

On a Batch Arrival Poisson Queue under Threshold Policy with a Grand Vacation

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Abstract

We consider an $M^x/M/1$ queueing model under a threshold policy with grand vacation process, where the server takes a sequence of vacations, till he returns to find at least some prespecified number of customers (threshold) observed after each grand vacation. In this paper, an attempt has been made to derive the probability generating functions of the queue size distribution at a random point of time as well as at a departure point of time. The mean queue size of this model is also derived with some numerical examples.

Keywords: $M^x/M/1$ Queue, Queue Size, Threshold Policy and Grand Vacation Process.