Abstract

The present paper considers modified extension of the exponential distribution with three parameters. The main properties of this new distribution is studied, with special emphasis on its median, mode and moments function and some characteristics related to reliability studies. For Modified- extension exponential distribution (MEXED) have been obtained the Bayes Estimators of scale and shape parameters using Lindley's approximation (L-approximation) under squared error loss function. But, through this approximation technique it is not possible to compute the interval estimates of the parameters. Therefore, Gibbs sampling method is developed to generate sample from the posterior distribution. On the basis of generated posterior sample, the Bayes estimate of the unknown parameters is computed and constructed 95 % highest posterior density credible intervals. A Monte Carlo simulation study is carried out to compare the performance of Bayes estimators with the corresponding classical estimators in terms of their simulated risk. A real data set has been considered for illustrative purpose of the study.

Index Terms

Computer Science

Applied Sciences
Keywords

Modified- extension exponential distribution (MEXED), Maximum likelihood estimator, Bayes estimator, squared error loss function, Lindley’s approximation method and Gibbs sampling method