Printed Page:-04 **Subject Code:- AMBALS0413**

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA
(An Autonomous Institute Affiliated to AKTU, Lucknow)
MBA
SEM: IV - THEORY EXAMINATION (2024 - 2025)
Subject: Supply Chain Analytics

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 20

1. Attempt all parts:-

1-a. Select which support activity in the value chain involves recruiting and training employees? (CO1, K1) 1

(a) Procurement
(b) Technology Development
(c) Human Resource Management
(d) Infrastructure

1-b. The supply chain process involve. (CO1, K1) 1

(a) Only procurement
(b) Only distribution
(c) Creation and delivery of a product or service
(d) Only marketing

1-c. Select a type of cost which involves warehousing, insurance, and loss due to theft or deterioration? (CO2, K1) 1

(a) Ordering costs
(b) Carrying costs
(c) Stock-out costs
(d) Storage costs

1-d. Select the driver of supply chain which involves adopting automation and robotics to streamline processes? (CO2, K1) 1

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(a) Customer Expectations
(b) Globalization
(c) Technology Advancements
(d) Regulatory Compliance

1-e. The relationship is called_____ when a unit change in one variable results in a constant change in the other variable over the entire range of values. (CO3, K1) 1

(a) Positive correlation
(b) Negative correlation
(c) Linear correlation
(d) Non-linear correlation

1-f. The type of correlation which exists when two variables deviate in the same direction? (CO3, K1) 1

(a) Linear correlation
(b) Non-linear correlation
(c) Positive correlation
(d) Negative correlation

1-g. Kaizen is a Japanese term that means.(CO4, K1) 1

(a) Large-scale change
(b) Continuous improvement
(c) Quick fix
(d) Total overhaul

1-h. In Lean Management, the term 'Muda' refers to: (CO4, K1) 1

(a) Value-adding activities
(b) Waste
(c) Process improvement
(d) Inventory management

1-i. Cost efficiency through supplier relationships is achieved by:(CO5, K1) 1

(a) Isolating supplier management
(b) Better pricing agreements and discounts
(c) Reducing communication with suppliers
(d) Increasing inventory levels

1-j. Flexibility in responding to market changes is enabled by: (CO5, K1) 1

(a) Strong supplier relationships
(b) Ignoring supplier feedback
(c) Fixed long-term contracts without adjustments
(d) Maintaining high inventory levels

2. Attempt all parts:-

2.a. Define demand planning. (CO1, K1) 2

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2.b.	Define the term Stock out. (CO2, K2)	2
2.c.	Define Negative correlation. (CO3, K2)	2
2.d.	Explain the main focus of Total Productive Maintenance (TPM). (CO4, K2)	2
2.e.	Discuss the role of real-time monitoring in supply chain analytics. (CO5, K2)	2

SECTION-B 30

3. Answer any five of the following:-

3-a.	Discuss the challenges and benefits of integrating AI into supply chain management. (CO1, K2)	6
3-b.	Explain the importance of continuous improvement in supply chain performance measurement. (CO1, K2)	6
3-c.	Discuss the role of raw materials inventory in the production process, providing an example from the manufacturing industry. (CO2, K3)	6
3-d.	Explain the significance of maintaining an adequate level of finished goods inventory in a retail business.(CO2, K2)	6
3.e.	Discuss the main assumptions underlying the use of ANOVA. Also discuss the importance of these assumptions for the validity of ANOVA results. (CO3, K2)	6
3.f.	Describe the main tools used in Total Quality Management (TQM) and their purposes.(CO4, K2)	6
3.g.	Discuss the challenges associated with implementing digital twins in supply chain management. (CO5, K2)	6

SECTION-C 50

4. Answer any one of the following:-

4-a.	Discuss the role of lean and agile principles in improving supply chain responsiveness and efficiency. Provide examples of how these principles can be applied. (CO1, K3)	10
4-b.	A global food company is trying to ensure ethical sourcing and reduce its carbon footprint. Discuss the steps they should take to integrate sustainability and CSR into their supply chain. (CO1, K4)	10

5. Answer any one of the following:-

5-a.	During a global pandemic, a retail chain experiences significant supply chain disruptions. Explain how maintaining safety stock inventory helps mitigate the impact of these disruptions on sales operations. (CO2, K4)	10
5-b.	Describe the process of conducting an XYZ analysis in inventory management. Explain how combining XYZ analysis with ABC analysis can enhance inventory control. (CO2, K2)	10

6. Answer any one of the following:-

6-a.	Explain the significance of the coefficient of variation in assessing the relative variability of datasets. Illustrate with a numerical example. (CO3, K4)	10
6-b.	Discuss the importance of regression analysis in supply chain analytics.(CO3, K2)	10

7. Answer any <u>one</u> of the following:-

7-a.	Describe the steps involved in implementing a Six Sigma project, using an example from a manufacturing context. (CO4, K4)	10
7-b.	A retail company has received complaints about long checkout times. How can lean management and the 5S methodology be used to improve the checkout process?(CO4, K4)	10

8. Answer any <u>one</u> of the following:-

8-a.	Discuss the importance of strategic alignment in supplier relationships and how it impacts long-term success. (CO5, K2)	10
8-b.	Analyze the role of risk management in SRM and how it contributes to supply chain resilience. (CO5, K4)	10

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