Abstract

The main purpose of inventory control is simply to enable a business take stock and appropriately manage their goods and products. Inventory control is a process done by businesses that sell products in order to help analyze how the business is performing. Here in this thesis, made a step toward the development of a general framework for integrating inventory control and inventory decision-making by presenting novel models of an assembly environment in which scheduling inventory decisions depend on the availability of component parts. The work suggests that, for inventory problems, it is important to investigate various sub-problem objective functions in order to develop an effective inventory control models. In this order we have analyzed and discussed an inventory model for the effect of partial backlogging on two storage model for time dependent deteriorating items with stock dependent demand which is more realistic in general. Production inventory model for time deteriorating items with linear trend in demand is also developed and validated by numerical example, an inventory model for deteriorating items with linearly time dependent demand rate and lost sales under inflation are also formulated.

We have discussed the inventory models for time dependent deteriorating items with stock and production dependent demand and production model for reduction in selling price when capacity of own warehouse is limited is also formulated. An economic production model for deteriorating items with price sensitive demands is also formulated and validated by taking numerical example. The inventory models are developed for deteriorating products with inflation, lost sales and time dependent demand and inventory model for decaying items, considering multivariate consumption rate with partial backlogging. Also the developed inventory models are discussed for perishable products and the effect of trade credits on such item, which is a unique contribution as compare to the previous study.

Further, the applicability of the two-warehouse production policy for different demands under volume flexibility and space restriction are discussed. The models are implemented using available software, and extensively empirically evaluated.