

# **AN INVENTORY MODEL WITH TIME DEPENDENT DETERIORATION RATE AND EXPONENTIAL DEMAND RATE UNDER TRADE CREDITS**

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## **ABSTRACT**

This paper deals with the optimal policy for the costumers to obtain its minimum cost when supplier offers both permissible delay as well as cash discount. In this paper deterioration is considered as time dependent and demand rate is an exponential function of time. Four different cases have been discussed. Truncated Taylor's series expansion is used to obtain closed form optimal solution. Mathematica software is used for finding optimal solution. Finally, numerical examples and sensitivity analysis are given to validate the purposed model.

**KEYWORDS:** Inventory, Cash Discount, Trade Credits, Time Dependent Deterioration, Exponential Demand Rate