

PGDM IB, 2014-16
International Supply chain & Logistics Management
IB 402
Trimester – I & IV, End-Term Examination: September 2015

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. Achieving "Service level" is an important performance parameter in supply chains? Do you agree with this statement? How the term "demand during lead time" is related to "Service level"?

Q2. Will the extent of virtual integration of a firm influences the effectiveness of a supply chain?

Q3. "The effect of "gaming" is that customers' orders give the supplier little information on the product's real demand, a particularly vexing problem for manufacturers in a product's early stages". The gaming practice is very common in supply chains. Discuss the strategies used by manufacturers and wholesalers to reduce the "Gaming" effect in supply chains?

Q4. A local "Tetra Pack juice" distributor at Meerut deals with a popular brand called Snappy. The normal lead time taken by the supplier of Snappy is 10 days. The normal consumption of inventory during the lead time is 500 units per day. There are 10 inventory cycles per year. The carrying cost is re.1 per unit per year. The stock out cost is Rs.2. per unit short. Mr. Ram the sales man gives you a consumption pattern of Snappy (based on his past 100 observations) Find the optimum level of safety stock for Snappy.

DDLT (units)	Probability	DDLT (units)	Probability
1000	.01	5000	.61
2000	.03	6000	.04
3000	.07	7000	.07
4000	.14	8000	.03
			1.0

Q5. "Localization" is one of many options within the design for "Supply chain Management concept". What are the other options used within this concept? Support it with an example?

Turn over

Section B

Q1. Consider the pharmaceutical and the chemical industries. In pharmaceutical industry, products have high margins and overnight delivery typically is used. On the other hand, in the chemical industry, products have low margins and outbound transportation cost is more expensive than inbound transportation.

a. What is the effect of these characteristics on the number of warehouses for the firms in these industries? Where do you expect to see more warehouses; in the chemical or the pharmaceutical industry?

b. Would you recommend the use of vendor managed inventory (VMI) agreements in these cases? How do you see the use of QR (quick response) or ECR (Efficient consumer response) in these cases? Which of them do you suggest will be better and why?

Q2.

A. Consider a supply consisting of a single manufacturing facility, a cross dock and two retail outlets. Items are shipped from the manufacturing facility to the cross dock facility and from there to the retail outlets. Let L_1 be the lead time from the factory to the cross dock facility and L_2 be the lead time from the cross dock facility to each retail outlet.

Let $L = L_1 + L_2$. In the analysis given below, we fix L and vary L_1 & L_2 .

a. Compare the amount of safety stock in the two systems, one in which lead time from cross dock facility to retail outlet is zero (i.e. $L_1 = L$ and $L_2 = 0$) and a second system in which lead time from the factory to the cross dock facility is equal to zero (i.e. $L_1 = 0$ and $L_2 = L$). And give reason as to why we should keep the determined level of safety stock.

b. To reduce the safety stock, should the cross dock facility be closer to the factory or the retail outlets? For this purpose, analyze the impact of increasing L_1 , and therefore decreasing L_2 , on total safety stock.

B. Consider a four stage supply chain in case of white line goods industry. Suppose the demand faced by the retailer is 45 and the standard deviation is 32. Also, assume that at each stage, management is attempting to maintain a service level of 97 percent ($z=1.90$); that lead time between each stage is 1 week and the fixed ordering and holding costs at each stage are given in the table below. Each stage has its own ordering quantities determined and fixed (given in table below). Considering this calculate the reordering point at each stage of the echelon. Also chalk out the inventory ordering plan of the company to maintain the mentioned service level?

Table:-

Cost parameters and ordering quantities

Echelon	Setup Cost	Average Demand	Carrying cost	EOQ
Retailer	250	45	1.2	137
Distributor	200	45	.9	141
Wholesaler	205	45	.8	152
Manufacturer	500	45	.7	255

Q3. "Integrated service providers" (ISPs) like 3PL/4PL, plays vital role in managing the supply chains of many businesses. State as to what segregates 3PL from a 4PL company, also answer as to why one should consider outsourcing with a 3 PL or 4 PL and how to undertake this process?

Turn over

Section C

Audio Duplication Services, Inc.

(ADS) Audio Duplication Services is a compact disc and cassette duplication and distribution company. Its major customers, the big record companies, use ADS to duplicate and distribute CDs and cassettes. ADS stores the master tapes and, when a customer requests it, makes a certain number of copies and delivers them to its customers' customers, music stores and other points of sale such as the department stores Wal-Mart and Kmart and electronics stores such as Circuit City and Best Buy. ADS is one of six big players in the audio duplication market. ADS has about 20 percent of the \$5 billion market, while its two biggest competitors share another 40 percent. Managers at ADS are currently trying to understand and react to some difficult supply chain-related issues.

Some of the big national retailers are putting pressure on ADS's customers, the record companies, to manage inventory in the following way, known as a vendor-managed inventory, or VMI agreement. The record companies will be put in charge of deciding how much of each album, CD, and cassette title is delivered to each store and when each delivery is made. To help with these decisions, the record companies will be provided with continuously updated point-of-sale (POS) data from each of the stores. Also, the record companies will own the inventory until it is sold, at which point payment will be transferred from the retailers to the record companies. Since ADS provides the record companies with duplication and distribution services, the record companies have asked ADS to help with the logistics of the VMI agreement.

In the past, ADS has shipped to the distribution centers of large national retailers, and the retailers have arranged for distribution to the individual stores. Now, the retailers are providing strong incentives to ship directly to individual stores. Of course, this means higher expenses for ADS.

In general, ADS's shipping costs are increasing. Currently, ADS has a shipping manager who arranges with different shippers to make deliveries on a shipment-by-shipment basis. Perhaps there is a better way to manage these deliveries, either by purchasing a fleet of trucks and doing the shipping in house or by outsourcing the entire shipping function to a third party. Maybe something between these two extremes will be best.

Of course, ADS is facing even bigger issues, such as the future of the audio duplication industry as online audio distribution technologies become more prevalent. In any event, each record company periodically reviews its contract with its audio duplication service, so management must address each of the above issues effectively for the company to remain successful.

CASE DISCUSSION QUESTIONS

1. Why are ADS's customers' customers moving toward VMI arrangements?
2. How will this impact ADS's business? How can ADS management take advantage of this situation?
3. How should ADS manage logistics?
4. Why are the large national retailers moving toward a direct shipment model?

END