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Scheme of evaluation and Solutions

Sub:	Logistics and Supply Chain Management							Code:	22MBA31
Date:	**04/03/2025**	Duration:	**90**	Max Marks:	**50**	Sem:	**III**	Branch:	**MBA**

SET- I

1 (a)	Define logistics and explain its objectives. Ans: **Definition:** Logistics refers to the process of planning, implementing, and controlling the efficient movement and storage of goods, services, and related information from the point of origin to the point of consumption to meet customer requirements. **Objectives of Logistics:** 1. **Timely Delivery** – Ensuring goods reach the destination as per schedule. 2. **Cost Efficiency** – Minimizing transportation, warehousing, and inventory costs. 3. **Customer Satisfaction** – Providing reliable service and on-time delivery. 4. **Inventory Management** – Maintaining the right level of inventory to prevent stockouts or overstocking. 5. **Resource Optimization** – Efficient use of transportation, storage, and manpower.	[3]		Definition 1 Mark Objectives – 2 Marks
(b)	Differentiate between logistics and supply chain management with examples. **Ans: Difference Between Supply Chain Management and Logistics Management**	[07]		SCM 3.5 Marks Logistics 3.5 Marks

Parameters	**Supply Chain Management (SCM)**	**Logistics Management**
Definition	Manages the entire supply chain from raw material procurement to final product delivery.	Focuses on the efficient flow and storage of goods and services from origin to consumption.
Scope	Covers all aspects including production, distribution, sales, and customer service.	Mainly centered on transportation and storage of goods.
Components	Encompasses procurement, production, distribution, logistics, sales, and customer service.	Involves transportation, warehousing, inventory management, and order fulfillment.

	Objective	Aims to optimize the entire supply chain for timely, cost-effective product delivery.	Ensures efficient, effective transportation and storage of goods to meet customer needs.			
	Decision Making	Involves strategic decisions about production, distribution, and inventory management.	Focuses on operational decisions related to transportation, warehousing, and distribution.			
	Key Focus Areas	Coordinates with all supply chain partners to enhance customer satisfaction and optimize resources.	Optimizes the movement and storage of goods and related information within the supply chain.			
	Technological Integration	Integrates advanced technologies for comprehensive supply chain oversight and optimization.	Uses technology mainly for tracking and managing goods movement and storage.			
	Performance Metrics	Assesses performance based on supply chain efficiency, customer satisfaction, and cost reduction.	Evaluates performance based on transportation costs, delivery timeliness, and warehouse efficiency.			

(c) Analyze how logistics has evolved towards supply chain management in the Indian context. [10]

4 Phases each 2.5 Marks

4X2.5 = 10 Marks

Evolution of Logistics to SCM in India:

1. **Traditional Logistics (Pre-1990s)**
   - Focused only on transportation and warehousing.
   - Fragmented supply chains with limited coordination.
2. **Liberalization and Growth of Infrastructure (1990s–2000s)**
   - Emergence of large logistics players like Blue Dart and DTDC.
   - Growth of organized warehousing and third-party logistics (3PL).
3. **Technology-Driven SCM (2010–Present)**
   - Use of **AI, IoT, and Blockchain** for inventory and delivery tracking.
   - E-commerce growth with companies like **Flipkart and Amazon** integrating real-time logistics solutions.
   - Introduction of **GST** (2017) simplified interstate logistics.
4. **Future Trends**
   - Drone deliveries, **AI-based forecasting**, and automated warehouses are reshaping supply chains.
   - Green logistics initiatives and **electric delivery vehicles**.

2 (a)	List and explain the essential features of a supply chain. 1. Ans: **Integration** – Collaboration among suppliers, manufacturers, and distributors. 2. **Demand and Supply Management** – Ensuring a balance between production and market demand. 3. **Logistics and Distribution** – Efficient transportation and warehousing. 4. **Technology Adoption** – Use of AI, IoT, and data analytics in supply chain operations. 5. **Customer-Centric Approach** – Focusing on timely delivery and service excellence.	[03]		List 1 Mark Explanation 2 Marks
(b)	Explain how Bullwhip Effect impacts supply chain performance with an example. **Ans: Bullwhip Effect:** The Bullwhip Effect occurs when small changes in consumer demand lead to exaggerated fluctuations in orders along the supply chain. **Impact on Supply Chain Performance:** • **Overstocking & Understocking** – Unnecessary inventory buildup or shortages. • **Increased Costs** – Higher storage, production, and transportation expenses. • **Inefficiencies** – Poor coordination among suppliers and retailers. **Example:** During festive sales, a retailer orders extra stock based on high demand projections. Wholesalers and manufacturers, anticipating even higher demand, increase production. If actual consumer demand is lower than expected, there is excess inventory across the supply chain.	[07]		Meaning 2 marks Impact explanation 5 Marks
(c)	Evaluate the role of forecasting in managing supply chain uncertainties and provide a real-world example. **Ans: Role of Forecasting in Supply Chain Management:** • **Reduces Uncertainty** – Helps in demand planning and inventory control. • **Optimizes Resources** – Ensures raw materials and finished goods availability. • **Prevents Overstocking & Stockouts** – Avoids excess inventory and lost sales. • **Improves Decision Making** – Supports procurement, production, and distribution planning. **Example:** Amazon uses AI-based demand forecasting to predict product demand across different regions. During festive seasons, it increases stock levels in	[10]		Various role 7 Marks Example 3 Marks

