Abstract

This study deals with building some inventory models for deteriorating items. Particularly in this thesis, some inventory models are developed for Weibull distributed deterioration. Inventory modelling depends on a set of assumptions that characterize the inventory system under consideration. An introduction and a detailed literature review presented in chapter-1 while our contribution is furnished in chapter 2 to 6.

At the beginning stage, we formulated an inventory model with exponential demand and time-varying holding cost that is presented in chapter-2. Further we extended this model allowing a permissible delay in payments and investigated the effect of permissible delay in chapter-3. In chapter-4, a profit maximization model is presented that optimizes the selling price, advertisement frequency, and inventory policies simultaneously. We optimized the preservation technology investment and inventory ordering policies simultaneously and investigated the effect of preservation technology investment on optimal ordering policies for instantaneous and non-instantaneous deteriorating inventory systems in chapter-5. Finally, we further extended the model developed in chapter 4 with preservation technology in which we optimized the preservation technology investment cost, selling price, advertisement frequency, and inventory policies simultaneously.