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# B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

## February / March 2023 Semester End Main Examinations

**Programme: B.E.**

**Branch: Institutional Elective**

**Course Code: 21IM7IESCM**

**Course: Supply Chain and Logistics Management**

**Semester: VII**

**Duration: 3 hrs.**

**Max Marks: 100**

**Date: 22.02.2023**

**Instructions:** 1. Answer any FIVE full questions, choosing one full question from each unit.  
2. Missing data, if any, may be suitably assumed.

### UNIT - I

1 a) Describe briefly clearly the Cycle view and push/pull view to represent the processes performed in a Supply chain. Consider the supply chain involved customer orders a book from Amazon. Identify the push pull boundary and two processes each in the push & pull phases. 10

b) In view of the recent shortages in the supply of electronic chips & IC's in the global context and taking any organization operating in this semiconductor sector as an example, Describe the major challenges that must be overcome to manage this supply chain successfully. 10

### UNIT - II

2 a) What differences in the retail environment may justify the fact that the fast moving consumer goods supply chain India has far more distributors than it has in the United States? Considering the FMCG sector as an example discuss how online sales have affected the design of distribution networks in this sector of the industries. 10

b) Tabulate the Performance characteristics of Manufacturer storage with direct shipping network based on cost factors and service factors. Answer the following precisely 10

- i. What types of distribution networks are typically suited for commodity items?
- ii. What type of network is best suited for highly differentiated products?

**Important Note:** Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

### UNIT - III

3 a) Demand for Desktop computer at Best buy is 1000 units per month. Best buy incurs a fixed order placement, transportation, and receiving cost of \$4,000 each time an order is placed. Each computer costs Best Buy \$500 and the retailer has a holding cost of 20 percent. Evaluate the number of computers that the store manager should order in each replenishment lot. Compute the Cycle inventory, Number of orders per year, Annual ordering and holding cost and Average flow time. 10

b) DO is a retailer that sells Vitaherb, a popular vitamin diet supplement. Demand for Vitaherb is 1200,000 bottles per year. The manufacturer currently charges \$3 for each bottle, and DO incurs a holding cost of 20 percent. DO currently orders in lots of  $Q^* = 6,324$  bottles. The manufacturer has offered a discount of \$0.15 for all bottles purchased by the retailers over the coming month, how many bottles of Vitaherb should DO order given the promotion? Also calculate the Cycle inventory at DO and Average flow time. 10

### OR

4 a) i. Define safety inventory precisely. 10

ii. Weekly demand for Legos at a Wal-Mart store is normally distributed with a mean of 2500 boxes and a standard deviation of 500. The replenishment lead time is two weeks. The store manager currently orders replenishments lots of 10,000 boxes from Lego. Assuming a continuous-review replenishment policy, evaluate the safety inventory the store should carry to achieve a fill rate of 97.5 percent.

b) i. Discuss the key Concepts underlying continuous review policies. 10

ii. Weekly demand for Legos at a Wal-Mart store is normally distributed with a mean of 2500 boxes and a standard deviation of 500. The replenishment lead time is two weeks, and the store manager has decided to review inventory every four weeks. Assuming a periodic review replenishment policy evaluate the safety inventory that the store should carry to provide a CSL of 90 percent. Evaluate the order-up-to-level for such a policy.

### UNIT - IV

5 a) Discuss the following modes of transportation based on their performance characteristics in the context of India as a sub continent 12

i. Air

ii. Truck

iii. Rail

iv. Water

b) Discuss the central ideas with help of an illustrative sketch the design options for the transportation network which goes by the title “**Direct shipping with Milk runs**” 08

**OR**

6 a) Discuss the role of sourcing in a supply chain. Briefly outline the following key sourcing Related processes. **15**

- i. Supplier Scoring Assessment.
- ii. Supplier selection and Contract Negotiation.
- iii. Design Collaboration.
- iv. Procurement
- v. Sourcing planning and Analysis.

b) An auto manufacturer sources both office supplies and subsystems such as seats. What if any, difference in sourcing strategy would you recommend for the two types of products? **05**

**UNIT - V**

7 a) What are the Major components of Block Chain Technologies? Discuss the role that block chain technology can play in improving the responsiveness of Supply Chain Management. **10**

b) What is the meaning of Sustainability? Why is sustainability agenda important for organizations in today's business context? List out any two ideas related to sustainability with respect to the following: - **10**

- i. Packaging materials.
- ii. Product design.
- iii. Reverse logistics.

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