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Analysis of a Repairable Cold Standby System Using Semi- Markov Process

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ABSTRACT

The focus of present study is on analysis of a cold standby system with the possibility of standby failure subject to replacement time. Initially, system consists of two identical units: one unit is in operation and another in cold standby mode. Failure of standby unit is allowed. After exceeding maximum redundancy time, cold standby unit fails so it goes under inspection to check its feasibility for repair or replacement. Replacement is non-instantaneous i.e. replacement is done after taking some time. All the random variables included in the present study are independent and follows arbitrary distribution but both the units failed exponentially. Various reliability indices have been derived by using the concepts of Semi-Markov process and regenerative point technique. To interpret the practical importance of current study, tabular analysis has also been carried out.

Keyword: Repairable cold standby system, Standby failure, Maximum redundancy time, Semi-markov process, Regenerative point technique.