts; 2.1 Introduction; 2.2 Queueing Processes; 2.3 Notation; 2.4 Transient and Steady-State Behavior 2.5 Limitations of the Steady-State Distribution 2.6 Some General Relationships in Queueing Theory; 2.7 Poisson Arrival Process and Its Characteristics; References and Further Reading; Chapter 3. Birth-and-Death Queueing Systems: Exponential Models; 3.1 Introduction; 3.2 The Simple M/M/1 Queue; 3.3 System with Limited Waiting Space: The M/M/1/K Model; 3.4 Birth-and-Death Processes: Exponential Models; 3.5 The M/M/∞ Model: Exponential Model with an Infinite Number of Servers; 3.6 The Model M/M/c; 3.7 The M/M/c/c System: Erlang Loss Model; 3.8 Model with Finite Input Source 3.9 Transient Behavior 3.10 Transient-State Distribution of the M/M/c Model; 3.11 Multichannel Queue with Ordered Entry; Problems and

Complements; References and Further Reading; Chapter 4. Non-Birth-and-Death Queueing Systems: Markovian Models; 4.1 Introduction; 4.2 Bulk Queues; 4.3 Queueing Models with Bulk (Batch) Service; 4.4 M/M(a,b)/1: Transient-State Distribution; 4.5 Two-Server Model: M/M(a,b)/2; 4.6 The M/M(l,b)/c Model; Problems and Complements; References and Further Reading; Chapter 5. Network of Queues; 5.1 Network of Markovian Queues; 5.2 Channels in Series or Tandem Queues 5.3 Jackson Network 5.4 Closed Markovian Network (Gordon and Newell Network); 5.5 Cyclic Queue; 5.6 BCMP Networks; 5.7 Concluding Remarks; Problems and Complements; References and Further Reading; Chapter 6. Non-Markovian Queueing Systems; 6.1 Introduction; 6.2 Embedded-Markov-Chain Technique for the System with Poisson Input; 6.3 The M/G/1 Model: Pollaczek-Khinchin Formula; 6.4 Busy Period; 6.5 Queues with Finite Input Source: M/G//M System; 6.6 System with Limited Waiting Space. M/G//K System; 6.7 The M+/G/I Model with Bulk Arrival; 6.8 The M/G(a,b)/I Model with General Bulk Service 6.9 The G/M/I Model 6.10 Multiserver Model; 6.11 Queues with Markovian Arrival Process; Problems and Complements; References and Further Reading; Chapter 7. Queues with General Arrival Time and Service-Time Distributions; 7.1 The G/G/1 Queue with General Arrival Time and Service-Time Distributions; 7.2 Mean and Variance of Waiting Time  $t_V$ ; 7.3 Queues with Batch Arrivals G(X)/G/1; 7.4 The Output Process of a G / G / 1 System; 7.5 Some Bounds for the G / G / 1 System; Problems and Complements; References and Further Reading; Chapter 8. Miscellaneous Topics 8.1 Heavy-Traffic Approximation for Waiting-Time Distribution

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Sommario/riassunto

This is a graduate level textbook that covers the fundamental topics in queueing theory. The book has a broad coverage of methods to calculate important probabilities, and gives attention to proving the general theorems. It includes many recent topics, such as server-vacation models, diffusion approximations and optimal operating policies, and more about bulk-arrival and bulk-service models than other general texts.\* Current, clear and comprehensive coverage\* A wealth of interesting and relevant examples and exercises to reinforce concepts\* Reference lists provided after each c

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