UPES
End Semester Examination, Dec 2024

Course: Data Analysis and Decision Making in Supply Chain   **Semester: 3**
Program: MBA-AVM   **Time: 03 hrs.**
Course Code: LSCM8046   **Max. Marks: 100**

Instructions:

SECTION A
10Qx2M=20Marks

S. No.		Marks	CO
Q 1	Define data analysis and explain its significance in supply chain management.	2	CO1
Q 2	Differentiate between structured and unstructured data in supply chains.	2	CO1
Q 3	List four key performance indicators (KPIs) used in supply chain management.	2	CO1
Q 4	Describe two methods for collecting supply chain data.	2	CO2
Q 5	What is data cleansing and why is it important?	2	CO2
Q 6	Explain the concept of data integration.	2	CO2
Q 7	Calculate the mean and median of the following data set: 5, 7, 3, 8, 10.	2	CO3
Q 8	What is a histogram and when is it used?	2	CO3
Q 9	Calculate the inventory turnover ratio given the cost of goods sold is $500,000 and the average inventory is $100,000.	2	CO4
Q 10	In the context of global supply chain management, Identify and explain the types of data that need to be collected to optimize supply chain operations.	2	CO4

SECTION B
4Qx5M= 20 Marks

Q 11	Discuss the importance of data quality in supply chain management.	5	CO2
Q 12	Explain the process of time series analysis using moving averages.	5	CO3
Q 13	Calculate the Economic Order Quantity (EOQ) given the annual demand is 10,000 units, the ordering cost is $50 per order, and the holding cost is $2 per unit per year.	5	CO3
Q 14	Determine the center of gravity for a facility location given the following coordinates and weights: (2,3) with weight 5, (5,6) with weight 10, and (8,9) with weight 15	5	CO4

SECTION-C
3Qx10M=30 Marks

Q 15	Explain the various data visualization techniques and their importance in supply chain management.	10	CO3

Q 16	Discuss the applications of optimization techniques in inventory management and transportation routing.	**10**	**CO4**
Q 17	Describe the role of machine learning in supply chain management, focusing on classification and clustering algorithms.	**10**	**CO4**

SECTION-D
2Qx15M= 30 Marks

Q 18	Bhagyanagar Pharma LLP wants to locate a new facility in a region where it has several customers. The company identified the potential locations of the facility and the coordinates of the customers. The demand from each customer and the transportation cost per unit to each potential facility are given in the table below. Using the Centre of Gravity method, determine the location of the new facility that minimizes transportation costs.	**15**	**CO4**

Customer	Demand (units)	Location (x, y)	Facility	Transportation cost per unit	Location (x, y)
A	600	(10, 20)	**F1**	₹40	(20, 20)
B	300	(20, 30)	**F2**	₹20	(30, 20)
C	500	(30, 40)	**F3**	₹60	(40, 30)
D	400	(40, 10)			
E	200	(50, 20)			

Q 19	Discuss the challenges and strategies for overcoming resistance to change when implementing data-driven solutions in supply chains.	**15**	**CO4**