

DHANAMANJURI UNIVERSITY
DECEMBER 2025

Name of Programme : B.A./B.Sc. Mathematics
Semester : 5th
Paper Type : SEC
Paper Code : SMA-010
Paper Title : Inventory Systems and Marketing Management
Full Marks : 40
Pass Marks : 16 **Duration: 2 Hours**

The figures in the margin indicate full marks for the corresponding questions.
Answer all questions:

1. Choose the correct answer from the following and rewrite it : 1 × 3 = 3

- (a) Production cost refers to prime cost plus
- (i) Factory overhead
 - (ii) Factory and administration overheads
 - (iii) Factory, administration and sales overhead
 - (iv) none of the above
- (b) Large size of inventory is a sign of
- (i) Better planning
 - (ii) Inefficiency
 - (iii) Reliable control of vendors
 - (iv) Better Scheduling
- (c) When the ordering cost is increased to 4 times, the EOQ will be increased
- (i) 2 times
 - (ii) 3 times
 - (iii) 4 times
 - (iv) remains same

- (d) Which of the following statement is correct?
- (i) Marketing is the term used to refer only to the sales function within a firm
 - (ii) Marketing managers usually don't get involved in production or distribution decision
 - (iii) Marketing is an activity that considers only the needs of the organization, not the needs of society as a whole
 - (iv) Marketing is an activity, set of institutions and processes for creating, communicating, delivering and exchanging offerings that have value for customers, clients, partners and society at large

2. Answer the following questions:

1 × 6 = 6

- (a) Why do we need inventory in Business?
- (b) What is meant by EOQ in inventory management?
- (c) What is meant by ordering cost in inventory management?
- (d) Why do we need marketing in business?
- (e) What is E-Business?
- (f) Define inventory in operations research.

3. Answer the following questions.

3 × 4 = 12

- (a) Distinguish between Consumer goods and Industrial goods.
- (b) What are the controlled and uncontrolled variables in the Inventory system?
- (c) What are the key Components of Scientific Marketing and core element of Marketing Management?
- (d) A company uses annually 2400 units of a raw material which costs ₹1.25/ units. Placing each order costs ₹22.5 and the carrying cost is ₹5.4% per year of the average inventory. Find the economic lot size and the total inventory cost (including the cost of material).

4. Answer the following questions (Choose any two):**9 × 2 = 18**

- (a) Derive Economic lot size model/Economic order quantity (EOQ) with uniform rate of demand, infinite production rate having shortages.
- (b) Find Economic lot size model/Economic order quantity (EOQ) with uniform rate of demand, finite production rate having no shortages.
- (c) Define Marketing Management and discuss various types of problems faced in Marketing.
- (d) Consider the following data: Unit cost = ₹100; ordering cost = ₹160; Inventory carrying cost= ₹20; Back order cost = ₹10; Annual demand=1000 units . Compute the following
 - (i) minimum cost order quantity
 - (ii) time between orders
 - (iii) maximum number of backorders
 - (iv) maximum inventory level and
 - (e) overall annual cost.
