

A P P E N D I X - I

Situations wherein the software for deterministic Inventory Models can directly be applied are as follows.

Problem I :- (for Model I)

The production department for a company requires 3600 Kg. of raw material for manufacturing a particular item per year. It has been estimated that the cost of placing an order is Rs.36 the cost of carrying inventory is 25% of the investment in the inventories. The price is Rs.10 per Kg. The purchase manager wishes to determine an ordering policy on raw material.

Problem II :- (for Model III)

An item is produced at the rate of 128 units per day. The annual demand is 6400 units. The set up cost for each production run is Rs.24 & inventory carrying cost is Rs.3 per unit per year. There are 250 working days for production each year. Develop an inventory policy for this item.

Problem III:- (for Model IV)

A commodity is to be supplied at a constant rate of 200 units per day. Supplies of any amount can be had at any required time but each ordering cost Rs.50 cost of holding the commodity in inventory is Rs.2 per unit per day while the delay in the supply of the item induces a penalty of Rs.10 per unit per day. Find the optimal policy (q,t) where t is the reorder cycle period & q is the inventory level after reorder. What would be the best policy if the penalty cost becomes infinity?

Problem IV :- (for Model V)

A commodity is to be supplied at a cost rate of 25 units per day. A penalty cost is being charged at the rate of Rs.10 per unit per day late for missing the scheduled delivery date. The cost of carrying the commodity in inventory is Rs.16 per unit per month. Find the optimal level of inventory at the beginning of each month.

Problem V :- (for Model VI)

The demand for an item in a company is 18000 units per

year and the company can produce the item at the rate of 3000 per month. The cost of one set up is 500 & the holding cost of one unit per month is 15 paise. The shortage cost of one unit is Rs.20.00 per year. Determine the optimum manufacturing quantity and the number of shortages. Also determine the manufacturing time and the time between the set ups.

Problem VI :- (for Model VII)

The annual demand of a product is 10,000 units. Each unit costs Rs.100.00 If orders placed in quantities below 200 units but for orders of 200 or above the price is Rs.95.00 The annual inventory holding cost is 10% of the value of the item & the ordering cost is Rs.5.00 per order find EOQ.

Problem VII:-

A shop keeper has a uniform demand of an item at the rate of 50 items per month. He buys from supplier at a cost of Rs.6.00 per item and the cost of ordering is Rs.10.00 each time. If the stock holding costs are 20% per year of stock value how frequency should be replenish his stock. Suppose the supplier offer a 5% discount on order between 200 and 999 items

and a 10% discount on orders exceeding or equal to 1000 can the shopkeeper reduce his costs by taking advantage of either of these discounts.