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AN IMPERFECT QUALITY INVENTORY PROBLEM : A GEOMETRIC PROGRAMMING APPROACH

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Abstract

Classical inventory problems consider that perfect quality items are produced and sales in the market. But in reality, product quality may not be always 100% perfect. Some of the items may be produced imperfect quality due to machinery fault, unskilled labour fault etc. Some of the perfect quality items may deteriorate or perish or damage at the time of packaging or transportation from the manufacture/supplier to the retailer. In this paper, we study with a multi-item imperfect quality inventory problem with shortage backordering. Profit maximization inventory problem is formulated under the limited storage space restrictions. The cases of without imperfect quality items are discussed as special cases. In general such types of problems are solved by Karush-Kuhn-Tucker or Lagrange multiplier method. In this paper, the problems are solved by modified geometric programming (MGP) approach. Here we show that MGP method gives better result than the other nonlinear programming method. A numerical illustration is given to support the claim.

Key Words : *Inventory, Imperfect quality, Geometric programming.*

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