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PERISHABLE INVENTORY MANAGEMENT AT SERVICE FACILITY WITH ARBITRARILY DISTRIBUTED SERVICE TIMES

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Abstract

This paper deals with a problem in service facility which is maintaining a perishable inventory to be issued to the customer after service completion. We Consider a system with Poisson arrival of demands to a service facility, the service time is arbitrarily distributed and zero lead time. Each item in inventory has exponential life time with parameter $\gamma > 0$. Optimal value of the maximum inventory which can be maintained in the system is obtained in an elegant manner. For different kinds of service distributions (exponential, Erlang (2) and deterministic service rates), the optimal value of maximum inventory are obtained. The M/G/1 queue with infinite waiting space system is obtained as a limiting case of its finite waiting space system.

Key Words : *Service facility, Inventory control, Arbitrary service time, Poisson demands, Optimal maximum inventory level, Cost analysis.*

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