

<b>Trimester: September 2024 – January 2025</b> <b>Examination: End Term Examination</b>		
<b>Programme code: 01</b> <b>Programme: Master of Business Administration</b> <b>(Operations-Major)</b>	<b>Class: SY</b>	<b>Trimester: V</b> <b>(SVU 2024)</b>
<b>Name of the Constituent College:</b> <b>K. J. Somaiya Institute of Management</b>	<b>Name of the department/Section/Center:</b> <b>Operations Management</b>	
<b>Course Code: 217P01C522</b>	<b>Name of the Course:</b> Sustainable Supply Chain Management (Major)	

**Maximum Marks: 25**
**Time: - 1.5 hours**
**Date: 14/1/2025**
**Notes:**
**1. Question No. 1 is compulsory.**
**2. Answer any three questions from Question 2 to Question 5.**

Question No.		Max. Marks
Q1.	<p>GreenLeaf Paper Mills, a leading paper manufacturer in India, supplies paper products to publishing houses, packaging companies, and office supply chains. Historically, the company's operations have been resource-intensive, heavily reliant on virgin wood pulp, large amounts of water and energy for production. With increasing environmental concerns and regulatory pressure, GreenLeaf's leadership recognised the need to transition toward a sustainable supply chain. The company also faced scrutiny from international clients requiring adherence to sustainability certifications such as the Forest Stewardship Council (FSC) and ISO 14001.</p> <p>Greenleaf's primary challenges included:</p> <p>Deforestation and Supply Chain Risks: Over-reliance on virgin wood pulp led to sourcing issues and environmental degradation.</p> <p>Water and Energy Consumption: The paper industry is water-intensive, and energy demands lead to high carbon emissions.</p> <p>Waste Generation: Non-recyclable byproducts and untreated effluents were impacting local ecosystems.</p> <p>Regulatory Compliance: Adhering to stricter sustainability standards without compromising production efficiency or profitability.</p> <p>Greenleaf's leadership set ambitious goals to:</p> <p>Reduce their carbon footprint by 30% over three years.</p>	10

	<p>Incorporate at least 50% recycled content in their products.</p> <p>Minimise water usage by improving wastewater recycling.</p> <p>Greenleaf implemented a multi-pronged approach to develop a sustainable supply chain:</p> <p>Partnered with FSC-certified suppliers to procure responsibly managed wood pulp.</p> <p>Collaborated with small-scale farmers to grow fast-growing bamboo and eucalyptus as alternative raw materials.</p> <p>Developed a closed-loop system by collecting and recycling post-consumer paper waste.</p> <p>Installed state-of-the-art deinking technology to improve the quality of recycled paper.</p> <p>Invested in zero liquid discharge (ZLD) systems to recycle wastewater for reuse in production.</p> <p>Reduced freshwater dependency by 25% within a year through water treatment technologies.</p> <p>Transitioned to renewable energy sources like biomass boilers and solar energy to reduce carbon emissions.</p> <p>Optimized production processes through lean management to minimize energy wastage.</p> <p>Adopted blockchain technology to ensure transparency in tracking sustainable sourcing practices.</p> <p>Partnered with suppliers and customers to create awareness about sustainable paper use and recycling.</p> <p>After two years of implementation, GreenLeaf Paper Mills achieved the following outcomes:</p> <p>60% of raw materials were sourced from recycled paper or FSC-certified suppliers.</p> <p>Developed long-term supplier relationships, ensuring steady and ethical raw material availability.</p> <p>Reduced water consumption by 30% and energy-related emissions by 35%.</p> <p>Increased wastepaper recovery rates to 70%, contributing to circular supply</p>	
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	<p>chain goals.</p> <p>Gained new contracts from international clients requiring FSC certification.</p> <p>Improved profitability through cost savings on virgin pulp and water expenses.</p> <p>However, GreenLeaf still faced challenges, including:</p> <p>Educating local suppliers on sustainable practices. Managing the higher costs of adopting and maintaining clean technologies. Scaling circular economy initiatives across rural and urban markets.</p> <p>Based on the above, please answer the questions below</p> <p>i) What were the critical steps GreenLeaf Paper Mills is taking to create a sustainable supply chain?</p> <p>ii) How can GreenLeaf balance cost pressures while investing in green technologies?</p> <p>iii) What role does collaboration with suppliers and customers play in promoting sustainability?</p> <p>iv) Identify additional strategies for improving circularity in Greenleaf's supply chain.</p>	
Q2	Define circular supply chains and provide an example from any industry.	5
Q3	How can adopting green procurement policies improve sustainability outcomes in a supply chain?	5
Q4	Do you think government regulations or consumer pressure is more effective in driving supply chain sustainability? Why?	5
Q5	Analyse the advantages and limitations of rail freight and water freight over road-based freight systems for achieving sustainability	5