

MATHEMATICAL EOQ (*Economic Order Quantity*) MODELS WITH TWO LEVEL OF TRADE CREDITS

ABSTRACT

Mathematical EOQ models is widely used in solving inventory problems. EOQ model is used to find the optimal order quantity that minimizes total inventory costs. In this research discussed the mathematical model EOQ with two level of trade credits with respect to deteriorating items in stock. In mathematical EOQ model there are four different cases, namely when the first payment is made once after a given time cycle, when the one-time payment is made before a given time cycle, when the payment is made after the first and second cycles given time, and when the first payment is made before a given cycle time and second payment is made after the given time cycle. Based on numerical simulations can be concluded that the first case resulting in minimum total inventory cost, i.e. the time when payment is made before a given time cycle. Based on sensitivity analysis in each cases, when deterioration rate increases, the total costs are in increase. Furthermore, the longer time has paid, the total costs are decreasing trend.

Keywords: *EOQ models, inventory, trade credits, deteriorating items.*

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