Graphic Era
HILL UNIVERSITY
Established by an Act of the State Legislature of Uttarakhand (Adhiniyam Sankhya 12 of 2011)
University under section 2(f) of UGC Act, 1956

End Term (Odd) Semester Examination September *Nov.* 2025

Roll no.............................

Name of the Program Course: **B.Tech.(ME)**
Semester: **V Sem.**
Name of the Paper: **Supply chain Management**
Paper Code: **TME 515**
Time: **3 hour**

Maximum Marks: 100

Note:
- *(i)* All the questions are compulsory.
- *(ii)* Answer any two sub questions from a, b and c in each main question.
- *(iii)* Total marks for each question is 20 (twenty).
- *(iv)* Each sub-question carries 10 marks.

Q1	(20 marks)	
(a)	Define Supply Chain Management (SCM). What are its objectives?	
(b)	Global supply chains are becoming increasingly complex due to digital transformation. Evaluate the challenges involved and propose strategies to reduce complexity.	CO1, CO2
(c)	Explain the components of a logistics network with a neat diagram. What factors influence the strategic location of warehouses?	
Q2	**(20 marks)**	
(a)	A retail company is facing high logistics cost due to improper warehouse placement. Design a logistics network and justify your warehouse location decisions using relevant SCM principles.	CO2, CO3
(b)	How do supply chain drivers support the link between supply chain strategy and business (competitive) strategy?	
(c)	Analyze how JIT (Just-in-time) inventory philosophy reduces working capital requirements. Discuss risks involved.	
Q3	**(20 marks)**	CO3, CO4
(a)	What is forecasting? Explain the types of forecasting methods and their use in supply chain planning.	
(b)	What do you mean by facility location? Discuss the factors that guide location choice and capacity planning in a supply chain network.	
(c)	Evaluate the effectiveness of dark stores and micro-fulfillment centers in same-day delivery models.	
Q4	**(20 marks)**	
(a)	Define Sales and Operations Planning (S&OP). Explain its steps and key benefits.	CO4, CO5
(b)	Analyze the impact of 3PL and 4PL partnerships on supply chain performance. Use real-life examples.	
(c)	What KPIs should be used to evaluate supplier performance in long-term strategic alliances?	

Graphic Era
HILL UNIVERSITY
Established by an Act of the State Legislature of Uttarakhand (Adhiniyam Sankhya 12 of 2011)
University under section 2(f) of UGC Act, 1956

End Term (Odd) Semester Examination September 2025

Q5	(20 marks)	
(a)	Explain Relational Database Management System (RDBMS) with SCM-related examples. Explain how ERP systems integrate various supply chain functions.	**CO5, CO6**
(b)	The demand for an item is 15,000 units per annum and the unit cost is Rs. 150. For a unit, inventory interest cost is 12% and storage cost is 17%. Set up cost is Rs.1550 per order. Calculate the optimal order quantity.	
(c)	Discuss the role of decision support systems (DSS) in SCM decision making. Explain e-commerce strategies that enable world-class supply chain management.	