A Soft computing Optimization based Two Ware-House Inventory Model for Deteriorating Items with shortages using Genetic Algorithm

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Abstract

In this paper a two warehouse inventory model for deteriorating items is considered under assumption that the Inventory cost (including holding cost and deterioration cost) in RW (Rented Warehouse) is higher than those in OW (Owned Warehouse) due to better preservation facilities in RW. The demand and holding cost, both are taken variable. Shortages are allowed in the OW and a fraction of shortages backlogged at the next replenishment cycle. This paper mainly dealt with deteriorating items with time dependent demand and variable holding cost which is constant for a definite time period and after that it increases according to length of ordering cycle in RW and remains constant in OW. Transportation cost is taken to be negligible and goods are transported on the basis of bulk release pattern. A genetic algorithm with varying population size is used to solve the model. In this GA a subset of better children is included with the parent population for next generation and size of this subset is a percentage of the size of its parent set. A numerical example is presented to illustrate the model and sensitivity is performed for a parameter keeping rest unchanged.
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References

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Index Terms

Computer Science Algorithms

Keywords

Two warehouses, Instantaneous deterioration, Time-dependent Demand, Variable holding cost, shortages and Genetic Algorithm