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3.3.3 Confidence Interval of Variance; 3.4 Estimating Failure Frequency of Individual Components
3.4.1 Point Estimation 3.4.2 Interval Estimation; 3.5 Estimating Probability from a Binomial Distribution; 3.6 Experimental Distribution of Failure Data and Its Test; 3.6.1 Experimental Distribution of Failure Data; 3.6.2 Test of Experimental Distribution; 3.7 Estimating Parameters in Aging Failure Models; 3.7.1 Mean Life and Its Standard Deviation in the Normal Model; 3.7.2 Shape and Scale Parameters in the Weibull Model; 3.7.3 Example; 3.8 Conclusions; 4: Elements of Risk Evaluation Methods; 4.1 Introduction; 4.2 Methods for Simple Systems; 4.2.1 Probability Convolution
4.2.2 Series and Parallel Networks 4.2.3 Minimum Cutsets; 4.2.4 Markov Equations; 4.2.5 Frequency-Duration Approaches; 4.3 Methods for Complex Systems; 4.3.1 State Enumeration; 4.3.2 Nonsequential Monte Carlo Simulation; 4.3.3 Sequential Monte Carlo Simulation; 4.4 Correlation Models in Risk Evaluation; 4.4.1 Correlation Measures; 4.4.2 Correlation Matrix Methods; 4.4.3 Copula Functions; 4.5 Conclusions; 5: Risk Evaluation Techniques for Power Systems; 5.1 Introduction; 5.2 Techniques Used in Generation-Demand Systems; 5.2.1 Convolution Technique; 5.2.2 State Sampling Method
5.2.3 State Duration Sampling Method 5.3 Techniques Used in Radial Distribution Systems; 5.3.1 Analytical Technique; 5.3.2 State Duration Sampling Method; 5.4 Techniques Used in Substation Configurations; 5.4.1 Failure Modes and Modeling; 5.4.2 Connectivity Identification; 5.4.3 Stratified State Enumeration Method; 5.4.4 State Duration Sampling Method; 5.5 Techniques Used in Composite Generation and Transmission Systems; 5.5.1 Basic Procedure; 5.5.2 Component Failure Models; 5.5.3 Load Curve Models; 5.5.4 Contingency Analysis; 5.5.5 Optimization Models for Load Curtailments
5.5.6 State Enumeration Method

Sommario/riassunto

"Risk Assessment of Power Systems addresses the regulations and functions of risk assessment with regard to its relevance in system planning, maintenance, and asset management. Brimming with practical examples, this edition introduces the latest risk information on renewable resources, the smart grid, voltage stability assessment, and fuzzy risk evaluation. It is a comprehensive reference of a highly pertinent topic for engineers, managers, and upper-level students who seek examples of risk theory applications in the workplace"--
"This book discusses the models, methods and applications of risk assessment in physical power systems with a focus on various application problems"--