

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

Seventh semester B.Tech examinations (S), September 2020

**Course Code: IE306****Course Name: SUPPLY CHAIN AND LOGISTICS MANAGEMENT**

Max. Marks: 100

Duration: 3 Hours

**PART A***Answer any two full questions, each carries 15 marks.*

Marks

- 1 a) What is a supply chain? Explain with a neat sketch (3)  
 b) Explain the 'push/pull' view of a supply chain with neat sketch. (4)  
 c) Explain in brief the four types of forecasting methods. (8)
- 2 a) Explain supply chain 'strategic decisions'. (3)  
 b) What are the major drivers of supply chain performance? (5)  
 c) From the data given below, find out the following forecast error estimates: (7)  
 (1) Mean Forecast Error (2) Mean Absolute Deviation (3) Mean Square Error  
 and (4) Mean Absolute Percentage Error.

T	Demand, D	Forecast, F
1	150	165
2	160	165
3	165	165
4	175	165
5	180	165

- 3 a) Describe the four cyclic processes viewable in the supply chain interfaces with a sketch. (4)  
 b) What do you mean by competitive strategy and supply chain strategy? (4)  
 c) Explain Holt's model of forecasting. (7)

**PART B***Answer any two full questions, each carries 15 marks.*

- 4 a) Explain the three aggregate planning strategies. (7)  
 b) The annual demand for an item is 3200 units. The unit cost is Rs.6.00 and the inventory carrying charges is 25% per annum. If the cost of one procurement is Rs.150.00, determine: (8)  
 1. Economic Order Quantity.  
 2. Number of orders per year.  
 3. Time between two consecutive orders.  
 4. Total optimal cost including purchase cost.

- 5 a) List out any four factors influencing network design decisions and briefly explain them. (8)
- b) Explain the P-system and Q-system of inventory management. (7)
- 6 a) Consider a single facility location problem in which a new plant will supply raw materials to five existing plants which have locations of (400, 200), (800, 500), (1100, 800), (200, 900) and (1300, 300). Assuming that the number of tons of materials transported per year from the new plant to the existing plants as 450, 1200, 300, 800 and 1500 respectively, determine the optimum location for the new plant such that the distance moved is minimized. (5)
- b) Explain bullwhip effect with sketch. (7)
- c) What is the information required by an aggregate planner? (3)

**PART C**

*Answer any two full questions, each carries 20 marks.*

- 7 a) Explain in detail about 3PL and 4PL providers. (10)
- b) Explain closed loop supply chain. (10)
- 8 a) Explain direct shipping network and direct shipping with milk runs. (10)
- b) Write a note on knapsack problem. Give any two examples. (10)
- 9 a) Explain the following terms related to logistics management briefly: (10)  
(1) Logistics (2) Outsourcing (3) Cross docking (4) Transportation  
(5) Replenishment
- b) Explain the importance of reverse logistics in this current era of intense competition. (10)

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