

Stochastic Analysis of a Model on Three-Similar Units Three-Phased Mission System with FCFS Repairs

Sudesh Kumari and Rajeev Kumar

¹Department of Mathematics, M.D. University, Rohtak-124001, INDIA

²Department of Mathematics, M.D. University, Rohtak-124001

E-mail: ¹sudeshmdu@gmail.com, ²drrajevmdu@gmail.com

Abstract—A three-phased mission system carries out different tasks at different phases, therefore, the system configurations in the phases may vary depending upon the requirements at the phases. This paper deals with analysis of a stochastic model on a three-similar units three-phased mission system. The system wherein units work respectively in parallel, series and parallel configurations has been considered. The single repair facility that repairs the units in FCFS pattern has been considered. Using Semi-Markov Process and regenerative point techniques, various measures of the system performance at each phase have been obtained. The system has been analyzed graphically taking a particular case. Various conclusions have been made regarding the reliability of the system at each phase as well as for the whole system.

Keywords: Three phased mission system, parallel configuration, series configuration, reliability, Semi-Markov and regenerative point techniques.