

R.N.G.PATEL INSTITUTE OF TECHNOLOGY-RNGPIT
(An Autonomous Institute U/s UGC Act 1956)

MBA SEMESTER-III, SEMESTER END EXAMINATION – WINTER 2025

SUBJECT CODE: 1MB1302

DATE: 06-01-2026

SUBJECT NAME: SUPPLY CHAIN PLANNING

TIME: 09:00 AM to 12:00 PM

TOTAL MARKS: 70

Instructions

1. It is **compulsory** for students to write **Enrolment No. /Seat No.** on the question paper.
2. Write answers of **Section A** and **Section B** in **separate answer books**.
3. Attempt all questions from both **Section A** and **Section B**.
4. Each section carries **35 marks**, with a total of **70 marks** for the examination.
5. The figures to the right of each question indicate full marks, make suitable assumptions with justification.
6. BL - Bloom's Taxonomy Levels (R-Remember, U-Understanding, A –Application, N –Analyze, E – Evaluate, C -Create), CO - Course Outcomes.

SECTION A

Marks BL CO

Q.1 Multiple-Choice Questions

[05]

(a) Supply chain planning primarily focuses on:

1 R 1

(i) Short-term sales promotions

(ii) Long-term business vision only

(iii) Aligning supply with demand efficiently (iv) Reducing employee turnover

(b) Demand forecasting in supply chain planning helps managers to:

1 U 1

(i) Reduce taxes

(ii) Anticipate customer needs

(iii) Control competitors' strategies

(iv) Increase wages

(c) Which is a key characteristic of supply chain planning?

1 U 1

(i) Short-term focus on daily operations

(ii) Emphasis on long-term strategic integration

(iii) Limiting supplier networks

(iv) Centralized decision-making only

(d) EOQ (Economic Order Quantity) model helps a firm to:

1 U 2

(i) Minimize total inventory cost

(ii) Maximize sales revenue

(iii) Reduce employee turnover

(iv) Avoid capital investment

- (e) Which of the following is not a type of inventory? 1 R 2
- | | |
|----------------------|--------------------------|
| (i) Raw materials | (ii) Work-in-progress |
| (iii) Finished goods | (iv) Accounts receivable |

Q.2 Attempt Any Two [10]

- (a) Define Supply Chain Planning and explain its importance. 5 U 1
- (b) What is supply chain collaboration? Explain in detail. 5 A 1
- (c) Explain the steps involved in the supply chain planning process. 5 U 1

Q.3 Attempt Any Two [10]

- (a) Define inventory and explain its importance in supply chain management. 5 A 2
- (b) What is safety stock? Why is it required? 5 R 2
- (c) Explain types of inventory with examples. 5 A 2

Q.4 Attempt Any Two [10]

- (a) An automobile manufacturer wants to reduce costs and improve delivery reliability. 5 R 1
Which supply chain performance metrics would you monitor, and why?
- (b) Explain the role of information sharing in supply chain integration 5 U 1
- (c) From the following information calculate EOQ, Safety stock and Reorder point. 5 A 2
Annual Demand (D): 15,000 units, Ordering Cost (S):50 per order, Holding Cost (H):2.50 per unit per year, Average Lead Time (L): 7 days, Standard Deviation of Demand (σ_p): 15 units per day, Standard Deviation of Lead Time (σ_{lt}): 3 days, Desired Service Level: 95% ($Z = 1.65$), Year has 300 working days (to calculate daily demand)

SECTION B

Marks BL CO

Q.5 Multiple-Choice Questions

[05]

- (a) Which of the following is not a typical factor considered in facility location decisions? **1 A 3**
- (i) Proximity to suppliers (ii) Labor availability
(iii) Customer income levels (iv) Transportation infrastructure
- (b) Supply chain resilience primarily focuses on: **1 A 3**
- (i) Increasing production capacity only (ii) Ensuring rapid recovery from disruptions
(iii) Minimizing product variety (iv) Increasing number of diesel-powered fleets
- (c) Predictive analytics in supply chains is mainly used for: **1 A 3**
- (i) Product packaging (ii) Designing factory layout
(iii) Forecasting demand and managing uncertainty (iv) Reducing product quality
- (d) A Decision Support System (DSS) helps managers mainly by: **1 E 4**
- (i) Replacing all operational staff (ii) Supporting semi-structured and unstructured decision-making
(iii) Eliminating the need for forecasting (iv) Planning only long-term strategies
- (e) A key advantage of simulation modeling is that it: **1 E 4**
- (i) Guarantees perfect real-world accuracy (ii) Allows experimentation without disrupting actual operations
(iii) Eliminates the need for real logistics data (iv) Requires no technical expertise?

Q.6 Attempt Any Two

[10]

- (a) Explain briefly several economic and non-economic factors impacting facility locations decisions. **5 U 3**
- (b) Discuss the challenges involved in global supply chain management. **5 A 3**
- (c) What are three pillars of sustainability? Briefly describe green supply chain practices **5 R 3**

| | | | |
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| Q.7 Attempt Any Two | [10] | | |
| (a) Explain the role of Decision support system (DSS) in supply chain decision making. | 5 | A | 4 |
| (b) Explain any four applications of big data and analytics in supply chain. | 5 | E | 4 |
| (c) How simulation modeling can be beneficial for decision making in supply chain. Name any two tools for supply chain simulation modeling. | 5 | U | 4 |

| | | | |
|------------------------------------------------------------------------------------------------------|-------------|----------|----------|
| Q.8 Attempt Any Two | [10] | | |
| (a) How block chain is transforming supply chain? Explain briefly. | 5 | U | 4 |
| (b) Differentiate briefly among strategic, tactical and operational decision making in supply chain. | 5 | R | 4 |
| (c) Explain briefly challenges in implementing supply chain planning. | 5 | E | 4 |
