

INSTITUTE OF MANAGEMENT TECHNOLOGY – IMTBATCH: 2012-14, END TERM –IV, SECTION - ALLSUPPLY CHAIN MANAGEMENT

FULL MARKS: 50

TIME: 120 MIN

ATTEMPT ANY 5, ALL QUESTION CARRY EQUAL MARKS

1.a) For one of A class items the following data is available

Annual demand	= 1000 units
Ordering cost per order	= Rs. 400/-
Inventory carrying cost	= Rs. 0.45/unit/month.
Cost if item	= Rs. 15/-

The purchase manager has placed an order for 500 items in the beginning of the year availing 5% discount. At the beginning of the seven month he procured 250 items without any discount. At the beginning of the eight month he procured 250 items with a discount of 8%. Had he followed the EOQ policy what would have been the gain or loss for the organization?

b) What are the limitations of the EOQ Model?

(7+3)

X 2.a) A chain of departmental store 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 a central warehouse to be sold only via online channel. The store currently has 100 retail stores in India. Monthly demand for the Jean pants at each store is normally distributed with a mean of 600 and a standard deviation (SD) of 50. Each pair of pants cost Rs. 2800. Weekly demand for pure leather shoes for gents at each store is normally distributed with mean of 25 and SD of 5. Each pure leather shoes for gents costs Rs. 7500. The store manages all inventories using a continuous review policy and the supply lead time for both products is 4 weeks. The targeted CSL is 95 percent (Z value for one tail is 1.65 and for two tail is 1.96). Inventory holding cost is 24% per year. How much reduction in holding cost per unit sold can the store expect on moving each of the two products from the stores to the online channel? Assume demand from one week to the next to be independent.

b) Show that exponential smoothing estimates of time series data is nothing but weighted moving average. Only difference is last forecast of exponential smoothing captures all the past information.

(5+5)

3.a) Design the vehicle route for a consumer goods Company that has 10 dealers. The capacity of the vehicles is 25 units and other relevant data are as follows:

Distance – and load related data for a consumer goods company

Dealer	1	2	3	4	5	6	7	8	9	10
Dist. for depot	16	18	10	17	26	18	7	12	15	21
Avg. demand (tons)	8	4	6	6	4	8	8	6	8	4

Distance matrix in kilometers

	1	2	3	4	5	6	7	8	9	10
1	-									
2	34	-								
3	7	27	-							
4	33	12	27	-						
5	41	8	35	19	-					
6	31	13	24	23	14	-				
7	19	20	14	15	28	24	-			
8	24	20	19	12	28	27	6	-		
9	12	32	12	26	40	33	12	15	-	
10	32	23	28	12	31	33	15	9	22	-

b) Transportation accounts for major part of the Total Supply Chain costs. Yet, cost cannot be the only criteria in making transport related Supply Chain decisions. What are the various considerations that affect the choice that companies make in selecting the transportation modes and carriers in their effort to provide the desired levels of customer service while minimizing the total costs? Explain with examples.

(7+3)

4.a) What do you understand by the term 'strategic fit' in context to Supply Chain Management? Discuss the approach of a firm which seeks to achieve strategic fit in context to supply chain management?

b) What modes of transportation are best suited for large, low-value shipments? Why? (7+3)

5.a) What are the key logistics activities for a manufacturing firm? Discuss the various components of the logistics strategy which a firm can focus along with their relative trade-offs.

b) What are the obstacles to creating flexible work force? What are the benefits? (7+3)

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- (a) Examine the subjects that are brought up in the questionnaire and their sequence. How would you alter it to make it more result oriented? (3.5 marks)
- (b) When this questionnaire comes back, what problems do you foresee to understand the responses and tabulate them? (3.5 marks)

Q4. a) Comment on the validity and reliability of the following:

A general-interest magazine claimed that it was a better advertising medium than television programs with similar content. Research has indicated that for a soft drink and other test products, recall scores were higher for the magazine ads than for 30-second commercial. (4 marks)

b) i. Identify the scale: The Internet is superior to traditional libraries for comprehensive searches.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree (1 mark)

ii. Develop a semantic differential scale to measure the images of two major airlines that fly to your city. (2 marks)

iii Compare the rank order scaling technique to the paired comparison scaling technique, with examples. (2 marks)

Institute of Management Technology - IMT
End Term Exam – IV, Batch: 2015-17, Section: ALL
Supply chain Management

Faculty: Prof. Mrinalini Shah / Prof. Keshav Kr. Sharma / Prof. Umesh Bahadur

Max Marks : 50

Exam Date: 21.03.2016

Time : 90 minutes

Note : Question 1, 2 and 3 are compulsory. Choose any one from question number 4 and 5. Marks are given in front of each question.

1. Compare Seven Eleven Japan and WalMart USA vis-à-vis their competitive strategy, supply chain strategy, utilisation of all supply chain drivers and trade-offs among drivers to achieve strategic fit. Answers in bullet points. (15 marks)
2. Do you expect aggregation of inventory at one location to be more effective when a company such as Dell sells computers online or when a company such as Amazon sells books? (Hint- consider transportation and inventory costs).

