An integrated production - inventory model with imperfect production process in buoyant market

[1]Nita H. Shah, [2]Ajay S. Gor and [3]Chetan A. Jhaveri
[1]Department of Mathematics, Gujarat University. Ahmedabad-380009, Gujarat
[2]Pramukh Swami Science & H. D. Patel Arts College. Kadi, Gujarat
[3]Institute of Management, Nirma University, Ahmedabad 382481. India
Corresponding Author: Prof. Nita H. Shah
E-mail : nitahshah@gmail.com

Abstract - In this study, an integrated production-inventory model is developed from the manufacturers and retailer's point of view when demand of a product is increasing with the time. The model assumes partial backlogging, imperfect production process and multiple deliveries. The elapsed time until the production process shifts is assumed to be randomly distributed. A numerical example including the sensitivity is given to validate the results of the proposed development. It is observed that the integrated decision lowers the joint cost compared with an independent decision made by the manufacturer and the retailer.

Key Words - Integrated production-inventory model, imperfect processes, multiple deliveries, buyonant market.