

## **EVALUATING APPROXIMATE MEAN AND VARIANCE OF ESTIMATED RELIABILITY IN INTERFERENCE MODELS USING MONTE-CARLO SIMULATION (MCS)**

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### **ABSTRACT**

To obtain the expressions for mean and variance of reliability estimate,  $\hat{R} = P(X \geq Y)$ , analytically, is generally difficult. Here, we find approximate expressions for mean and variance of estimated system reliability in interference theory when stress and strength follow some particular distributions. We have evaluated approximates of mean and variance of estimated reliability when stress-strength both follows either exponential or normal distribution. For validity of approximation method, we have used Monte-Carlo simulation. Also, Normal probability plots of estimated reliability samples are drawn for different values of the parameters of the distribution. From Monte Carlo simulation (MCS), it is observed that approximation for mean and variance of estimated reliability is up to the mark.

**KEYWORDS:** Reliability, Interference Theory, Monte-Carlo Simulation (MCS)