PGDM IB, 2015-17

International Supply Chain & Logistics Management

IB 402

Trimester –IV, End-Term Examination: September 2016

Time allowed: 2 hrs 30 min Max Marks: 50

Roll No: _____

Instruction: Students are required to write Roll No on every page of the question paper, writing anything except the Roll No will be treated as **Unfair Means.** In case of rough work please use answer sheet.

Sections	No. of Questions to attempt	Marks	Marks
A	3 out of 5 (Short Questions)	5 Marks each	3*5 = 15
B	2 out of 3 (Long Questions)	10 Marks each	2*10 = 20
C	Compulsory Case Study	15 Marks	15
		Total Marks	**50**

Section A

Q1. Consider the supply chain for canned peaches sold by a major food processing company. What are the sources of uncertainty in this supply chain?

Q2. Identify the factors based on which a traditional supply chain can be differentiated from the vendor managed inventory supply chain?

Q3.

i. Why is the lead time demand particularly important for uncertain demand?

ii. Bandit Promotions P.Ltd. Find that demand for an item is normally distributed with mean of 2000 units a year and standard deviation of 400 units. Unit cost is INR 100, reorder cost is INR200, holding cost is 20 percent of value a year and lead time is fixed at 3 weeks. Describe an ordering policy that gives a 95% service level. What is the cost of safety stock? Z=1.64

Q4. What are the ways a firm can move from an MTS model to CTO model? Also discuss how CTO model is different from ATO model?

Q5. What modes of transportation are best suited for large, low value shipments? Why? Discuss key drivers that may be used to identify 3rd party logistics service providers?

Section B

Q1.

(1). "When the centralized and decentralized systems have same total safety stock, the service level provide by the centralized system is higher" in light of this discuss the role of centralized inventory system in logistics and inventory management?

(2). A company is examining two choices for moving its goods from the plant to its depot in eastern India; truck and rail. The relevant information is as follows:

Transport Mode	Transport lead time (days)	Rate (Rs/unit)	Shipment size(Units)
Rail	12	20	5,000
Road	4	30	500

The company is planning to ship 20,000 units per year. The cost of the product is Rs. 500 per unit. Assume the inventory-carrying to be 20 percent.

a. Which mode of transport should the company choose?
b. Will your answer change if you realize that the time shown above are average times and that actually time will follow a normal distribution with a standard deviation of 4 days.

Q2. Consider the following demand scenario:-

Quantity	Probability
2000	3%
2100	8%
2200	15%
2300	30%
2400	17%
2500	12%
2600	10%
2700	5%

Suppose the manufacturer produces at a cost of Rs.20/unit. The distributor sells to end customer for Rs. 50/unit during the season, unsold units are sold for Rs.10/unit after season.

a. What is the optimal production quantity and expected profit under global optimization?
b. Suppose the manufacturer is make to order: that is the timing of event is as follows:
    1. The distributor orders before it receives demand form end customers.
    2. The manufacturer produces the amount ordered by the distributor,
    3. Customer demand is observed.

I. Suppose the manufacturer sells to the distributor at Rs. 40/unit, how much will the distributor order? What is the expected profit for the manufacturer and distributor?

II. Also find an option contract such that both the manufacturer and distributor enjoy a higher expected profit than the last situation.

III. What other contract types you suggest for the supply chain models like such in international business scenario?

Q3.

1. "The form of governance can change as an industry evolves and matures, and governance patterns within an industry can vary from one stage of the chain to another" considering the statement kindly suggest the role of governance in developing and design a supply chain?
2. Titan offers two brands of watches – Sonata and Fastrack. Sonata is targeted for a mass market while Fastrack is targeted at a premium segment. Should titan manage both brands with the same supply chains? Should they share warehouses, transportation, supply chain software and other assets or should Titan handle them separately in all area of business?

Section C

Bright Light India is a leading multinational company in Electrical goods manufacture operating in 8 businesses with 12 factories.

The president of the Lamps Division in India recently attended a programme for Senior Management on 'Supply chain Management. He understood from the programme that measuring and reducing the end-to-end supply chain cycle time is imperative for survival and gives substantial competitive edge to the company.

He learnt that there are two components of Cycle time. - 'Horizontal Time' which is the time taken for movement from one place to another and 'Vertical cycle time' which is the time material stays in one place without movement. Computing both times have theirs own respective challenges.

On return from the programme, he asked his executive assistant, Mr. Vinod Khosla, a young MBA from a reputed management school to collect relevant data and assess the total supply chain cycle time for one of their products. The president learnt from his European counterpart that the total cycle time would exceed 120 days and offers a gold mine for containing costs and improving customer service. Mr. Vinod Khosla collected most of the relevant data, which are summarized below.

Company's Supply Chain

Suppliers ⟺ Factory ⟺ Wholesalers ⟺ Retailers ⟺ End consumers

Present Ordering and stocking policies

- Factory to Supplier: Order Quantity = Two weeks' consumption of RM
- ROL = Two weeks' requirement + 25% Safety stock
- Wholesalers to Factory: Ordering policy = Monthly ordering
- Order quantity each month = Maximum stock level - Stock balance
- Maximum stock level = Monthly demand from Retailers + Lead time demand +1 week safety stock

Present ordering and Stocking policies (Continued)

- Retailer to Wholesaler :Order quantity = 2 weeks' demand from consumers
- ROL: =Two weeks demand+ 25% safety stock
- Manufacturing cycle time = 2 weeks
- Transport time from Supplier to Factory, Factory to wholesaler and from wholesaler to Retailer = one week each.

Actual figures based on six months' average:

Item	Sales/consumption Per month (Rs. Lakhs)	Inventory turnover based on monthly sales
1. At supplier end	45	4.0
2 At Factory		
RM (Consumption)	80	1.33
WIP (Production value)	120	1.2
FG (Sales value)	160	2.0
3 Whole saler	40	0.6
4. Retailer	25	1.33

Transportation time: Average: 7days Range: 5-10 days

Q1. Compute the total supply chain cycle time based on their policies and the actual end to end cycle time.

Q2. Estimative the average funds blocked up in the system.

Q3. Mention the contributory factors for the long actual cycle time and suggestions for reducing them.