

On the Optimal Production Rates of Basic Assembly System Under Random Demand

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Abstract

This paper is to propose a mathematical model which considers the assembly systems with only two-stages and two predecessors. Its objective is to obtain the optimal production functions, in the planning horizon $[0, T]$, based on the assumptions: (1) that the cost of unit production is a linear function of production quantity in a unit time, (2) that sales of finished goods occur at the end of planning horizon, and (3) that product demand is a random variable.

Finally, we find that the optimal production rates of semi-finished or finished goods will be the same in some circumstances.

Keywords: Inventory, Newsboy Problem, Optimal Control, Production Interval, Production Planning