NON-MARKOVIAN BULK QUEUEING SYSTEM WITH MULTIPLE VACATIONS AND RE-SERVICE

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Abstract

In this paper, the operating characteristics of an " $MX/G(a, b)/1$ queueing system with multiple vacations and re-service " is considered. The leaving batch of customers may request for re-service with probability π, at the same time such request will be entertained by the server with probability α. After the re-service time or service completion, if the queue length is less than 'a' the server avails multiple vacations till the queue length reaches 'a'. After a vacation or service

completion without request for re-service or re-service completion, if the server .nds atleast 'a' customers waiting for service, he serves according to general bulk service rule with minimum of 'a' customers and maximum of 'b' customers. The model is studied by the supplementary variable technique. The probability generating function of the steady state system size at an arbitrary time is obtained. Various Performance measures are obtained. A cost model for the queueing systems is discussed with a numerical illustration.