

JAIPURIA INSTITUTE OF MANAGEMENT, NOIDA

PGDM / PGDM (M) / PGDM (SM)

IV TRIMESTER (Batch 2021-23)

END TERM EXAMINATION, NOVEMBER 2022

SET-1

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

INSTRUCTIONS:

- All questions are compulsory. Only internal choice is in Question – 2.
- 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: Fruits and Vegetables Supply Chain at Koyambedu in Chennai

Koyambedu market serves as the centralized distribution centre for perishables such as vegetables, flowers and fruits including both inland and imported fruits. Established by State Government of Tamil Nadu under jurisdiction of Chennai Metropolitan Development Authority (CMDA), Koyambedu Market is located at the Chennai city with road facility and proximity to Chennai Bus Terminal as well as private bus terminals via bypass road.

The entire market premises is divided into three parts/blocks:

- Vegetable Market known as Periyar Vegetable Market
- Fruits Market known as Anna Fruits market
- Flower Market

In each block, many shops with variable space were allotted and sold wholesale merchants, dealers, commission agents by CMDA. There is sufficient space in the market premises for transportation vehicles carrying goods to move in and out of the market. There are two cold storage facilities maintained at the premises of the Koyambedu market. One is at Anna Fruit market—exclusive for storage of fruits. Other is near to Periyar Vegetable market for vegetable, fruits or any other commodity. These cold storage facilities are provided by TANFED, Government of Tamil Nadu. All common amenities & facilities at the market are available for merchants, dealers and agents

As per guidelines of Koyambedu Market Merchant Association, traders of fruit market can trade only in fruits, vegetable traders can trade only in vegetables and same for flower traders.

Vegetable are procured and also supplied from and to various places of Tamil Nadu, Kerala, Karnataka, Maharashtra, AP, Telangana, Gujarat and Delhi. Fresh garlic is also imported from China. In addition to domestic trade, fresh vegetables are exported to Singapore, Malaysia and Canada. Similarly, fruits are procured and also supplied from and to various places of Tamil Nadu, Kerala, Karnataka, Maharashtra, AP, Himachal Pradesh and Delhi. Apples are also imported from USA, Austria and Australia. Fruits are also exported to Singapore, Malaysia and Dubai. Fruits and vegetables are imported or exported using air transportation.

The Koyambedu Market at Chennai functions as largest distribution centre for vegetables, fruits and flowers in Tamil Nadu. The vegetable, fruits and flowers are supplied to market by wholesale merchants and commission agents from farmers in various places. The wholesale merchants sell in market either directly or through their representatives and exporters/large retailers/small retailers /

individual customers visit market each day for good deals. Most of the perishable goods arrive at night. Business transactions begin early morning at about 3 am. The peak time for wholesale transactions are 3 am to 8 pm. everyday.

One may note that a substantial portion of fruits and vegetables in India is wasted for lack of poor infrastructure, improper handling and lack of sensitivity to pricing. Generally information inefficiency is high relating to demand patterns, product availability at source & the market and pricing.

(Source: Adapted from *Supply Chain Management – Process, System and Practice*, N. Chandrasekaran, Oxford Higher Education)

- a) Map the supply chain network of Koyambedu Market including both downstream and upstream stages.
- b) With reference to supply chain network of Koyambedu Market, examine the role of each driver of Supply Chain (except pricing) and its contribution to efficiency / responsiveness of the supply chain.
- c) Give your recommendations to Market Merchant Association about few information technologies / tools which you think are realistic to implement and can improve supply chain efficiency and responsiveness at Koyambedu market?
- d) The President of the Market Merchant Association is considering a plan to set up retail chain stores in Chennai under their cooperative brand. Alternatively, one of the office bearers is suggesting tie up with major local market vendors and daily delivery through a network of milk runs. Evaluate the two alternatives for its strengths / weakness and give your recommendations.

(4+4+4+4=16 Marks)

Q2)

Rajasthan Craft Works (RCW), a manufacturer of ethnic footwear in Jaipur, serves three retail stores in Delhi Region. Currently RCW uses TL transportation to deliver separately to each of its customers i.e. retail stores in Delhi Region. Each truck incurs a fixed cost of INR 8000 plus INR 2500 per stop at customer (loading/unloading/handling charges). RCW is considering aggregating deliveries to Delhi on a single truck. Demand at large customer is 6000 units a year, demand at medium customer is 2400 units a year and demand at the small customer is 800 units a year. Average footwear cost per unit for RCW is INR 2,000 per unit and they use holding cost of 25 percent.

- (a) Evaluate the optimal delivery policy (order size and order frequency) to each customer if ALW ships separately to each of them? Examine the overall cost (annual transportation and holding costs) of this plan for all three customers?
- (b) Evaluate the the optimal delivery policy (order size and order frequency) to each customer if RCW aggregates shipments to each of the three customers on every truck that goes to Delhi NCR Region? Examine the overall cost (annual transportation and holding costs) of this plan for all three customers?
- (c) Critique the shortcoming of the policy mentioned in serial no.b.

(4+4+2=10 Marks)

Or

Gap has started selling through its online channel along with its retail stores. Management has to decide which products to carry at the retail stores and which products to carry at the central warehouse to be sold only via the online channel. Gap currently has 900 retail stores in the US. Weekly demand for large Khaki pants at each store is normally distributed with mean of 800 and standard deviation of 100. Each pair of pants costs \$30. Weekly demand for purple cashmere sweaters at each store is normally distributed with a mean of 50 and standard deviation of 50. Each sweater costs \$100. Gap has a holding cost of 25 percent. Gap manages all inventories under continuous review policy. Supply lead time for both products is exactly four days. The targeted CSL is 95 percent. How much reduction in safety inventory holding cost can Gap expect on moving each of the two products from stores to the online channel? Assume demand of stores to be independent of each other. (For calculating Safety Factor for desired Service Level, use $NORM.INV(0.95,0,1)= 1.645$).

- a) Taking into account given information about Inventory holding costs & product value, which of the two products should Gap carry at the stores and which should it carry at the central warehouse for the online channel? Why?
- b) Examine the Managerial levers to reduce safety inventory for a given service level.

(7+3=10 Marks)

Q3)

- a) With reference to Push- Pull view, analyse the push-pull boundary in case of a Branded T-Shirt, T-Shirt with 'JAIPURIA" logo and DIY (Do it Yourself)- your personalized T-Shirt? Examine how moving the Push-Pull boundary more towards downstream helps the companies?
- b) Assess the benefits of having "Single point of replenishment responsibility"? Discuss and compare between the two commonly used industry practices for the same (VMI & CRP).

(4+4=8 Marks)

Q4)

Discuss the following with suitable examples/Illustration:

- a) CPFR
- b) Factors influencing Make vs Buy Decision

(3+3=6 Marks)