1. Record Nr. UNINA9910821282003321 Autore Haghighi Aliakbar Montazer Titolo **Delayed and Network Queues** Pubbl/distr/stampa Newark:,: John Wiley & Sons, Incorporated,, 2016 ©2016 **ISBN** 9781119022145 9781119022138 Edizione [1st ed.] Descrizione fisica 1 online resource (417 pages) Altri autori (Persone) MishevDimitar P Disciplina 004.60151982 Soggetti Routing (Computer network management)--Mathematics Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Nota di contenuto Cover -- Title Page -- Copyright -- Dedication -- Contents -- Preface -- Chapter 1 Preliminaries -- 1.1 Basics of Probability -- 1.1.1 Introduction -- 1.1.2 Conditional Probability -- 1.2 Discrete Random Variables and Distributions -- 1.3 Discrete Moments -- 1.4 Continuous Random Variables, Density, and Cumulative Distribution Functions --1.5 Continuous Random Vector -- 1.6 Functions of Random Variables -- 1.7 Continuous Moments -- 1.8 Difference Equations -- 1.8.1 Introduction -- 1.8.2 Basic Definitions and Properties -- 1.9 Methods of Solving Linear Difference Equations with Constant Coefficients --1.9.1 Characteristic Equation Method -- 1.9.2 Recursive Method --1.9.3 Generating Function Method -- 1.9.4 Laplace Transform Method -- Exercises -- Chapter 2 Stochastic Processes -- 2.1 Introduction and Basic Definitions -- 2.2 Markov Chain -- 2.2.1 Classification of States -- 2.3 Markov Process -- 2.3.1 Markov Process with Discrete Space State -- 2.4 Random Walk -- 2.5 Up-and-Down Biased Coin Design as a Random Walk -- Exercises -- Chapter 3 Birth and Death Processes --3.1 Overviews of the Birth and Death Processes -- 3.2 Finite B-D Process -- 3.3 Pure Birth Process (Poisson Process) -- 3.4 Pure Death Process (Poisson Death Process) -- Exercises -- Chapter 4 Standard

Queues -- 4.1 Introduction of Queues (General Birth and Death

Process) -- 4.1.1 Mechanism, Characteristics, and Types of Queues -- 4.2 Remarks on Non-Markovian Queues -- 4.2.1 Takács's Waiting Time

Paradox -- 4.2.2 Virtual Waiting Time and Takács's Integro-Differential Equation -- 4.2.3 The Unfinished Work -- 4.3 Stationary M/M/1 Queueing Process -- 4.4 A Parallel M/M/C/K with Baking and Reneging -- 4.5 Stationary M/M/1/K Queueing Process -- 4.6 Busy Period of an M/M/1/K Queue -- 4.7 Stationary M/M/1 and M/M/1/K Queueing Processes with Feedback.

4.7.1 Stationary Distribution of the Sojourn Time of a Task -- 4.7.2 Distribution of the Total Time of Service by a Task -- 4.7.3 Stationary Distribution of the Feedback Queue Size -- 4.7.4 Stationary Distribution of n (Sojourn Time of the nth task) -- 4.8 Queues with Bulk Arrivals and Batch Service -- 4.9 A Priority Queue with Balking and Reneging -- 4.10 Discrete Time M/M/1 Queueing Process. Combinatorics Method (Lattice Paths) -- 4.10.1 The Basic Ballot Problem -- 4.10.2 Ballot Problem (based on Takács 1997) -- 4.10.3 Transient Solution of the M/M/1 by Lattice Path Method -- 4.11 Stationary M/M/C Queueing Process -- 4.11.1 A Stationary Multiserver Queue -- Exercises -- Chapter 5 Queues With Delay -- 5.1 Introduction -- 5.2 A Queuing System with Delayed Service -- 5.3 An M/G/1 Queue with Server Breakdown and with Multiple Working Vacation -- 5.3.1 Mathematical Formulation of the Model -- 5.3.2 Steady-State Mean Number of Tasks in the System -- 5.3.3 A Special Case -- 5.4 A Bulk Queuing System Under N-Policy with Bilevel Service Delay Discipline and Start-Up Time -- 5.4.1 Analysis of the Model --5.5 Interrelationship between N-Policy M/G/1/K and F-Policy G/M/1/K Queues with Start-up Time -- 5.5.1 N-Policy M/G/1/K Queuing System with Exponential Start-up Time -- 5.5.2 F-Policy G/E/1/K Queuing System with Exponential Start-up Time -- 5.6 A Transient M/M/1 Queue Under (M, N)-Policy, Lattice Path Method -- 5.6.1 Solution in Discrete Time -- 5.6.2 Solution in Continuous Time -- 5.7 Stationary M/M/1 Queuing Process with Delayed Feedback -- 5.7.1 Distribution of the Queue Length -- 5.7.2 Mean Queue Length and Waiting Time --5.8 Single-Server Queue with Unreliable Server and Breakdowns with an Optional Second Service -- 5.9 A Bulk Arrival Retrial Queue with Unreliable Server -- 5.9.1 The Model -- 5.9.2 Model Analysis -- 5.9.3 Steady-State System Analysis.

5.9.4 Performance Measures -- 5.9.5 Numerical Illustration -- 5.10 Multiserver Queue with Retrial Feedback Queuing System with Two Orbits -- 5.11 Steady-State Stability Condition of a Retrial Queuing System with Two Orbits, Reneging, and Feedback -- 5.11.1 Necessary Stability Condition for the Steady-State System -- 5.12 Batch Arrival Queue with General Service in Two Fluctuating Modes and Reneging During Vacation and Breakdowns -- 5.12.1 The Model -- 5.12.2 Analysis -- Exercises -- Chapter 6 Networks of Queues with Delay --6.1 Introduction to Networks of Queues -- 6.2 Historical Notes on Networks of Queues -- 6.3 Jackson's Network of Queues -- 6.3.1 Jackson's Model -- 6.4 Robustness of Networks of Queues -- 6.5 A MAP Single-Server Queueing System with Delayed Feedback as a Network of Queues -- 6.5.1 Description of the Model -- 6.5.2 Service Station -- 6.5.3 Stepwise Explicit Joint Distribution of the Number of Tasks in the System: General Case When Batch Sizes Vary Between a Minimum k and a Maximum K -- 6.6 Unreliable Networks of Queueing System Models -- 6.6.1 Unreliable Network Model of Goodman and Massey -- 6.6.2 Unreliable Network of Queues Model of Mylosz and Daduna -- 6.6.3 Unreliable Network of Queues Model of Gautam Choudhury, Jau-Chuan Ke, and Lotfi Tadj: A Queueing System with Two Network Phases of Services, Unreliable Server, Repair Time Delay under N-Policy -- 6.7 Assessment of Reliability of a Network of Queues --6.8 Effect of Network Service Breakdown -- 6.8.1 The Model

(CoginfoCom System) -- 6.8.2 Analysis -- 6.8.3 Numerical Example -- Exercises -- References -- Index -- EULA.