

JAIPURIA INSTITUTE OF MANAGEMENT, NOIDA
PGDM / PGDM (M) / PGDM (SM)
FOURTH TRIMESTER (Batch 2020-22)
END TERM EXAMINATIONS, OCTOBER, 2021, SET-I

Course Name	Supply Chain Management	Course Code	OM404
Max. Time	2 hours	Max. Marks	40 MM

INSTRUCTIONS:

- **Attempt all four 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)

Case Study on Relaxo Footwear Limited “Meeting the Service Challenge-Innovative Products”

Relaxo Footwear Limited (RFL) is a leading manufacturer of a wide range of footwear in India. Its consistent growth over the last few decades has vaulted it into a leadership position. This growth has brought with itself many challenges that include the adoption of new technologies (both hardware and software) as well as the acquisition of capability to develop new, aesthetic, stylish, and comfortable footwear in an extremely competitive market. This rapid growth has also created a tough challenge in the form of ensuring product availability to customers spread all across the country.

The variety in the form of models, types, colors, and sizes is very large, and to retain the market leadership, these products have to be available when there is a demand. RFL manufacturing facilities are clustered around Delhi and the products have to reach extreme corners of the country and abroad.

This is achieved through carefully and strategically located company showrooms, retailers, distributors, stockists, warehouses, and master warehouses. This is backed by detailed market research, demand extrapolation, identification of local events, locational demography, and grassroots forecasting. Long-term as well as short-term production planning and scientific use of logistics modes are used to ensure that no customer is disappointed and that RFL does not end up with dead stocks.

It is to be appreciated that footwear today is a fashion product and has a reasonably short shelf life. The demand for footwear is also impacted by weather conditions, which are volatile and difficult to predict. Data mining and analysis backed by fast and effective logistics ensure a high service level.

That RFL has been able to meet these diverse challenges and growth both in the domestic and international markets can be attributed to its managerial practices, especially forecasting in respect to innovative products and producing a responsive yet cost-effective, efficient supply chain.

Based on the RFL case, reflect upon the following:

- a) Simultaneous pursuit of efficiency and responsiveness may be difficult but not beyond the realm of possibility. Examine approaches that can be used by businesses to increase responsiveness without increasing costs?
- b) Demonstrate that information flow help in increasing responsiveness without adding cost?
- c) Identify and evaluate the possible challenges for RFL in maintaining its complex supply chains post Covid-19?

(5+5+5=15 Marks)

Q2) Attempt any one from the following:

TopOil, a refiner in Indiana serves three customers near Nashville, Tennessee. TopOil maintains consignment of inventory (owned by TopOil) at each of the customer's location. Currently, TopOil uses TL transportation to deliver separately to each customer. A fixed transportation cost of \$800 is incurred each time an order is delivered. Additionally, for each stop at the customer location, an extra \$ 250 per stop is incurred. Thus, delivering to each customer separately costs \$1050 per truck.

TopOil is considering aggregating deliveries to Nashville on a single truck. Demand at the large customer is 60 tons a year, demand at medium customer is 24 tons per year and demand at small customer is 8 tons per year. Product cost for TopOil is \$10,000 per ton and it uses holding cost of 25 percent.

- a) Determine the optimal delivery policy (order size and order frequency) to each customer if TopOil delivers separately to each of its customers? Evaluate the overall cost of this plan i.e. Total Annual Fixed Costs and Inventory Holding/Carrying Costs for all three customers.
- b) Determine the optimal delivery policy (order size and order frequency) to each customer if TopOil completely aggregates shipments to each customer on every truck that goes to Nashville.? Evaluate the overall cost of this plan i.e. Total Annual Fixed Costs and Inventory Holding/Carrying Costs for all three customers.
- c) Critique on the Complete Aggregation policy as mentioned in part b.

(4+4+2=10 Marks)

OR

A regional warehouse purchases hand tools from various suppliers and then distributes them on demand to retailers in the region. The warehouse operates 5 days per week and 52 weeks per year. The following data is estimated for one product, namely 1 inch drill:

Average daily demand = 100 drills

Standard Deviation of daily demand = 30 drills

Supplier lead time = 3 days exactly

Holding Cost = Rs 9.40 per unit per year (*holding rate x cost of item*)

Ordering Cost = Rs 35 per order

Service level = 98 percent (Safety factor = 2.05)

Design an inventory system for this product i.e. find the following

- a) Average Cycle Inventory
- b) Average safety Inventory
- c) The finance department has instructed the supply chain manager to reduce the investment in average safety inventory of the product. Discuss any two options available to the supply chain manager.

(4+4+2=10 Marks)

Q3)

"Alfa Fashion India" is a Mumbai based manufacturer of designer Women's Designer Clothing. The company utilizes "Drop Shipping" to fulfill orders placed by its customers through its website. With the increase in customer base especially from Metro Cities, the top management of the company is also considering to open Brick and Mortar retail stores in metros of India.

- a) Analyse and compare the two distribution strategies in terms of various supply chain costs involved.
- b) Analyse and compare the two distribution strategies in terms of various customer value or service factors.

(3.5+3.5=7 Marks)

Q4)

- a) A new technology allows books to be printed in 10 minutes. Barnes and Noble has decided to purchase these machines for each store. It must decide which books to carry in stock and which books to print in demand using this technology. Do you recommend it for best sellers or for other books? Evaluate the reasons?
- b) Discuss the following with suitable examples/Illustration:
- Bull-Whip Effect
 - Technology as Enabler of Supply Chain Management

(4+4=8 Marks)