GALGOTIAS UNIVERSITY

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# School of Business

**Master of Business Administration MBA Dual Specialization**
**Semester End Examination - May 2024**

**Duration : 180 Minutes**
**Max Marks : 100**

**Sem IV - MSB22T2009 - Sustainable and Resilient Supply Chain**

*General Instructions*
*Answer to the specific question asked*
*Draw neat, labelled diagrams wherever necessary*
*Approved data hand books are allowed subject to verification by the Invigilator*

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| **1)** | Identify the role of disruptive technologies in shaping the future of sustainable procurement. Provide insights into how technologies like blockchain and AI can enhance transparency and accountability in supplier selection. | K3 | (6) |
| **2)** | As a sustainability analyst at Coca-Cola, examine the specific tools and techniques employed by the company to enhance the impact of sustainability reporting on building trust among consumers and stakeholders. Explore how Coca-Cola strategically utilizes concepts such as the Global Reporting Initiative (GRI) framework, and the Task Force on Climate-related Financial Disclosures (TCFD) guidelines. Provide practical examples of how Coca-Cola effectively communicates its sustainability efforts through these tools and techniques. | K4 | (8) |
| **3)** | In your role as a logistics specialist at DHL, Examine the specific concepts, tools, and techniques employed by the company to derive lessons from the COVID-19 crisis regarding sustainable transportation and logistics practices. Explore how DHL integrates these lessons into its supply chain strategies, focusing on practical applications. Provide recent industry examples that showcase DHL's successful implementations and the specific concepts, tools, and techniques employed, along with lessons learned. | K4 | (8) |
| **4)** | Examine how reverse logistics and product take-back programs contribute to implementing closed-loop supply chain systems. Provide a recent industry example to support your explanation. | K4 | (4) |

**5)** In your role as a regulatory compliance manager, Identify the significance of implementing compliance best practices to effectively navigate supply chain regulations, focusing on the company Apple Inc. Explore how companies like Apple proactively address regulatory requirements, mitigate risks, and enhance corporate reputation through robust compliance frameworks. Delve into specific concepts, tools, or techniques employed by Apple to ensure compliance with supply chain regulations, such as supplier auditing processes, risk assessment methodologies, and transparency initiatives like the Conflict Minerals Reporting Template (CMRT). Provide practical examples of Apple's excellence in supply chain compliance, highlighting initiatives like the Supplier Code of Conduct and Supplier Responsibility Standards, which promote ethical labor practices, environmental sustainability, and responsible sourcing.

K3 (9)

**6)** Case- Ambition 2025: Kellogg's- Kellogg's has moved to responsibly sourced corn for all Kellogg's Corn Flakes sold across Europe, including the UK. The claim 'made with responsibly sourced corn' is now prominent on all packs. The criteria to determine whether the corn is responsibly sourced are grouped into three categories: environmental, social, and governance. The environmental criteria include, amongst others, the following: • 100% of the acres used to produce corn for Kellogg's Corn Flakes are measured against these criteria, with the goal of demonstrating continuous improvement. • The farmer has implemented conservation practices, including conservation tillage, cover crops, buffer strips, and conservation irrigation practices. • All farmers must have an integrated pest management plan, be committed to zero deforestation, and have 100% legal right to farm the lands. • The farmer must have conducted an Environmental Risk Assessment. The cereal company has verified that environmental and social best practices have been implemented by farmers and suppliers who provide the corn for Kellogg's Corn Flakes. Corn is the main – of only four – ingredients in the cereal and is a special variety grown by Farmers in Argentina, where the conditions are ideal for this crop to thrive. 67 million packs of Kellogg's Corn Flakes are produced every year on average at the Kellogg's Manchester factory for the UK market. 28 million bowls of Kellogg's Corn Flakes are eaten every day in the UK – one billion bowls a year. Kellogg's is committed to responsibly sourcing its top 10 priority ingredients by 2020. This move to responsibly sourced corn is a key way of meeting that objective.

K5 (10)

Ques-1. Evaluate how has Kellogg's ensured the responsible sourcing of corn for its Corn Flakes in Europe, including the UK? (3 Marks)

Ques-2. Evaluate the specific environmental criteria Kellogg's requires farmers to meet in the production of corn for cornflakes. (3 Marks)

Ques-3. Evaluate how does Kellogg's move to responsibly sourced corn contributes to its sustainability goals. (2 Marks)

Ques-4. Assess the significance of Kellogg's decision to source corn from Argentina for its Corn Flakes production. (2 Marks)

7) Case- Tackling Greenhouse Gas Emissions from Coal-fired Power Generation K5 (10)

Industry-government co-operation on the use of coal in China
Individual companies can take the initiative in promoting sustainable development, as these case studies illustrate; but, in some areas, governments must take the lead, supported by industry expertise. For example, how China and India use coal in the future will be possibly the single most significant influence determining the success of global climate policies.

