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MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING

(A Unit of Rajalaxmi Education Trust®, Mangalore)
Autonomous Institute affiliated to VTU, Belagavi, Approved by AICTE, New Delhi
Accredited by NAAC with A+ Grade & ISO 9001:2015 Certified Institution

Model Question Paper

Sixth Semester B.E Degree Examination

Supply Chain Management

Time: 3 Hours (180 Minutes) **Max. Marks: 100**

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M: Marks, L: RBT (Revised Bloom's Taxonomy) level, C: Course outcomes.

		Module -1	M	L	C
Q1	a.	Explain the key supply chain performance measures used to evaluate supply chain efficiency and effectiveness.	10	L2	CO1
	b.	A manufacturing firm reports the following data: Raw material inventory holding = 20 days, work-in-progress inventory holding = 15 days, finished goods inventory holding = 25 days, benchmark (best-performing firm) inventory holding = 40 days, inventory = ₹150 lakhs, accounts receivable = ₹90 lakhs, accounts payable = ₹70 lakhs, annual sales = ₹600 lakhs. Calculate: i. Total length of the supply chain ii. Supply chain inefficiency ratio iii. Supply chain working capital productivity. Justify the results.	10	L3	CO2
		OR			
Q2	a.	Explain the Strategic Profit Model and illustrate it using a suitable block diagram.	10	L2	CO1
	b.	A company is evaluating two supply chain strategies for the next quarter: **Strategy** | **Inventory Holding Cost (₹ lakhs)** | **Stock-out Cost (₹ lakhs)** | **Customer Service Level (%)** **A** | 50 | 10 | 95 **B** | 40 | 20 | 90 i. Calculate the total supply chain cost for each strategy. ii. Discuss the trade-off between cost and customer service and recommend the better strategy.	10	L3	CO2
		Module- 2			
Q3	a.	Explain the product architecture route for identifying core processes, with a neat sketch.	10	L2	CO1
	b.	Describe the integrative framework of market versus hierarchy in supply chain decision-making.	10	L2	CO1
		OR			
Q4	a.	Explain the sourcing strategy portfolio approach with a suitable example	10	L2	CO1
	b.	Describe the reconfiguration of the supply base with a three-tier system block	10	L2	CO1

		diagram.			
Module - 3					
Q5	a.	Explain the different types of inventories used in supply chain management.	10	L2	CO1
	b.	A company faces a weekly demand of 500 units. The order quantity is 2,000 units. Calculate: **i.** Average cycle stock inventory **ii.** Maximum inventory level **iii.** Justify results.	05	L3	CO3
	c.	Demand per week = 500 units, standard deviation = 60 units, lead time = 3 weeks. Compute safety stock for: **i.** 90% service level (Z = 1.28) **ii.** 99% service level (Z = 2.33) **iii.** Justify how service level affects safety stock	05	L3	CO3
OR					
Q6	a.	Explain selective inventory control techniques with an example.	10	L2	CO1
	b.	A warehouse stores 3 products with annual demand: Item | Annual demand | Holding cost/unit/year (₹) A | 1200 | 5 B | 800 | 4 C | 1000 | 6 Ordering cost = ₹50/order. Compute EOQ for all items and justify.	05	L3	CO3
	c.	A retailer expects seasonal demand of 2,000 units in December, normal demand = 500 units/month. Lead time = 1 month. Compute: i. Seasonal stock required ii. Maximum inventory iii. Justify the planning	05	L3	CO3
Module - 4					
Q7	a.	Describe centralized, decentralized, and hybrid systems used for internal integration in supply chain management.	10	L2	CO4
	b.	Explain the steps involved in building successful relationships in supply chain management.	10	L2	CO4
OR					
Q8	a.	Describe the impact of buyer practices on demand distortions across the buyer–supplier interface	10	L2	CO4
	b.	Explain the bullwhip effect in a supply chain consisting of a retailer, wholesaler, manufacturer, and a supplier.	10	L2	CO4
Module - 5					
Q9	a.	Explain the concept of postponement of the point of differentiation in a supply chain with a suitable example.	10	L2	CO5
	b.	Explain the significance of information technology in supply chain measurement and reporting.	10	L2	CO5

OR					
Q10	a.	Explain the challenges and problems associated with implementing the postponement strategy in supply chain management.	10	L2	CO5
	b.	Explain the flow and use of information across the supply chain with the help of a suitable block diagram.	10	L2	CO5

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