Reliability Analysis of a Series System with Weibull Lifetime Components

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Abstract

In a series system, the system fails if any of the components fails. However, each component may have different life time distribution and, in practice, it may not be observed which component causes the failure. This paper considers a life test in a series system of *m* components, each of Weibull life time distribution, when only the system failure time is collected. Statistical inference of the parameters of each component along with the system reliability analysis is derived via the maximum likelihood as well as the Bayesian approach. Simulation study shows that the Bayesian analysis with noninformative prior provides better results as least in small samples.