Graphic Era HILL UNIVERSITY
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University under section 2(f) of UGC Act, 1956

End Term (Even) Semester Examination May-June 2025

Roll no.....

Name of the Program and semester: **MBA Semester 4**
Name of the Course: **Lean Supply Chain Management**
Course Code: **MB401 (SC)**

Time: 3 hours Maximum Marks: 100

Note:

(i) This question paper contains two Sections-Section A and B
(ii) Both Sections are compulsory
(iii) Answer any two sub questions from a, b & c in each main question of Section A. Each sub question carries 10 marks.
(iv) Section B, consisting of a case study, is compulsory. It is of 20 Marks.

Section A

Q1. (2X10=20 Marks)

a. Write the differences between Lean and TPS. How do their foundational philosophies affect supply chain performance? (CO1)
b. Analyze the impact of the seven deadly supply chain wastes on operational efficiency with current industry examples. (CO3)
c. Explain how the pillars of TPS contribute to creating resilient supply chains. (CO1)

Q2. (2X10=20 Marks)

a. Trace the evolution of Just-in-Time and explain its integration into Lean Manufacturing strategies. How has it influenced inventory practices? (CO2)
b. Investigate the application of Lean principles in the pharmaceutical and automobile sectors. What are the major comparative insights? (CO3)
c. Discuss the significance of OEE in diagnosing operational bottlenecks and propose improvements. (CO2)

Q3. (2X10=20 Marks)

a. Analyze the relationship between lead time and process efficiency in lean supply chains. How can technology reduce lead time? (CO4)
b. Examine how small lot sizes and the Pull system support JIT in pharmaceutical production. (CO4)
c. Assess the effectiveness of 5S and MSA in minimizing process variation and enhancing quality. (CO5)

Q4. (2X10=20 Marks)

a. Propose a transformation plan for a traditional manufacturer moving towards lean. What cultural shifts are necessary? (CO5)
b. Analyze how integrating Lean and Six Sigma can strategically benefit pharmaceutical firms managing regulatory pressures. (CO5)
c. Develop a value stream mapping approach to optimize the packaging line of a pharmaceutical unit. (CO5)

Section B

Q5. Case Study [CO 5] (20 Marks)

PharmaCare Ltd. – A Journey Toward Lean Excellence

PharmaCare Ltd. is a mid-sized pharmaceutical company located in Northern India, engaged in the manufacturing of both generic and branded medications. Over the past five years, the company has

experienced substantial growth in demand for its chronic care drugs, resulting in expanded production capacity. However, with growth came several operational challenges that have begun to impact both profitability and regulatory compliance.

Key issues include excessive work-in-process (WIP) inventory due to inefficient batch scheduling, poor layout planning leading to unnecessary movement of materials, and high lead times for fulfilling distributor orders. Moreover, PharmaCare has frequently struggled with quality deviations during audits, mainly because of inconsistencies in process documentation and a lack of standard operating procedures across departments.

Despite initiating basic Lean practices such as implementing 5S in select units and introducing visual boards, the company has not seen sustainable improvements. Production managers cite resistance to change, siloed decision-making, and inadequate training as major obstacles. In response, the senior management has committed to a company-wide Lean transformation program that integrates Lean and Six Sigma principles.

The proposed roadmap includes extensive employee training, identification of critical value streams in the production and supply chain functions, and pilot implementation in the packaging department. The aim is to transition from batch-oriented manufacturing to a flow-based system, reduce the average lead time from 18 days to 7 days, and achieve a 25% improvement in Overall Equipment Effectiveness (OEE) over the next year. Additionally, the company is exploring the use of value stream mapping and digital tools to monitor performance and compliance metrics in real-time.

PharmaCare's leadership expects this transformation not only to optimize operational efficiency but also to ensure higher levels of regulatory compliance and customer satisfaction, especially in international markets where stricter standards are enforced.

Q5a. Analyze the root causes of inefficiencies in PharmaCare's supply chain and suggest Lean tools to address them. (CO5) 10 Marks

Q5b. Propose a Lean Six Sigma strategy for achieving regulatory compliance while maintaining cost efficiency at PharmaCare. (CO5) 10 Marks