

**B.M.S. College of Engineering, Bengaluru-560019**

Autonomous Institute Affiliated to VTU

**January 2024 Semester End Main Examinations****Programme: B.E.****Branch: Institutional Elective****Course Code: 21IM7OESCM****Course: Supply Chain and Logistics Management****Semester: VII****Duration: 3 hrs.****Max Marks: 100**

**Instructions:** 1. Answer any FIVE full questions, choosing one full question from each unit.  
2. Missing data, if any, may be suitably assumed.

<b>Important Note:</b> Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.			<b>UNIT - I</b>	<b>CO</b>	<b>PO</b>	<b>Marks</b>
	1	a)	What are efficient and responsive supply chains? Bring out any six comparisons between efficient and responsive supply chains.	CO1	-	<b>10</b>
		b)	Explain decision Phases in Supply chain.	CO1	-	<b>10</b>
			<b>UNIT - II</b>			
	2	a)	Consider a supply chain in which many manufacturing plants serve different markets. Demand allocation decisions have to be made for plants. Multiple plants may be used to satisfy demand at a market and multiple plants may be used to serve a market.  Design and develop a mathematical model for network optimization that minimizes total cost of production, inventory and transportation.  1. Identify the inputs required for mathematical model 2. Identify the decision variables 3. Formulate objective function 4. Formulate the constraints equations for the model 4. Draw supply chain net work	CO2	PO1	<b>10</b>
		b)	Explain the reasons why US supply chain network design is more advanced than Indian supply chain	CO2	PO1	<b>10</b>
			<b>UNIT - III</b>			
	3	a)	Explain the role of inventory Management in organization supply chain management	CO3	-	<b>05</b>

	b)	ABC Corporation has an annual demand of 73000 empty capsules. The cost of one capsule is INR 1.50 and holding cost of one capsule is 10% of its basic cost. Capsules being an important component of daily usage, bulk stock are maintained by placing orders in advance. Each order costs INR 730 for all its legal formalities. Determine optimal order size, number of orders per year, cycle period, Total Cost and re-order point if lead time is 5 days.	CO3	PO2	10
	c)	With respect to Inventory systems explain VED analysis and XYZ analysis	CO3	-	05
		<b>OR</b>			
4	a)	Derive an expression to determine economic order quantity and total cost when shortages are permitted. Also list any four assumptions for deriving the said model	CO3	PO2	10
	b)	Derive the optimal order quantity from the following data. $r = 200$ items/month, $I = 0.02$ . $C_3 =$ ordering cost = Rs. 100 $P_1 =$ Rs. 10.00 for $1 \leq q < 3000$ $P_2 =$ Rs. 9.25 for $3000 < q < 5000$ $P_3 = 8.75$ for $q > 5000$	CO3	PO2	10
		<b>UNIT - IV</b>			
5	a)	Discuss the need of supplier scoring and assessment in Organization's Supply chain management	CO3	PO1	10
	b)	With neat block diagram discuss various types of intermodal services in transportation of commodities from one location to another	CO2	PO1	10
		<b>OR</b>			
6	a)	Explain the following with examples: (i) Direct Shipping with Milk Runs (ii) All Shipments Via Intermediate Transit Point with Cross-Docking (iii) 4PL (iv) Tailored transportation	CO2	PO1	20
		<b>UNIT - V</b>			
7	a)	Justify the statement "By embracing sustainable practices throughout their supply chains, businesses can create a positive impact on the environment, communities, and their own bottom line".	CO4	PO1	10
	b)	Explain the key benefits of implementing data analytics in supply chains	CO4	PO1	10

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