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STOCHASTIC MULTI-SERVER INVENTORY SYSTEM AT SERVICE FACILITY WITH RENEGING OF CUSTOMERS IN JACKSON NETWORK

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SUMMARY

In this paper, we consider a continuous review (s, S) stochastic perishable inventory system with reneging of customers at a service facility of a two $M/M/1$ queues open Jackson network. An exponential distribution with the rate μ_i $(i = 1, 2)$ is utilized to precede the service times. Customers are allowed to the system through a Poisson process with the frequency λ_i $(i = 1, 2)$. We assumed that some customers would become impatient and quit the system without service at the rate δ_i $(i = 1, 2)$. The utmost stockpiling capacity for ith warehouse is characterized as S_i $(i = 1, 2)$. A demand for Q_i items is issued when the on-hand stock level falls below a predefined limit s_i. The integrated steady state probability distribution of consumers in queues and the inventory level in warehouses may be calculated. The impact of altering parameters was investigated using sensitivity analysis.

Keywords and phrases: Jackson network, Perishable items, Reneging customers, Sensitivity analysis, Matrix Analytical method.

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