

## Deteriorating Inventory Model When Demand Depends on Advertisement and Stock Display

Nita H. Shah<sup>1,\*</sup> and Poonam Pandey<sup>2</sup>

<sup>1</sup>Department of Mathematics, Gujarat University Ahmedabad Gujarat, India Corresponding Author: Dr. Nita H. Shah

<sup>2</sup>Globsyn Business School Campus 907/A, Uvarsad, Off NH-8, Dist:Gandhinagar, Gujarat Pin - 382422 India.

*Received December 16<sup>th</sup> 2008; Accepted October 12<sup>th</sup> 2009*

---

**Abstract**—In this study, a mathematical model is developed to obtain optimal ordering policy of time dependent deteriorating item when demand rate is dependent on displayed stock level and frequency of advertisement through media. Shortages are not allowed. The objective is to minimize total cost. The significant features and the results are studied with the help of a numerical example. The effect of changes in the demand parameter, deterioration rate ( $\alpha$ -constant deterioration,  $\beta$ - time dependent deterioration), rate of frequency of advertisements, stock dependent parameter and salvage parameter for deteriorated items on total cycle time, total cost and on procurement quantity is studied numerically.

**Keyword**—Lot-size, Time dependent deterioration, Advertisement frequency, Procurement quantity and total cost.

---

---

\* Corresponding author's e-mail: nitahshah@gmail.com, shahnitah@gmail.com