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

Autonomous Institute Affiliated to VTU

June 2025 Semester End Main Examinations

Programme: B.E. **Semester: VI**

Branch: Institutional Elective **Duration: 3 hrs.**

Course Code: 23IM6OESCM **Max Marks: 100**

Course: Supply Chain Management

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

		UNIT - I	CO	PO	Marks
1	a)	Infer on decision phases in a supply chain with examples.	*CO1*	*PO1*	**10**
	b)	What are the major obstacles to achieving strategic fit? Discuss.	*CO1*	*PO1*	**10**
		OR			
2	a)	Justify the statement: 'Wal-Mart uses all the supply chain drivers to achieve the right balance between responsiveness and efficiency'.	*CO1*	*PO1*	**10**
	b)	Define a company's competitive strategy. Analyze the competitive strategies adopted by the following companies—Wal-Mart, PVR Cinemas, Asian Paints, Sony, and McDonald's.	*CO1*	*PO1*	**10**
		UNIT - II			
3	a)	Discuss the framework for making network design decisions with block diagram.	*CO2*	*PO6*	**10**
	b)	Assume, you are the CEO of an apparel manufacturing company and you are coordinating with a top level management team to design and develop a mathematical model for network optimization that minimizes total cost of production, inventory and transportation. The supply chain has many manufacturing plants that 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 markets may be served by a plant. 1. Identify the inputs required for demand allocation model 2. Identify the decision variables 3. Formulate objective function 4. Formulate the constraints equations for the model 5. Draw supply chain network	*CO2*	*PO1*	**10**
		OR			

	4	a)	What do you mean by designing the network? Explain the Gravity location model.	*CO2*	*PO1*	**10**
		b)	During network design, managers need a methodology that allows them to estimate the uncertainty in their forecast of demand and price and then incorporate this uncertainty in the decision-making process. In this context, explain such a methodology for evaluating network design decisions under uncertainty.	*CO2*	*PO6*	**10**
			UNIT - III			
	5	a)	What are the reasons for holding inventory? Discuss the role of cycle and safety inventory in supply chain practices.	*CO3*	*PO2*	**10**
		b)	Derive an expression for EOQ and TC_{min} for instantaneous rate of replenishment without shortages.	*CO3*	*PO2*	**10**
			OR			
	6	a)	Elaborate on the selective inventory control techniques	*CO3*	*PO2*	**10**
		b)	Weekly demand for cell phones at a retail store is normally distributed with a mean of 4000 and a standard deviation of 800. The supplier takes, two weeks to supply a retailer's order. It is targeting a CSL of 92%. How much safety inventory of cell phones should retailer carry? What should be their ROP? What kind of replenishment policy the retailer is using to monitor inventory of ovens according to this case. Area to the left of Z-score from standard normal distribution table are as follows: z | Area | z | Area | z | Area | z | Area | z | Area 1.4 | .9192 | 1.41 | .9207 | 1.42 | .9222 | 1.43 | .9236 | 1.44 | .9251	*CO3*	*PO2*	**10**
			UNIT - IV			
	7	a)	List and explain the factors affecting Transportation Decisions on supply chain performance.	*CO4*	*PO4*	**10**
		b)	Analyze the pros and cons of various transportation network design options.	*CO4*	*PO4*	**10**
			OR			
	8	a)	What are the assessment factors to be considered while scoring and assessing the suppliers? Discuss.	*CO4*	*PO4*	**10**
		b)	What functions do supply contracts serve? Analyze the different types of contracts and their effects on supplier performance and the potential for information distortion.	*CO4*	*PO4*	**10**

			UNIT - V			
	9	a)	Investigate the role of blockchain in supply chain management, highlighting its benefits and its influence on overall supply chain performance.	*CO4*	*PO4*	**10**
		b)	What is 'data analytics' in the supply chain? Compare types of analytics: descriptive, predictive, and prescriptive analytics citing suitable example.	*CO4*	*PO4*	**10**
			OR			
	10	a)	What do you mean by 'reverse logistics'? Enumerate its key activities.	*CO4*	*PO4*	**10**
		b)	What is sustainability in supply chain? Identify and discuss the key metrics and drivers of sustainability.	*CO4*	*PO4*	**10**

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