

Name:
Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2018

Course: **Introduction to Supply Chain Management**
Programme: **MBA-LSCM**
Time: **03 hrs.**
Instructions:

Semester: **I**
CC: **LSCM 7002**
Max. Marks: **100**

SECTION A

S. No.		Marks	CO
Q 1	Attempt all the questions. Each question is compulsory.		
a)	Differentiate Logistics from Supply Chain.	2	1
b)	Discuss the significance of wagon/container code.	2	1
c)	Discuss the significance of back order cost in Inventory?	2	2
d)	Define EOQ when P and D rate vary.	2	2
d)	Discuss the significance of centre of gravity method in location.	2	3
e)	Briefly discuss the value added services in warehouses.	2	4
f)	Enumerate any four MHEs used in warehouses and their specific applications.	2	4
g)	Discuss challenges faced in reverse logistics.	2	5
h)	Discuss the significance of Mass Customization Strategy?	2	5
i)	Discuss applications of any two SAP modules in supply chain.	2	5
j)	Discuss the application of OTIF.	2	6

SECTION B

	Attempt any four questions.																																																			
Q 2	Differentiate Cross-docking from Break-Bulk.	5	1																																																	
Q 3	Determine the initial basic feasible of the following T.P. by using matrix minima method. <div style="text-align: center;"> <table border="1"> <thead> <tr> <th></th> <th colspan="5">Destination</th> <th></th> </tr> <tr> <th>Source</th> <th>E</th> <th>F</th> <th>G</th> <th>H</th> <th>Supply</th> <th></th> </tr> </thead> <tbody> <tr> <td>A</td> <td align="center">1</td> <td align="center">5</td> <td align="center">3</td> <td align="center">3</td> <td align="center">34</td> <td></td> </tr> <tr> <td>B</td> <td align="center">3</td> <td align="center">3</td> <td align="center">1</td> <td align="center">2</td> <td align="center">15</td> <td></td> </tr> <tr> <td>C</td> <td align="center">0</td> <td align="center">2</td> <td align="center">2</td> <td align="center">3</td> <td align="center">12</td> <td></td> </tr> <tr> <td>D</td> <td align="center">2</td> <td align="center">7</td> <td align="center">2</td> <td align="center">4</td> <td align="center">19</td> <td></td> </tr> <tr> <td>Demand</td> <td align="center">21</td> <td align="center">25</td> <td align="center">17</td> <td align="center">17</td> <td align="center">80</td> <td></td> </tr> </tbody> </table> </div>		Destination						Source	E	F	G	H	Supply		A	1	5	3	3	34		B	3	3	1	2	15		C	0	2	2	3	12		D	2	7	2	4	19		Demand	21	25	17	17	80		5	1
	Destination																																																			
Source	E	F	G	H	Supply																																															
A	1	5	3	3	34																																															
B	3	3	1	2	15																																															
C	0	2	2	3	12																																															
D	2	7	2	4	19																																															
Demand	21	25	17	17	80																																															

Q 4	<p>For a specific electronic item 'EI' to be ordered by aircraft manufacturing company, following data is given:</p> <p>Monthly Demand= 600 units</p> <p>Purchase cost/unit = \$30/unit</p> <p>Ordering costs= \$80/ order</p> <p>Holding costs (Ch) = \$10/unit/year, fire insurance = 8% of the unit cost.</p> <p>Determine EOQ of 'EI'.</p>	5	2
Q 5	Discuss various factors affecting the location of a food grain warehouse.	5	3
Q 6	Differentiate CTO from MTS strategies with illustrations.	5	5
SECTION-C			
	Attempt any two questions.		
Q 7	<p>Attempt the short notes on the following:</p> <p>a) ABC Analysis Vs FSN Analysis</p> <p>b) Push Vs Pull approach</p> <p>c) Hybrid model of supply Chain for F&V</p>	15	2 5 5
Q 8	<p>A subcontracting firm Gamma Pharmaceuticals Ltd. located in Western India dealing with generic medicines operates 50 weeks per year. The following information is available regarding the major ingredient used for the medicine:</p> <p>Weekly Demand= 60 units</p> <p>Standard deviation of weekly demand = 9 units</p> <p>Ordering costs (Co) = Rs. 64/ order</p> <p>Holding costs (Ch) = Rs.40/unit/year</p> <p>Cycle-service level = 90% (z-value = 1.28)</p> <p>Lead time = 2 weeks</p> <p>Number of weeks per year = 50 weeks</p> <p>a) Using the fixed order quantity system to control inventory, calculate the EOQ</p> <p>b) Compute the reorder point and state the order decision rule</p> <p>c) Compute the total variable cost of inventory.</p>	15	2
Q 9	Discuss the role of RFID and ERP applications in Logistics sector. How 3 PL companies are making use of IT applications (IoT/ Cloud logistics) and customer experience for retaining the existing customers and attracting new customers?	15	5