OR

How do location and size of warehouses effect the performance of a firm such as Amazon? What factors should Amazon take into account in deciding where and how big its warehouse should be? (12 marks)

3. Motorola obtains cell phones from its contract manufacturer located in China to serve the US market. The US market is served from a Warehouse in Memphis, Tennessee. Daily demand at the Memphis warehouse is normally distributed with a mean of 5000 and a standard deviation of 4000. The warehouse aims for a CSL of 99 percent. The company is debating whether to use sea and air transportation from china. Sea transportation results in a lead time of 36 days and costs \$0.50 per phone. Air transportation results in a lead time of 4 days and costs \$1.50 per phone. Each phone costs \$100 and Motorola uses holding costs of 20 percent. Given the minimum lot sizes, Motorola would order 100,000 phones at a time (on average, once every 20 days) if using sea transport and 5000 phones at a time (on average, daily) if using air transport. Warehouse works 365 days in a year. ($NORMINV(0.99) = 2.33$)

- a. Under a continuous review system, do you recommend sea or air transportation. Assume Motorola does not own inventory while it is in transit.
- b. Does your answer change if Motorola has ownership of the inventory while it is in transit?

OR

For Johnson & Johnson manufactures two different types of products in its Chennai unit and Mumbai unit. The products need to be shipped to its 8 distribution centre. Product 1 is made only in Mumbai unit and product 2 is only manufactured in Chennai. Product 1 is high in demand and requires 5000 units per week by each of its distribution centre. Product 2 is slow moving product with 6000 units per month demand by each distribution centre. Product 1 is of 50 INR per product and product 2 is of INR 500 per unit. Holding cost is 10% of the cost of the product per unit annum. Cost of sending one truck load from Mumbai or Chennai to any of the distribution centre is estimated 2000 INR, per destination 200 INR extra as administrative cost. These being big truck, capacity per truck is 40000 units of product 1 (exclusive) but only 36000 units for product 2 (exclusive). Johnson & Johnson's new supply chain manager is finalising the contract with third party logistics and wish to know should the company go for direct shipping or milk run (for two centres at a time) ? What transportation strategy would you like to recommend for which product and why ?
(15 marks)

4. What difference in the retail environment may justify the fact that the fast moving consumer good supply chain in India has far more distributors than it has in the United States in context of supply chain strategy. (8 marks)

OR

Why will one want different supply chain design for fast moving and slow moving items.

5. Discuss in two lines how each of the following helps to alleviate the bullwhip effect
 - a. Express delivery for Amazon & flipkart
 - b. Collaborative forecast
 - c. Supply contracts of Zara
 - d. Internet & smart phones(8 marks)

1) Prof. Anida Kumar

2) Prof. V.K. Gupta

3) Prof. K.K. Sharma

4) Mrinalini Shah

Institute of Management Technology, Ghaziabad

End term exam- 2017, BATCH: 2016-18, IV

PGDM (Supply chain Management)

Max Marks: 50

EXAM DATE: 27/03/2017

Time : 120 minutes

Instructions:

- Total 4 questions to be attempted.
- Marks are given in front of each question.
- Answers should be to the point and precise.

CLOSED BOOK EXAM

Q1)

- a. Asian Paint Supply Chain is an illustrative example of 'postponement' in practice. Elaborate the concept of postponement with respect to types, decoupling point and its position in the supply chain. What impact does it have on the 'strategic fit' achieved in terms of cost efficiency and customer responsiveness? In which other industries will you find 'postponement' in practice? Explain with 2 examples
- (4.5 Marks)
- b. Seven Eleven Japan operates in market with small to very small but large number of retail stores in neighborhood. Briefly discuss how this strategic fit was operationalize in term of 3 logistics drivers?

(8 Marks)

Q2)

- a. A manufacturer is working on its transportation network design and have decided to use "All Shipments via Intermediate Distribution Center with Storage" instead of "Direct Shipment" to customer locations. What can be the possible reasons behind this decision?
- (4.5 marks)
- b. Returns and Recall Management has become an essential department in many multinational companies, especially after the incidence of faulty batteries found in Samsung S7. Discuss the essential stages of the reverse logistics process with critical reference to the constraints and challenges faced by the companies in the Indian context. Suggest some ways in which the companies can manage the product recall process proactively.

(8 Marks)

Q3)

Harley purchases components from three suppliers. Components purchased from supplier A are priced at \$5 each and used at the rate of 20000 units per month. Components purchased from supplier B are priced \$4 per unit and are used at the rate of 2500 units per month. Components purchased from supplier C are priced \$5 per unit and are used at the

rate of 900 units per month. Currently Harley purchases a separate truck load from each supplier. As part of its JIT drive Harley has decided to aggregate its purchase from three suppliers. The trucking charges a fixed price of \$400 for the truck with an additional charge of \$100 for each stop.

- a. Suggest a replenishment strategy for Harley that minimizes annual cost.
- b. Assume a holding cost of 20 per cent per year. Compare the cost of your strategy with Harley's current strategy of ordering separately from each supplier.
- c. What is the cycle inventory of each component at Harley?

(12.5 marks)

Q4)

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 four weeks. The targeted CSL is 95 percent. How much reduction in holding cost per unit sold can Gap expect on moving each of the two products from stores to the online channel? 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? Assume demand of stores to be independent of each other. (NORM.INV(0.95,0,1)= 1.645)

(12.5 marks)

Q5)

- a. P & G manages inventory of Walmart USA. What is this concept known as? Briefly discuss the advantage of the same? How the supply risk Vs Supplier dominance plays a role into this concept?

(6.5 Marks)

- b. Discuss the role of information technology in managing bullwhip effect with the help of examples. What impact visibility of POS data has on reducing bullwhip?

(6 Marks)