China's hard coal consumption grew by 55% between 2000 and 2004 to 1.9 billion tonnes. With 500 coal-fired units planned to come online over the next ten years, the surge in China's coal production, use, and trade is set to continue. The Australian coal industry is actively promoting the sustainable use of coal in China by agreeing to form an Australian Coal Mine Safety task force to exchange expertise with the Chinese State Administration of Work Safety. The first meeting of the industry task force with Chinese representatives was held in August 2005. In the words of the Hon Ian Macfarlane MP, Minister for Industry, Tourism and Resources, announcing the establishment of the task force "… Australia can offer more than just raw materials to fuel China's growth and development … our nations can trade ideas and expertise as much as we can goods and services."

Ques 1. How is industry-government cooperation addressing China's growing coal consumption, Determine what initiatives are being undertaken to promote sustainable coal usage, such as the Australian Coal Mine Safety task-force? (2 Marks)

Ques 2. Evaluate what role the Australian coal industry plays in facilitating knowledge exchange with China's State Administration of Work Safety to promote safer and more sustainable coal mining practices? (2 Marks)

Ques 3. Determine how significant is China's coal consumption in shaping global climate policies, and what implications this has for industry-government collaboration in promoting sustainability? (3 Marks)

Ques 4. Justify according to Minister Ian Macfarlane, what opportunities exist for Australia and China to exchange expertise and ideas beyond raw material trade to support China's growth and development? (3 Marks)

8) Case: Implementing Circular Economy Practices K5 (15)

Introduction: In recent years, the concept of a circular economy has gained significant attention as a viable strategy for achieving sustainable development goals. Unlike the traditional linear economy, which follows a 'take-make-dispose' model, a circular economy aims to keep resources in use for as long as possible, extract maximum value from them, and then regenerate products and materials at the end of their service life. This case study explores the implementation of circular economy principles by Company X, a leading manufacturer in the automotive industry.

Company X Background: Company X is a multinational automotive company known for its commitment to innovation and sustainability. With operations spanning across several continents, the company produces a wide range of vehicles, including cars, trucks, and electric vehicles. Recognizing the environmental challenges posed by traditional manufacturing processes, Company X has embarked on a journey to integrate circular economy practices into its operations.

Challenges Faced: Like many players in the automotive industry, Company X faced several challenges related to resource scarcity, waste generation, and environmental pollution. Traditional manufacturing processes resulted in significant material waste, energy consumption, and carbon emissions. Moreover, the linear nature of the industry's supply chain posed challenges in terms of resource efficiency and product end-of-life management.

Strategy and Implementation: To address these challenges, Company X adopted a holistic approach to integrate circular economy principles into its business operations. The key elements of their strategy included:

Design for Circular Economy: Company X prioritized product design that emphasizes durability, modularity, and recyclability. By designing products with disassembly and remanufacturing in mind, the company aimed to extend the lifespan of its vehicles and minimize resource consumption.

Closed-Loop Supply Chains: Company X collaborated with suppliers to establish closed-loop supply chains, where materials and components are reused or recycled at the end of their life cycle. This involved sourcing recycled materials, such as aluminum and plastics, for use in vehicle manufacturing, as well as implementing take-back programs for end-of-life vehicles.

Remanufacturing and Refurbishment: Company X invested in remanufacturing facilities to refurbish and repair used components and parts. By extending the life of critical components, such as engines and transmissions, the company reduced the demand for new materials and minimized waste generation.

Collaborative Partnerships: Company X forged partnerships with other stakeholders, including government agencies, research institutions,

and non-profit organizations, to drive innovation and scale circular economy initiatives. These partnerships facilitated knowledge sharing, technology transfer, and policy advocacy efforts.

Results and Impact: The implementation of circular economy practices yielded several positive outcomes for Company X:

Reduction in Material Waste: By prioritizing resource efficiency and closed-loop supply chains, Company X significantly reduced material waste generated during the manufacturing process.

Cost Savings: Adopting circular economy practices led to cost savings through the use of recycled materials, remanufactured components, and more efficient resource utilization.

