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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA
(An Autonomous Institute Affiliated to AKTU, Lucknow)

MBA

SEM: II - THEORY EXAMINATION (2025 - 2026)

Subject: Supply Chain Management and Demand Forecasting

Time: 3 Hours

Max. Marks: 100

General Instructions:

IMP: Verify that you have received the question paper with the correct course, code, branch etc.

1. This Question paper comprises of **three Sections -A, B, & C**. It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.
2. Maximum marks for each question are indicated on right -hand side of each question.
3. Illustrate your answers with neat sketches wherever necessary.
4. Assume suitable data if necessary.
5. Preferably, write the answers in sequential order.
6. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION-A

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1. Attempt all parts:-

- | | | |
|-------|---|---|
| (1.1) | The pricing strategy which aligns with an efficient supply chain (CO1, K2) | 1 |
| | (a) High margins with premium pricing | |
| | (b) Low margins with high product turnover | |
| | (c) Dynamic pricing to capture market variation | |
| | (d) Penetration pricing for high-margin products | |
| (1.2) | In a responsive supply chain, what is the primary role of buffer inventory? (CO1, K2) | 1 |
| | (a) To reduce transportation costs by consolidating shipments | |
| | (b) To ensure production efficiency by limiting inventory levels | |
| | (c) To meet sudden demand spikes and handle uncertainties | |
| | (d) To eliminate the need for accurate demand forecasting | |
| (1.3) | In exponential smoothing, the smoothing constant α (alpha) is primarily used to: (CO2, K3) | 1 |
| | (a) Increase the forecast by a set amount each period | |
| | (b) Give more significance to past data rather than recent observations | |
| | (c) Adjust the emphasis on recent data, allowing the forecast to react to new trends | |
| | (d) Eliminate all data weights in the forecasting formula | |
| (1.4) | Demand management primarily helps organizations to: (CO2, K3) | 1 |
| | (a) Increase inventory levels | |
| | (b) Reduce product variety | |
| | (c) Match supply with customer demand | |
| | (d) Eliminate forecasting errors | |

- (1.5) The shared objective of both Quick Response (QR) and Accurate Response (AR) strategies is (CO3, K3) 1
- (a) Leveraging supplier relationships for cost reduction
 - (b) Striking a balance between speed and accuracy in meeting customer demands
 - (c) Using advanced technology for customer engagement
 - (d) Increasing stock levels to avoid stockouts
- (1.6) Lead time constraints in supply chain optimization are primarily concerned with: (CO3, K3) 1
- (a) Ensuring that customer demands are met
 - (b) Aligning delivery lead times with service-level expectations
 - (c) Adhering to environmental standards
 - (d) Managing the availability of raw materials
- (1.7) Bottleneck analysis help identify (CO4, K3) 1
- (a) Unutilized resources
 - (b) Constraints that limit capacity
 - (c) Overcapacity in production
 - (d) Customer satisfaction issues
- (1.8) The factor NOT typically considered in make or buy decisions is (CO4, K3) 1
- (a) Intellectual property theft risks
 - (b) Tariffs and hidden costs
 - (c) Supply chain disruptions
 - (d) Customer demographics
- (1.9) Benchmarking capability in SCM systems helps in: (CO5, K2) 1
- (a) Ignoring industry comparisons
 - (b) Identifying performance gaps
 - (c) Increasing system rigidity
 - (d) Decreasing communication
- (1.10) Which supply chain is designed for high-margin, innovative products? (CO5, K4) 1
- (a) Risk-hedging
 - (b) Responsive
 - (c) Efficient
 - (d) Agile

2. Attempt all parts:-

- (2.1) Explain upstream and downstream supply chain (CO1, K2) 2
- (2.2) Describe what is meant by forecast error, and why is it important to reduce it? (CO2, K2) 2
- (2.3) Discuss how does Point-of-Sale (POS) technology enable the implementation of ECR strategies? (CO3, K3) 2
- (2.4) Explain bottleneck analysis, and why is it critical (CO4, K3) 2
- (2.5) Describe how performance measures encourage continuous improvement within an organization? (CO5, K3) 2

SECTION-B

30

Answer any one of the following:-

- (3.1) Describe the flow of the supply chain process cycles from supplier to customer, naming each cycle and the key players involved at each stage. (CO1, K3) 6
- (3.2) Differentiate efficient and responsive supply chains on the following parameters - the manufacturing strategy, inventory strategy, pricing strategy, product design strategy and transportation strategy (CO1, K4) 6

Answer any one of the following:-

- (3.3) Calculate Exponential Smoothing forecast with $\alpha = 0.3$ for the 11th period. (CO2, K4) 6

year	1	2	3	4	5	6	7	8	9	10
Sales	30	25	35	25	20	30	35	40	30	45

- (3.4) Analyze the key components of Demand Management and their role in achieving a balance between customer requirements and operational efficiency. (CO2, K4) 6

Answer any one of the following:-

- (3.5) Explain the impact of capacity constraints on supply chain operations. How do limited capacities of facilities and transportation modes influence the decision-making process in optimizing supply chains? Illustrate your answer with real-world examples. (CO3, K3) 6
- (3.6) Describe the CPFR process model and explain the significance of each phase (Planning, Forecasting, and Replenishment) in achieving seamless supply chain operations. (CO3, K3) 6

Answer any one of the following:-

- (3.7) List and elaborate on the key steps involved in the capacity planning process. (CO4, K3) 6
- (3.8) Compare and contrast the advantages and disadvantages of in-house production and outsourcing. (CO4, K3) 6

Answer any one of the following:-

- (3.9) Discuss how supply chain performance measures contribute to cost management. (CO5, K2) 6
- (3.10) Compare and contrast push and pull strategies in supply chain management. Explain the key characteristics of each approach and illustrate your answer with suitable product examples. (CO5, K4) 6

SECTION-C

50

4. Answer any one of the following:-

- (4.1) Describe the key characteristics of Toyota Supply Chain. (CO1, K3) 10
- (4.2) Differentiate between efficient and responsive supply chains. Explain their key characteristics and the role of inbound and outbound logistics in supporting each type.. (CO1, K2) 10

5. Answer any one of the following:-

- (5.1) Explain the concept of balancing demand and supply plans in production planning. Discuss the challenges involved in matching demand forecasts with production capacity and describe the strategies that organizations can use to achieve an 10

effective balance between demand and supply. (CO2, K3)

(5.2) Fit a trend line to the following data by the least square method 10

Year	2003	2005	2007	2009	2011
Production('000)	21	24	26	30	19

Discuss the concept of regression line, intercept and slope (CO2, K4)

6. Answer any one of the following:-

(6.1) Describe the role of supply chain flow management in optimizing a supply network. What are the advantages and disadvantages of using single-source versus multi-source strategies? (CO3, K3) 10

(6.2) Compare and contrast Quick Response (QR) and Accurate Response (AR) strategies. How can organizations strike a balance between these two approaches to optimize supply chain operations? (CO3, K3) 10

7. Answer any one of the following:-

(7.1) Analyse the factors influence make-or-buy decisions? Discuss with examples. (CO4, K4) 10

(7.2) Describe the key elements and process of capacity planning. (CO4, K2) 10

8. Answer any one of the following:-

(8.1) A company manufactures seasonal products such as air conditioners and also sells customized laptops through online orders. Identify which products should follow a push strategy and which should follow a pull strategy. Justify your answer by explaining the advantages and characteristics of each strategy in the given context. (CO5, K4) 10

(8.2) Describe the key performance metrics in the SCOR model, and how do they measure effectiveness. (CO5, K3) 10