Abstract

In this paper, a stochastic system of two identical units has been investigated by conducting possible maintenance of the cold standby unit before getting it into operation. A single repair facility is provided immediately to rectify the faults which occur during system operation. The inspection of the failed unit is done to see the feasibility of its repair. If repair of the unit is not feasible to the system, it is replaced immediately by new one. The random variables are statistically independent. The time to failure of the unit follows negative exponential distribution while the distributions for maintenance, inspection and repair times are taken as arbitrary with different probability density functions. The maintenance and repair of the unit are perfect. The semi-Markov process and regeneration point technique are used to derive the expressions for some reliability measures of vital significance. The graphical behavior of MTSF, Availability and profit function have been observed for particular values of different parameters and costs.

Index Terms

Computer Science
Information Sciences

Keywords
Stochastic System  Possible Maintenance  Immediate Replacement  Inspection Repair and Reliability Measures.
A Stochastic System with Possible Maintenance of Standby Unit and Replacement of the Failed Unit Subject