Registration no: | | | | | | | | | | |

Total Number of Pages: 02 **M.TECH**

IMPC202

2nd Sem Mtech Regular/ Back Examination – 2014-15

SUPPLY CHAIN MANAGEMENT

BRANCH(S): Industrial Engineering/ Industrial Engineering and Management

Time: 3 Hours

Max marks: 70

Q.CODE:T226

Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

Q1 Answer the following questions: (2 x 10)

a) What is the meaning of Push/Pull views of a supply chain?
b) Explain the meaning of Supply Chain Profitability.
c) What is the difference between Supply Chain Strategy and Competitive Strategy?
d) Explain about the meaning of Bullwhip effect.
e) What do you mean by Cross Docking in a distribution network?
f) What is the difference between Static forecasting and Adaptive forecasting?
g) Define Average Inventory.
h) What is the difference between Product fill rate and Order fill rate?
i) Explain the meaning of Postponement.
j) Explain the factors that influence the optimal level of Product Availability.

Q2 a) Discuss about cycle view of supply chain processes. (5)

b) Explain about the role of four drivers of supply chain in achieving strategic fit between the Supply chain strategy and the Competitive strategy. (5)

Q3 a) Discuss about two distinct distribution network designs to move product from manufacturer to customer. (5)

b) What are the components of a demand forecast? Describe the difference between Qualitative forecasting and Time series forecasting. (5)

Q4 a) Describe about the managerial levers available to reduce safety stock and improve product availability. (5+5)

b) At a store, daily demand of a product is normally distributed with mean 2,500 and a standard deviation of 500. The supplier takes 7 days to replenish inventory at the store. The store is targeting a CSL of 90% for its product. The standard deviation of supplier lead time is 7 days. Evaluate the safety inventory of products the store must carry.

Q5 a) A store deals with three products whose demands, carrying costs, unit costs and product specific order costs are given in the following table. (10)

Product	Demand/year	Holding cost as % of product cost	Product cost in Rs / unit	Product specific order cost in Rs/ product
A	8,000	1o%	500	300
B	12,000	20%	250	500

C	16,000	25%	1,000	1,200

A fixed transportation cost of Rs.2,000/- is incurred each time an order is delivered. Find out the optimal order frequency if all the three products are ordered and delivered jointly. Derive the formula used.

Q6 a) Derive an expression to find out the optimal CSL for seasonal items with a single order in a season. (5)

b) A manufacturer has introduced a product whose anticipated demand is normally distributed with a mean of 100 and standard deviation of 40. Each unit costs Rs.150/- to manufacture and the selling price is Rs.300/- to achieve this level of sales. Any unsold unit will be disposed at the end of the season for Rs.135/- each. It costs Rs.5/- to hold a unit in the inventory for the entire season. How many units the manufacturer should produce for sale? (5)

Q7 a) Discuss about the strengths and weaknesses of different mode of transportation. (5)

b) Explain about the role of revenue management in a supply chain. (5)

Q8 Write notes on any <u>two:</u> (5 x 2)

a) Aggregate Planning Strategies

b) Replenishment Policies

c) E-business & its impact on supply chain performance

d)