

## Reliability Analysis of Consecutive- $k$ , $r$ -Out-Of- $n$ : DFM System using GERT

Manju Agarwal\* and Pooja Mohan

Department of Operational Research, University of Delhi, Delhi-110007, India

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**Abstract**—Koutras (1997) analyzed reliability of a consecutive- $k$ ,  $r$ -out-of- $n$ : DFM system consisting of  $n$  components linearly arranged which fails if and only if at least  $k$  consecutive components are failed-open or at least  $r$  consecutive components are failed-short. In this paper Graphical Evaluation and Review Technique (GERT) has been applied to model and analyze the reliability of the above system. One of the strengths of the GERT network is the graphical representation, which is intuitive and easy to understand. The components are assumed to be i.i.d. Furthermore, numerical computations are conducted using Software Mathematica to determine the actual computation times, which are almost negligible.

**Keywords**—Consecutive- $k$ ,  $r$ -out-of- $n$ : DFM system, Reliability, GERT

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\* Corresponding author's email: agarwal\_manjulata@yahoo.com