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Question Paper Code :MB2504

MBA DEGREE EXAMINATION APRIL/ MAY 2026

Second Semester

25MBC204- Operations Management

(Regulation: 2025)

Time : 3 Hours

Answer ALL Questions

Max. Marks 100

PART-A (10 x 2 = 20 Marks)

1. Define Operations Management.
2. Outline the meaning of strategic fit.
3. Recall the meaning of capacity.
4. Summarize the characteristics of vendors.
5. List the types of demand forecasting.
6. Discuss the importance of synchronous manufacturing
7. Define Quality.
8. Discuss the elements of JIT.
9. State the significance of smart factories.
10. Describe the meaning of Resilience.

Part – B (5 x 13 = 65 marks)

11. a) Discuss the historical development of Operations Management from early production systems to modern practices.
OR
- b) Summarize the relationship between productivity and organizational performance.
12. a) Interpret the impact of location on cost and profitability.
OR
- b) Choose the best facility location using suitable models and justify your decision.
13. a) Demonstrate the product design process with a real-world example.
OR
- b) Schedule the activities involved in product development lifecycle.
14. a) Interpret the differences between qualitative and quantitative forecasting methods with suitable examples.
OR
- b) Use the effectiveness of scheduling under different demand conditions.

15. a) Demonstrate the core principles of TQM philosophy.

OR

- b) Choose the concept of Six Sigma and explain its principles and objectives.

PART C (1 X 15 = 15)

16. a) Tata Motors, a leading player in the global automobile industry, has undertaken a comprehensive transformation of its operations to remain competitive in a rapidly evolving business environment. The company has embraced digital transformation by implementing Industry 4.0 technologies such as IoT-enabled machinery, robotics, and AI-driven analytics to develop smart factories with real-time monitoring and predictive maintenance capabilities. In line with environmental concerns, it has focused on sustainable operations and green manufacturing, promoting electric vehicles and adopting energy-efficient, waste-reduction practices. To enhance decision-making, the firm leverages operations analytics for demand forecasting, quality improvement, and process optimization. Additionally, the integration of blockchain technology in supply chains has improved transparency, traceability, and supplier coordination. The company has also strengthened resilience and risk mitigation by diversifying suppliers and improving digital visibility across the supply chain, especially in response to global disruptions. Its global operations strategy emphasizes localization with standardization to cater to diverse markets, while its service operations are designed for scalability through digital platforms and customer-centric approaches. Despite these advancements, the company faces challenges such as high implementation costs, technological complexity, and the need for continuous innovation.

Appraise the effectiveness of digital transformation, sustainable practices, and advanced technologies such as Industry 4.0, operations analytics, and blockchain in improving operational efficiency and resilience in the above case. Based on your analysis, recommend and justify the key priorities for future operations strategy.

OR

- b) Walmart, one of the world's largest retail chains, adopted blockchain technology in its supply chain to improve transparency, traceability, and food safety. Traditionally, tracking the origin of food products like fruits and vegetables took several days due to fragmented data systems and lack of coordination among suppliers. To overcome this, Walmart partnered with IBM to implement a blockchain-based system using IBM Food Trust. This system enabled real-time tracking of products from farm to store, allowing stakeholders such as farmers, distributors, and retailers to access shared, tamper-proof data. As a result, the time taken to trace the origin of products was reduced from days to seconds, significantly improving supply chain efficiency and responsiveness. The system also enhanced risk mitigation and resilience by enabling faster recalls in case of contamination, thereby protecting consumer safety and brand reputation. Additionally, blockchain improved trust among supply chain partners and reduced fraud. However, the company faced challenges such as high implementation costs, technological complexity, resistance from small suppliers, and the need for standardization across global operations. Despite these issues, blockchain has proven to be a transformative tool in creating a more transparent, efficient, and reliable supply chain.

Assess the role of blockchain technology in improving supply chain transparency, efficiency, and risk mitigation in the above case. Appraise its benefits and limitations, and recommend whether such systems should be widely adopted across global supply chains with suitable justification.