Abstract

A single server Markovian queueing system with the system alternates between regular busy state, repair state and working vacation state has been considered. The system is busy, it functions as a single server Markovian queue. When it is on vacation, again it functions as a single server Markovian queue but with different arrival and service rates. The vacation policy is multiple vacation policy and the vacation period follows negative exponential. In addition, during service the server may break down, the repair of the server starts immediately. The repair period follows negative exponential. The steady state probability vector of number of customers in the queue and the stability condition are obtained using Matrix-Geometric method. Some illustrative examples are also provided.

References


**Index Terms**

Computer Science  
Algorithms

**Keywords**

Working vacation, State dependent arrival rate, Matrix-Geometric method