SECTION-D

Q 10

Attempt the following case study.

Alpha Enterprises: Logistics Operations

Alpha Enterprises is the country's largest manufacturer of spun yarn with well-established market. **Alpha Enterprises** has good reputation for quality and service. Their marketing department identified that the potential for global market is expanding rapidly and hence the company undertook exercise for expansion of the capacity for export market.

The company formed team of Marketing and Materials department to study the global logistics possibilities. After extensive study, the team came up with a report on global logistics and submitted that global logistics is essentially same as domestic due to following similarities:

- The conceptual logistics framework of linking supply sources, plants, warehouses and customers is the same.
- Both systems involve managing the movement and storage of products.
- Information is critical to effective provision of customer service, management of inventory, vendor product and cost control.
- The functional processes of inventory management, warehousing, order processing, carrier selection, procurement, and vendor payment are required for both.
- Economic and safety regulations exist for transportation.

The company had very economical and reliable transportation system in existence. For exports as well they decided to evaluate capabilities of their existing transporter and entrusted them with the job of transport till port. For customs formalities they engaged a good CHA after proper cost evaluation and entered into contract for freight with shipping company agent.

The response for company's export was very good and the company could get as many as 15 customers within first two months and reached to a level of USD 250,000 per month by the end of first half of the year. Based on this response the export volumes were expected to grow to a level of USD 400,000 per month by the end of the year. When the review was made at the end of the year, company found that export volumes had in fact come down to the level of USD 120,000 which was much lower than it had reached in the first half of the year.

The managing committee had an emergency meeting to discuss this and the export manager was entrusted with the task of identifying the reasons for this decline. Mr. Ganesh decided to visit the customers for getting the first hand information. When he discussed the matter with the customers, the feedback on the quality and price were good but the customers were very upset on the logistic services due to delayed shipments, frequent changes in shipping schedules,

	<p>improper documentation, improper identifications, package sizes, losses due to transit damages etc.</p> <p>After coming back, the export manager checked After coming back, the export manager checked the dispatch schedules and found that production and ex-works schedules were all proper. Then he studied the logistics systems and found that the logistics cost was very high and all the logistics people were de motivated due to overwork and were complaining of total lack of co-ordination and the system had become totally disorganized.</p> <p>Questions</p> <ol style="list-style-type: none"> 1. Explain the problems experienced by Alpha Enterprises. 2. Discuss the main causes of the identified problems? Also explain the tools used for RCA. 3. What logistics model/strategy should the company go for to ensure effective operations? 		
		10	1
		10	1
		10	5

Name: Dr. Neeraj Anand

Enrolment No: 40000035



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2018

Course: ISCM

Programme: LSCM

Time: 03 hrs.