Enhanced Brand Reputation: Company X's commitment to sustainability and circular economy principles enhanced its brand reputation, attracting environmentally conscious consumers and investors.

Environmental Benefits: The transition to circular economy practices resulted in reduced greenhouse gas emissions, energy consumption, and environmental pollution, contributing to broader sustainability objectives.

Conclusion: Company X's journey towards implementing circular economy practices demonstrates the potential of this approach in achieving sustainable development goals within the automotive industry. By prioritizing resource efficiency, waste reduction, and collaboration, the company not only improved its environmental performance but also unlocked new opportunities for innovation and growth. As the global economy continues to grapple with sustainability challenges, the case of Company X serves as a compelling example of how businesses can leverage circular economy principles to drive positive change.

Ques 1. Evaluate how Company X integrated circular economy principles into its product design process, and what specific features were emphasized to enhance durability and recyclability? (3 Marks)

Ques 2. Evaluate the collaborative partnerships forged by Company X to drive innovation and scale circular economy initiatives? What were the key stakeholders involved, and how did these partnerships contribute to the company's sustainability goals? (4 Marks)

Ques 3. Assess the measurable outcomes and impacts of Company X's adoption of circular economy practices? How did these practices lead to reductions in material waste, cost savings, and improvements in environmental performance? (4 Marks)

Ques 4. Evaluate in what ways Company X's commitment to circular economy principles enhances its brand reputation and appeal to environmentally conscious consumers and investors? Can you provide examples of marketing or communication strategies used to communicate these initiatives effectively? (4 Marks)

9) CASE - Amazon.com, Inc.: Tackling Challenges and Building Resilience amidst the Covid-19 Pandemic- "On May 1, 2020, American multinational conglomerate and technology company Amazon.com Inc. (Amazon) reported that for the first quarter ended April 30, 2020, it had recorded revenues of US$75.4 billion. The e-commerce giant reported a 26% increase in sales from the same period in 2019. The increase was attributed to the novel COVID-19 pandemic that had forced hundreds of millions of people stuck in lockdowns to remain indoors and turn to retailers for their essentials and entertainment. Amazon, founded by Bezos in 1994, started as an online bookstore. In 1997, it went public and was valued at US$300 million. In 1998, it began selling music DVDs or videos. The music section started with 125,000 titles. In 1999, the company started the sales of home-improvement products, software, video games, and gift items. In 2000, Amazon started its operations for the first time abroad – in Japan. In 2002, it took advantage of its infrastructure investment by venturing into cloud computing with the unveiling of Amazon Web Services. The same year, it started selling apparel online. The following year, the company started selling health and personal care products, gourmet foods, and sporting and outdoor goods. It also launched an electronics store...The COVID-19 outbreak that started in December 2019 in Wuhan, China, soon spread to countries across the world and led to consumers and businesses taking precautions to prevent transmission of the disease. Many were forced to stay indoors. While this affected many industries, Amazon experienced a surge in orders for delivery with consumers spending US$11,000 every second on buying products or services on the company's e-commerce platform. Analysts felt that Amazon, which was already a hit with consumers shopping online and which controlled 40% of all the online retail sales in the US, as of March 2020, was better positioned to tackle the crisis due to its e-commerce prowess and its cloud computing arm, Amazon Web Services. Though the initial months of the pandemic led to sales increases due to a spike in demand, the retailer was facing issues with delivery fulfillment. Product delivery was taking weeks or even months due to a surge in demand resulting from panic buying by consumers. The company was also facing issues with its supply chain. Amazon and its founder, Jeff Bezos, also attracted the ire of its warehouse workers who alleged that the company was putting their safety at risk by continuing operations. They alleged that Amazon was not being transparent about the COVID-19 cases in its facilities and that it was slow to provide them with personal protective equipment (PPE). Some of the workers complained that the retailer was risking their lives, forcing them to work during the pandemic in a bid to keep its stores running when most people were being asked to stay indoors. The retailer was also criticized by US Senators for allegedly firing whistleblowers who

K6 (18)

had raised concerns over warehouse conditions during the pandemic. With these being the early days of the pandemic, some analysts opined that it could be a tough road ahead for Amazon as the company would have to grapple with the full impact of the COVID-19 pandemic.

