

[This question paper contains 4 printed pages.]

Sr. No. of Question Paper : 5347

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Your Roll No.....

Unique Paper Code : 236251

Name of the Course : B.A. (Programme)

Name of the Paper : Inventory and Marketing Management – Paper 2

Semester : II

Duration : 3 Hours

Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt any five questions in all, selecting at least two questions from each section.
3. All questions carry equal marks.

SECTION A

(Inventory Management)

(a) Define the following terms :-

(i) Inventory

(ii) Inventory management

(iii) Stock cycle

(iv) Lead time

(8)

(b) Describe EOQ concept.

Find EOQ for the following data---

Annual Usage – 1000 pieces, Ordering cost – Rs. 6/- per order, Expediting cost – Rs. 4 per order, cost per piece – Rs. 250/-, inventory carrying charge – 20%, material holding cost – Re 1 per piece. (7)

P.T.O.

2. (a) Formulate and solve deterministic, continuous and uniform demand inventory model when production rate is finite, shortages are not allowed and lead time is zero.

Also find the reorder level when lead time is positive and constant. (9)

- (b) Discuss any production scheduling model in detail. (6)

3. (a) Formulate and solve a discrete and deterministic demand inventory model when production rate is infinite and shortages are not allowed.

(7)

- (b) The annual demand for the product is 64000 units. The buying cost per order is Rs. 10/- and the estimated cost of carrying one unit in stock for a year is 20%. The price of the product is Rs. 10/- per unit. However the supplier offers a quantity discount of 2% on an order of at least 1000 units at a time and a discount of 5% if the order is for at least 5000 units. Suggest the most economic purchase order quantity. (8)

4. (a) Formulate and solve a single-period, discrete and stochastic demand inventory model when costs are independent of time.

The demand for a particular product is probabilistic with the following distribution –

x	0	1	2	3	4 and above
P(x)	0.01	0.2	0.39	0.20	0.20

The cost of producing one unit is Rs. 100/-. If the unit inventory carrying cost is 20% of the unit cost of production and the shortage cost is Rs. 50 per unit, find the optimal production level. The set-up cost is Rs. 800 per set-up. (11)

- (b) Write difference between “shortages are allowed and backordered” and “shortages are allowed and lost”. (4)

SECTION B

(Marketing Management)

5. (a) Define marketing management and discuss various types of problems in marketing in which Operations Research help. (7)
- (b) Define the following :-
- (i) Direct and derived demand
 - (ii) Cross elasticity of demand
 - (iii) Elasticity of demand with respect to quality (8)
6. (a) Derive the equilibrium condition for a firm which makes the decision with respect to price and quality by keeping advertising expenditure fixed. (6)
- (b) Classify the market structure depending upon the nature of competitive conditions, by giving an example of each. (9)
7. (a) What are the various objectives kept in mind by the firm in setting the market price of the product. (9)
- (b) In brand switching analysis, assuming that the same transition matrix holds from one period to another, show that a steady state is reached by the system and is independent of the initial market share. (6)

8. (a) Describe media allocation problem and formulate a mathematical model for it as a integer linear programming problem. (10)
- (b) State and prove elasticity theorem. (5)