Instructions:

Semester: I

Max. Marks: 100

SECTION A

S. No.		Marks	CO
Q 1	Attempt all the questions. Each question is compulsory.		
a)	Differentiate Logistics from Supply Chain.	2	1
b)	Discuss the significance of wagon/container code.	2	1
c)	Discuss the significance of back order cost in Inventory?	2	2
d)	Define EOQ when P and D rate vary.	2	2
d)	Discuss the significance of centre of gravity method in location.	2	3
e)	Briefly discuss the value added services in warehouses.	2	4
f)	Enumerate any four MHEs used in warehouses and their specific applications.	2	4
g)	Discuss challenges faced in reverse logistics.	2	5
h)	Discuss the significance of Mass Customization Strategy?	2	5
i)	Discuss applications of any two SAP modules in supply chain.	2	5
j)	Discuss the application of OTIF.	2	6

SECTION B

	Attempt any four questions.																																						
Q 2	Differentiate Cross-docking from Break-Bulk.	5	1																																				
Q 3	Determine the initial basic feasible of the following T.P. by using matrix minima method. Destination <table border="1"><thead><tr><th>Source</th><th>E</th><th>F</th><th>G</th><th>H</th><th>Supply</th></tr></thead><tbody><tr><td>A</td><td>1</td><td>5</td><td>3</td><td>3</td><td>34</td></tr><tr><td>B</td><td>3</td><td>3</td><td>1</td><td>2</td><td>15</td></tr><tr><td>C</td><td>0</td><td>2</td><td>2</td><td>3</td><td>12</td></tr><tr><td>D</td><td>2</td><td>7</td><td>2</td><td>4</td><td>19</td></tr><tr><td>Demand</td><td>21</td><td>25</td><td>17</td><td>17</td><td>80</td></tr></tbody></table>	Source	E	F	G	H	Supply	A	1	5	3	3	34	B	3	3	1	2	15	C	0	2	2	3	12	D	2	7	2	4	19	Demand	21	25	17	17	80	5	1
Source	E	F	G	H	Supply																																		
A	1	5	3	3	34																																		
B	3	3	1	2	15																																		
C	0	2	2	3	12																																		
D	2	7	2	4	19																																		
Demand	21	25	17	17	80																																		

Q 4	<p>For a specific electronic item 'EI' to be ordered by aircraft manufacturing company, following data is given:</p> <p>Monthly Demand= 600 units</p> <p>Purchase cost/unit = \$30/unit</p> <p>Ordering costs= \$80/ order</p> <p>Holding costs (Ch) = \$10/unit/year, fire insurance = 8% of the unit cost.</p> <p>Determine EOQ of 'EI'.</p>	5	2
Q 5	Discuss various factors affecting the location of a food grain warehouse.	5	3
Q 6	Differentiate CTO from MTS strategies with illustrations.	5	5
SECTION-C			
	Attempt any two questions.		
Q 7	<p>Attempt the short notes on the following:</p> <p>d) ABC Analysis Vs FSN Analysis</p> <p>e) Push Vs Pull approach</p> <p>f) Hybrid model of supply Chain for F&V</p>	15	2 5 5
Q 8	<p>A subcontracting firm Gamma Pharmaceuticals Ltd. located in Western India dealing with generic medicines operates 50 weeks per year. The following information is available regarding the major ingredient used for the medicine:</p> <p>Weekly Demand= 60 units</p> <p>Standard deviation of weekly demand = 9 units</p> <p>Ordering costs (Co) = Rs. 64/ order</p> <p>Holding costs (Ch) = Rs.40/unit/year</p> <p>Cycle-service level = 90% (z-value = 1.28)</p> <p>Lead time = 2 weeks</p> <p>Number of weeks per year = 50 weeks</p> <p>d) Using the fixed order quantity system to control inventory, calculate the EOQ</p> <p>e) Compute the reorder point and state the order decision rule</p> <p>f) Compute the total variable cost of inventory.</p>	15	2
Q 9	Discuss the role of RFID and ERP applications in Logistics sector. How 3 PL companies are making use of IT applications (IoT/ Cloud logistics) and customer experience for retaining the existing customers and attracting new customers?	15	5

SECTION-D

Q 10

Attempt the following case study.