Ques-1 Discuss the issues and challenges faced by Amazon in delivering essentials to consumers during the pandemic and explore strategies on how Amazon can tackle the challenges. (6 Marks)

Ques-2 Discuss strategies employed to balance its need to build resilience in its supply chain and logistics to serve customers with the need to protect its employees and customers. (6 Marks)

Ques-3 Elaborate on the strategy Amazon can use in the future to come out of this public health crisis. (6 Marks)

**10)** Case- UN SDGs goals K6 (12)

One of the key duties of Chile's National Board of Student Aid and Scholarships (JUNAEB) is to provide food for vulnerable young students. With large numbers of eligible students and limited administrative personnel, that is no easy task. In 2018, JUNEAB's School Meals Program (SMP) budget reached close to US$110 million, with food being delivered to over 3 million students in 8,000 schools across the country. As part of its quest to orchestrate a brighter world through tailored social value creation, NEC was keen to help customize a more functional, efficient, and easily scalable school meal distribution system that would contribute to the country's long-term development. Working together with various project stakeholders, NEC Chile offered advanced biometric identification technologies to help accurately verify and validate eligible recipients, trace the correct delivery of designated supplies, minimize waste, and monitor student nutritional intake.

Administering a nationwide SMP system posed several significant challenges, starting with the safe but accurate identification of eligible beneficiaries. To date, JUNAEB paid food providers monthly based on manual certifications carried out by schools and educational facilities that suffered an estimated 10% margin of error. With the majority of beneficiary schools located in rural areas, introducing cloud-connected technology was a vital requirement for the efficient running of the meal distribution project and the consistent development of recipient schools. There was also a pressing need to monitor children in dining rooms more closely to improve daily demand predictions and inventory management, and nurture more intelligent, efficient food supplier operations. A biometric identification solution was the best way to address these issues. JUNAEB School Meals Program (SMP) Integrated Biometry Solution.

Drawing on its extensive experience as a successful integrator, NEC Chile enlisted suppliers from Asia, South America and Europe to help tailor a facial and fingerprint identification solution to improve the SMP program reach, efficiency and visibility. NEC developed two styles of biometric authentication equipment to suit differing school sizes and free meal distribution systems: 1) a fixed recipient verification terminal that issues a physical voucher for large schools with large numbers of recipients, and 2) a mobile solution for smaller schools and emergency backup. A central, cloud-based platform monitors and manages all installed equipment and generate reports for JUNAEB and food suppliers to help maximize the visibility of benefit distribution, the traceability of beneficiaries, the allocation of resources, and the individual nutritional value of its school meal provision. "NEC has 100 years of experience in ICT, but this project has taught us that deploying innovative technology solutions to positively impact an environment is the way to create social value, and that co-creation is

the way of the future. The more minds, the better!" explains Hervé Delhumeau, Head of Technology, NEC Chile.

NEC's integrated biometric system for identifying eligible SMP program beneficiaries is already helping JUNAEB and food suppliers better control food inventory and processing to maximize resource use and ensure the nation's most vulnerable children receive the food and nutritional balance they need. JUNEAB is now combining accumulated data on children enter dining rooms every day with available food types to improve its menus and deliver tastier, more attractive food options. JUNAEB's ultimate goal is to provide healthy nutrition to promote student growth during vital school years and early life stages. NEC is proud to be a part of that goal. JUNAEB intends to accelerate the implementation of biometric verification technology in its SMP in 2019 to cover all eligible schools. NEC Chile's CEO Gabriel Martinez broadens the horizon even further: "Driving this first system in the region to a successful outcome should create a new opportunity to help millions of families and students across Latin America and other emerging countries worldwide." The initiative has already sparked the interest of the World Food Program for potential implementation in Colombia.

Ques 1. Elaborate how NEC's biometric identification solution helped address the challenges faced by Chile's National Board of Student Aid and Scholarships (JUNAEB) in efficiently administering the School Meals Program (SMP), particularly in accurately verifying eligible beneficiaries and minimizing errors in food distribution? (3 Marks)

Ques 2. Discuss specific types of biometric authentication equipment developed by NEC Chile for the SMP, and how they cater to the varying needs of different-sized schools and distribution systems? (3 Marks)

Ques 3. Elaborate on the role of the central, cloud-based platform in monitoring and managing the biometric authentication equipment deployed across schools, and how it contributes to maximizing the efficiency and transparency of benefit distribution and resource allocation within the SMP? (3 Marks)

Ques 4. Elaborate on how the integration of NEC's biometric system impacted JUNAEB's ability to control food inventory, enhance menu planning, and ensure the nutritional needs of vulnerable children are met within the SMP? (3 Marks)