



INDIAN INSTITUTE OF MATERIALS MANAGEMENT

June 2014

Post Graduate Diploma in Materials Management

Paper 17

ADVANCED SUPPLY CHAIN MANAGEMENT

Date: 20.06.2014

Time: 2.00 p.m. to 5.00 p.m.

Max. Marks 100

Duration 3 hours

Instructions

1. The question paper is in three parts
2. Part A is compulsory. Each sub question carries one mark.
3. In Part B answer any 3 questions out of 5. Each question carries 16 marks
4. Part C is a case study with sub questions and it is compulsory.

Total marks-32

Total marks-48

Total marks-20

PART A

(1 x32 = 32 marks)

Q. 1. Fill in the blanks.

- a) ----- results in more stock outs and lower profitability.
- b) The flow of the supply chain that occurs within the individual organization is called -----.
- c) Inbound logistics or the process of acquisition of materials is typically called -----.
- d) ----- is a type of information system that facilitates communication within the firm.
- e) Handling cost, fixed cost and ----- cost are three major components of warehouse cost.
- f) ----- is defined as the lead time between the retailers and the warehouse plus the lead time between the warehouse and its supplier.
- g) The interface between push-based stages and pull-based stages is known as the ----- boundary.
- h) ----- involves the delivery of a wide variety of customized goods or services quickly and efficiently at lowest cost.
- i) Supply chain responsiveness is those abilities of supply chain necessary to meet the ----- and ----- requirement of supply chain.
- j) ----- helps a network of supply chain parameters to identify and respond quickly to changing customer demand captured over the internet.
- k) A production scheduling DSS can use artificial intelligence and mathematical and ----- techniques to develop schedules.
- l) ----- are cost associated with the ongoing work or operations of a purchased product or service.

Q. 2. State True or False

- a) A supply chain succeeds if all the members of the supply chain have the same goal and the same focus on serving customers.
- b) If the activities are initiated by a customer order, demand is completely known.
- c) The longer the forecast Horizon, the worse the Forecast.
- d) Buy back contracts are where the seller agrees to buyback unsold goods from the buyer for same agreed-upon price.
- e) Reorder point is calculated using the formula: $s=L \times AVG + z \times STD \times L$.
- f) 3PL allows a firm to focus on its core competencies.
- g) Increase in inventory turnover leads to an increase in average inventory levels.
- h) Products that can be placed more compactly are cheaper to transport.
- i) Grey box is a level of supplier integration in which buyer gives the supplier a set of interface requirement and the suppliers independently designs and develops the required component.
- j) Product with uncertain demand are often less mature and have less direct competition.
- k) Bar coding refers to the placement of computer readable codes on items, cartons, containers, trucks and even railway wagons.
- l) OLTP tools provide an intuitive way to view corporate data, typically stored in data warehouse.

Q. 3. Match the following:

- | A | B |
|----------------------------|--|
| 1. Forrester Effect | a) Describe the trade-off between the ordering and storage costs |
| 2. Supply Contract | b) Bullwhip effect |
| 3. Heuristics | c) Means of establishing relationship between buyers and suppliers |
| 4. Economic lot size model | d) Product assembled from variety of modules such that for each module there are a number of options. |
| 5. Modular product | e) Technique to optimize the configuration of the logistics networks |
| 6. Mass customization | f) Cost of making and delivering a product to customers |
| 7. Differentiations | g) Concept evolved from Craft production and mass production |
| 8. Supply Chain efficiency | h) A strategy that requires the firm to provide product that are unique along some dimensions that are widely valued by buyers |

PART B

48 marks

(Answer any three. Each question carries 16 marks)

Q4. A) What is ABC classification analysis? Explain with suitable example.
B) Discuss the time lags in supply chain.

Q5. A) What is 3PL? What are its advantages and disadvantages?
B) Describe the three distinct outbound distribution strategies.

Q6. A) What is e-business? What are the different forms of e-business applications?
B) Discuss the total cost of ownership with suitable example.

Q7. A) What are the various functional strategies that impact supply chain performance?
B) Explain the various technologies used in supply chain.

Q.8. Write Short Notes **any four**. **4 x 4 = 16 marks**

- A) Trade- offs in supply chain designing
- B) Supply chain information system
- C) Future of supply chain management
- D) Issues in international SCM
- E) Push Vs Pull System

PART C

20 marks

Q.10 Case Study

Q.9. Mr. John Rhoads, owner of a bicycle shop in USA sells 12,000 model XT4 helmets every year. Although he mainly sells these helmets to college students, the demand for these helmets is constant throughout the year. In an effort to find out what the optimum order size is for these helmets, he has gathered the following data.

Each helmet cost Mr. Rhoads \$12.00. He sells the helmets to college students for \$22.00. Regular customer pay \$24.00 for the same helmets. Each helmet weight 2 pounds. It cost Mr. Rhoads \$55.00 to process each purchase order that he submits for helmets. His carrying cost is 10% and his bicycle shop is open for business 300 days per year.

Kindly use the above information and answer the following questions:

- 1) Find Mr. Rhoads EOQ for the helmet.
- 2) What is annual cost of ordering the helmet?
- 3) Calculate annual cost of storing the helmet.
- 4) Determine number of orders Mr. Rhoads would place each year for helmet and time interval between orders.
- 5) Mr. Rhoads's supplier has agreed to give him a 10% discount on order of 1,000 or more helmets. Should he take the advantage of this discount? Why or why not?