Home Furniture Supply Chain

We are looking at the supply chain of home furniture marketed by Delight Home Depot (DHD) and specifically, simple mica topped dining tables and chairs sold at leading private stores. Typically, timber is procured from local wood forests which may be at a distance of 700 km on an average from an urban centre like Chennai. The wood gets processed and shaped in the manufacturing station. DHD stores and dealers would be setting mass customized tables and sets of chairs. which would be based on standard or what is referred to as popular demand. And then the firm would have a catalogue of multiple variants to suit customer choices: these would be customizable to each customer's preferences and tastes and delivered to promise. The variants are critical for DHD to attract customers and grow in the fragmented industry. Also a customer prefers to buy from such private brands instead of getting a dining table set made to order. This could be prohibitively expensive, and demands enormous effort in pooling and organizing resources. To understand the differences in responsiveness and efficiency more, one may probe the making of home furniture-the product category here being dining table sets. Generally, the popular version with standard mica top would be shipped to distribution centres and then to stores. The focus of the nodal organization, namely DHD, would be to achieve efficiency in cost so that there is price competitiveness. At its activities from purchase of timber, inbound transportation, yard management of timber stock, purchase of all process materials, including chemicals, to finishing mica sheets, processing timber into dining tables and chairs, to outbound, to distribution centres and stores, and delivery are at cost focused. There would be clearly defined notices and procedures for sourcing material, movement engagement, and conversion costs. Often delivery cost is always borne by the customer wherein delivery services are organized through stores. While analysing economics of manufacturing and selling popular dining table and set of four chairs, the following data were collected.

Component	In Rs
Material Cost	4000
Transportation at various stages	800
Conversion Cost	1600
Marketing cost	800

Overheads	800	
Cost of Products	8000	
Margin	2000	
Market Price	10000	

DHD works for target cost and plays around margins to give price attractiveness in this popular version as the product volume is critical. Any deviation from target costs in any of the heads would lead the economics astray. For example, if a customer who is far away from store or distribution centre wants to buy a popular version, DHD would find it difficult to serve the customer as the outbound transportation cost would go up, which would cut on price advantage. Hence, the market for such a product exists within fairly rigid physical boundaries, as not only transportation but also Do state service overheads get affected by distance, even if it is for one time. Hence, such a supply chain is driven by cost efficiency rather than responsiveness. On the other hand, one may look at the responsive supply chain in the DHD market for dining sets. This product category would also include items in a catalogue. Ideally, customers look at these promotion materials and arrive at a demand. The product is either assembled at distribution centres or finished in special batches at conversion units and delivered to customers. Thus, it differs from the cost-efficient supply chain of the popular version. The following data as of August 2008 gives an understanding of the market.

Component	In Rs
Material Cost	4000
Design Offering	2400
Transportation at various stages	1200
Conversion cost	1600
Marketing Costs	1600
Overheads	1200
Cost of Products	12000
Margin	4000
Market price	16000

It may be observed that costs are higher except for material and conversion. There is a new head of cost called 'design offering' which includes the creativity of designs and the making of promotions pieces and material. The responsiveness of supply chain of such pieces is limited to defined creativity, hence DHD can create a price band which works out for the customer. Also since this kind of product category can be easily engineered and adopted by competition, even such markets are fragmented. One main advantage in competition here is that DHD gives customers a choice and there are a group of customers who would be willing to exercise such options. In a standardized market like this where there are national and international brands selling variants, private brands like DHD can be competitive only if they combine efficiency and responsiveness in the supply chain. It may be observed that the popular category where the margins are less compared to the customized product segment will have larger share of volume of business. In such situation, the ability of DHD to be creative in the customized product segment and improve on margin would be key to success. Unless DHD provides reasonable variants for customer choice, and at the same time, price variants are affordable, the strategy would not work. In such a market, it is the production economics of private brands, including the location of conversion, distribution centre and store facilities, and marketing capability in convincing customers of variants that are important. There is scope for DHD to apply cost principles such as activity-based costing in order to improve business efficiencies.

QUESTIONS:

1. What are the key cost components, which differ in both supply chains of DHD?
2. 'DHD success is based on the ability to compete on supply chains.' Elucidate. How it can compete with online furniture companies.
3. Discuss the supply chain strategies practiced by DHD. Interpret strategies using Fisher's model.

10	1
10	5
10	5