Cost-Benefit Analysis of a Parallel System with Arrival Time of the Server and Maximum Repair time

Abstract

An attempt has been made to develop a cost-benefit analysis for a system of two identical units with parallel redundancy. Each unit has direct complete failure from normal operative mode. The system is considered in up-state if at least one unit is operative. There is a single server who takes some time to arrive at the system for doing repair activities. If server unable to repair the failed unit in a pre specific time (called maximum repair time), the unit is replaced by new one with some replacement time. The failure time of the unit and maximum repair time taken by the server are exponentially distributed while the distributions of arrival time of the server, repair and replacement of the unit are taken as arbitrary with different probability density functions. The expressions for various parameters of vital significance have been derived using semi-Markov process and regenerative point technique. The graphical study of the results obtained for a particular case has also been made.

References

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**Index Terms**

Computer Science  
Applied Sciences

**Keywords**

Reliability  
Parallel-unit System  
Replacement  
Maximum Repair Time And Cost-benefit Analysis