JAIPURIA INSTITUTE OF MANAGEMENT
LUCKNOW NOIDA JAIPUR INDORE

JAIPURIA INSTITUTE OF MANAGEMENT, NOIDA

PGDM / PGDM (M) / PGDM (SM)

FOURTH TRIMESTER (Batch 2024-26)

END TERM EXAMINATIONS, OCTOBER 2025

SET-2

Course Name	Supply Chain Management	Course Code	20522
Max. Time	2 hours	Max. Marks	40 MM

INSTRUCTIONS:
- Attempt all questions.
- Distribution of marks for each question mentioned in the bracket.
- It is closed book / notes exam, no mobile/ electronic / digital medium is allowed. Only calculators are allowed.
- Answers should be rich in content, precise and to the point.

Q1)

India's apparel market is witnessing vibrant growth and the market was valued at US$ 102.8 billion in 2022. On account of increasing middle-class, higher disposable income, and evolving lifestyle preferences motivated by fashion, it is projected to reach approx.. US$ 146.3 billion by 2032, growing at a CAGR of 4% during 2022-2032 (IBEF, 2025).

Apex is a startup and an online fashion retailer that initially plans to offer a selection of men and women's wear, including ethnic wear, and streetwear. It envisages to become a popular online destination that will provide on-trend fashion apparel at competitive prices.

Management at Apex is debating whether to serve the India by setting up four Regional Distribution Centers (one each for North, South, Western and eastern India) or one National Distribution Center. The forecasted weekly demand in each region is normally distributed, with a mean of 1000 and standard deviation of 300.

The online retailer will be incurring a holding cost of 20 percent and the cost of product is INR 1000 per unit. Ordering costs per order in both centralized and decentralized case is INR 300/order. Demand experienced in each region is independent and supply lead time is exactly four weeks in both centralized and decentralized case.

The Online Retailer will promise its customer a next day delivery. With four regional distribution centers, the retailer can provide next day delivery using ground transportation at a cost of INR 10/unit. With a single distribution center, the retailer will have to use a more expensive mode of transport that will cost INR 13/unit for next day service. Building and operating four regional DCs will cost INR 150,000 per year *more than* building and operating one national distribution center. The online retailer works 365 days a year. Assume desired service level of 95% (consider z=1.65).

a) Evaluate and give recommendation regarding which of the two distribution designs (centralized or decentralized) is beneficial based on Total Cost approach.
b) Opinion the impact of centralization to single National Distribution Centre on Total Cost if the demand of four regions is i) Perfectly positively correlated ii) Perfectly negatively correlated

Marks (7+3=10)

Q2)

Discuss different type of transportation mode to be preferred based on 3Vs (volume or optimum shipment quantity, velocity and variability in delivery time)? Elaborate the difference in terms of resulting cycle inventory, safety inventory and trade-offs between transportation & inventory costs will be observed in this case.

Marks (6)

Q3)

a) With suitable examples from industry, briefly discuss the use of *any four* technologies in supply chain which led to the increase in supply chain visibility, information flow and finally enhanced supply chain performance.
b) Consider the supply chain involved when a customer orders a best seller book from an online retailer. Identify the push pull boundary and two processes each in the push and pull phases.

Marks (4+4=8)

Q4)

"Quality Tools (QT)" is a manufacturer of Maintenance, Repair, and Operations (MRO) products. These includes supplies, tools, and equipment used to keep industrial, manufacturing, and business facilities running smoothly QT manufactures and sells safety gear, lubricants, cleaning supplies, and hand tools, all crucial for maintaining operations, preventing downtime, and ensuring a safe work environment.

The company utilizes "Manufacturer Storage with Direct Shipping" to fulfill orders placed by its B2B (business-to-business) customers through its website. Recently, the company has taken a decision to open brick and mortar retail stores near few major industrial areas. This is their second distribution channel.

a) Analyse and compare the two distribution strategies mentioned above in terms of various supply chain costs involved.

b) Analyse and compare the two distribution strategies mentioned above in terms of various customer value or service factors.

Marks (4+4=8)

Q5) Discuss briefly

a) Fisher's Framework for the Alignment of Supply Chain Strategy With Product Characteristics
b) Crossdocking vs storage DCs

Marks (4+4=8)