	high-demand areas and reduces excess inventory in low-demand regions, improving overall efficiency.			
3 (a)	Identify the primary functions of warehousing in logistics. 1. Ans; **Storage of Goods** – Safe and organized storage of raw materials and finished products. 2. **Inventory Management** – Keeping track of stock levels to prevent shortages. 3. **Order Processing** – Facilitating the picking, packing, and dispatching of orders. 4. **Value-Added Services** – Packaging, labeling, and quality checks. 5. **Risk Management** – Protecting goods from damage, theft, and spoilage.	[03]		3 functions 3 Marks
(b)	Discuss the importance of pricing strategies in logistics planning. Ans: **Importance of Pricing in Logistics:** 1. **Cost Recovery** – Ensures transportation and warehousing costs are covered. 2. **Competitive Advantage** – Helps logistics companies offer cost-effective solutions. 3. **Demand Management** – Adjusting pricing to optimize shipping volumes. 4. **Profitability** – Ensures a balance between cost efficiency and revenue generation. **Example:** FedEx uses **dynamic pricing** based on shipment size, weight, and delivery urgency. Express services are priced higher, while economy shipping is more affordable.	[07]		Meaning 2 marks Importance 5 marks
(c)	Analyze the impact of digital transformation in warehouse management systems. Ans: **Impact of Digital Transformation on Warehousing:** 1. **Automation & Robotics** – Reduces human errors and increases speed in warehouse operations. 2. **IoT-Based Inventory Tracking** – Real-time stock monitoring using RFID and sensors. 3. **AI-Based Demand Prediction** – Optimizes inventory levels based on predictive analytics. 4. **Blockchain for Transparency** – Enhances security and tracking of shipments. **Example:** Flipkart's automated warehouses use robotics and AI to efficiently sort and package products, reducing delivery time and operational costs.	[10]		Impact 8 Marks Example 2 marks
4	**Case Study: Supply Chain Challenges in the Indian E-commerce Industry** **Background:**			

India's e-commerce industry has seen rapid growth over the past decade, with companies like Amazon, Flipkart, and Reliance JioMart leading the market. However, these companies face several supply chain challenges, such as:

Last-mile delivery inefficiencies due to poor road infrastructure. High logistics costs in rural areas. Inventory mismanagement leading to stockouts or overstocking.Impact of demand fluctuations (e.g., festive season sales). Technological gaps in real-time tracking and warehouse automation.

To tackle these issues, companies are investing in AI-based forecasting, warehouse robotics, drone deliveries, and blockchain for transparency. [05]

4.a. Analyze the major challenges faced by e-commerce companies in managing last-mile logistics and suggest solutions for optimizing delivery efficiency. [05

Ans : Major Challenges in Last-Mile Logistics & Solutions

Challenges	Solutions
Poor road infrastructure	Investment in electric vehicles and drones for deliveries.
High logistics costs in rural areas	Partnering with local courier services for cost-effective last-mile delivery.
Inventory mismanagement	Using AI-driven demand forecasting and real-time inventory tracking.
Demand fluctuations	Implementing dynamic pricing and surge capacity planning.

4.b Evaluate how technology (AI, Blockchain, IoT) can improve inventory management and demand forecasting in e-commerce supply chains.

Ans: **AI in Demand Forecasting**

- Uses historical sales data to predict future demand.
- Example: Amazon's AI model anticipates shopping trends for faster restocking.

Blockchain for Transparency

- Provides a tamper-proof digital ledger of inventory movements.
- Example: Walmart tracks perishable goods to ensure freshness.

IoT in Inventory Management

- RFID and smart sensors track stock levels in real time.
- Example: Flipkart's automated warehouses optimize product storage.