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Subject: Supply Chain Management**Subject Code:** MBA-GE-OM-02**Maximum Marks:** 75**Time:** 03 Hours*Note: Attempt any five. Calculator may be used.*

Question-1. (a) What are the critical challenges in supply chain management? Suggest some strategies to counter the challenges. [10]

(b) Explain the concept of strategic fit in supply chain. [5]

Question-2. (a) What are the critical factors that influence the distribution network design? [10]

(b) Find out the Mean Absolute Deviation, Cumulative Error and Tracking Signal for Aqua Plus Ltd. from the demand forecast and actual demand of water bottles in year 2019-20. [5]

Period (t)	1	2	3	4	5	6	7
Demand Forecast (Units)	10,000	11,000	10,000	9,600	9,700	9,700	9,950
Actual Demand (Units)	9,000	10,000	10,500	10,100	9,800	9,850	9,800

Question-3. (a) Forecast the demand for the next cycle from the demand (D_t) given below. (Assume periodicity=4, Level Demand=18500 and Trend=550). [10]

T	1	2	3	4	5	6	7	8	9	10	11	12
(D_t)	8000	13000	23000	34000	10000	18000	23000	38000	12000	13000	32000	41000

(b) Discuss various stages in making a decision for global site location. [5]

Question-4. What are the key drivers for supply chain performance? Briefly explain each of the factors. [15]

Question-5. Write short notes on any three: [15]

- a) 3PL
- b) 4PL
- c) Outsourcing
- d) Bullwhip Effect.

Question-6. Supply chains use various modes and distinct combination of transportation modes. From the perspective of online retailers, comment on the current scenario. [15]

Question-7. Write short notes on any three:

[15]

- a) Benchmarking
- b) Reverse Logistics
- c) Application of IT in logistics
- d) International Logistics.

Question-8. Case: Sunsweet Growers

[15]

Sunsweet Growers is the world's biggest producer of dried fruits and a little over a decade ago, found that while it was managing distribution operations well, high production costs were inflating end-to-end supply chain expenditure. When the leadership at Sunsweet looked into the company's production cost issues, recognition soon dawned that the distribution network was at least partly behind the problems. As a result, the company looked at how it could redesign the network to take out some of the production costs.

Later, it became apparent that although a redesign would yield some benefits, one of the most significant issues was in the approach to demand forecasting. Sometimes, excess supply chain costs are not about warehousing and transportation, but can be attributable to inefficiencies in manufacturing or production and—often at the root of it all—forecasting and planning. Sunsweet was using a manual forecasting approach, with spreadsheets being the only technology involved. The inefficiencies of this approach proved not only to hamper effective forecasting and production planning, but the knock-effect was an excess of warehouses in the network. So, forecasting proved to be both a driver of production cost, and a key to improving the distribution network.

Sunsweet's initiated to solve this problem and after evaluating some 30 different software solutions, the company finally settled on a supply chain planning suite, and planned its improvement program to make use of each of the solution's modules in sequence, allowing ROI to be realized in phases as each module was implemented and leveraged. At the same time, Sunsweet implemented a sales and operations planning program (S&OP) that once established, enabled plant resource requirements to be anticipated months, rather than weeks, in advance.

As the overall improvement plan passed through its five phases, positive results accumulated and as hoped, software ROI reached 100% even before the company completed its full implementation. Of course, the objective of Sunsweet's improvement program was not merely to achieve a 100% return on investment in its supply chain planning platform. The

aim was to reduce production costs, and although the company has not published hard figures to quantify the total financial gain, it has claimed the following wins:

- A 15 to 20% increase in forecasting accuracy
- A reduction in overtime from 25% to 8% in production facilities
- A 30% reduction in finished-goods spoilage
- Number of warehouses in the United States cut from 28 to just eight
- A transportation cost-per-unit that remained static for two years despite increased utilization of costly refrigerated transport and rising fuel costs

Questions (Both carry equal marks)

a) How Sunsweet Growers have managed to sustain their supply chain efficiencies? Comment on the strategies and priorities. [10]

b) Discuss the cost-to-benefit ratio for Sunsweet. [5]
