

**Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
(GIET UNIVERSITY)**



M.B.A. (Fourth Semester) Regular Examinations, April – 2026

**23MBASM24031 – Management of Manufacturing Systems
(Supply Chain Management)**

Time: 3 hrs

Maximum: 60 Marks

(The figures in the right hand margin indicate marks.)

PART – A

(2 x 5 = 10 Marks)

Q.1. Answer **ALL** questions

	CO #	Blooms Level
a. Define a manufacturing system and list its basic components.	CO1	K1
b. State the concept safety stock.	CO2	K2
c. What is Root Cause Analysis?	CO3	K2
d. Define Value Stream Mapping (VSM).	CO4	K1
e. Give one example of Industry 4.0 technology.	CO5	K1

PART – B

(10 x 5 = 50 Marks)

Answer **all the** questions

	Marks	CO #	Blooms Level
2. a. A small furniture manufacturing unit is facing delays in delivery and high production costs. Analyze the situation using Production flow analysis and Facility layout planning Suggest improvements to increase efficiency and reduce cost.	5	CO1	K4
b. A company producing smartphones wants to compete in a highly dynamic market with frequent design changes. Suitable manufacturing process and Role of flexible manufacturing systems (FMS).	5	CO1	K3
OR			
c. An automobile manufacturer plans to shift from traditional production to automated manufacturing. Evaluate Benefits and challenges of automation, Impact on productivity and workforce with Role of robotics in modern manufacturing system.	10	CO1	K4
3. a. An E-commerce company is tie up with a manufacturing company is who unable to meet customer demand due to poor planning and frequent stock outs. According to the situation suggest improvements using Production planning strategies, Demand management and Inventory management.	6	CO2	K4
b. Expand JIT, MRP, and ERP and Lead time reduction.	4	CO2	K1
OR			
c. Tesla launches a new electric car model, the Cyber truck , in a highly competitive global automobile market where demand is uncertain and influenced by factors such as pricing, government policies, and consumer preferences. Discuss: (Any two)	10	CO2	K4
- Forecasting methods (qualitative and quantitative) suitable for predicting demand for the Cyber truck. - Challenges in demand prediction in such a dynamic market. - Impact of demand uncertainty on production planning and capacity decisions.			
4. a. Toyota faces customer complaints due to recurring defects in one of its car models. Analyze the situation using, Root Cause Analysis with SPC tools.	5	CO3	K4

b.	A consumer electronics company wants to improve its market reputation through better quality for that The Principles of Total Quality Management (TQM) with employee involvement towards customer focus in competitive market.	5	CO3	K3
OR				
c.	A company wants to expand into international markets. Discuss Importance of ISO standards and Role of Quality Management Systems (QMS).	6	CO3	K3
d.	General Electric adopts Six Sigma to reduce defects in its manufacturing process. Evaluate the benefits of Six Sigma in defect reduction.	4	CO3	K4
5. a.	A plant struggles to maintain smooth production flow due to interruptions. Discuss the Methods to ensure smooth flow.	6	CO4	K3
b.	A company wants to measure its lean performance effectively. Explain Lean metrics (cycle time, takt time, throughput).	4	CO4	K2
OR				
c.	Case study Ford Motor Company is undertaking a large-scale transformation of its global manufacturing operations to adopt lean manufacturing principles across all its production plants. The company has been facing multiple operational challenges, including high production costs, excess inventory, long lead times, inefficient workflows, and inconsistent product quality. In addition, increasing global competition and rising customer expectations for faster delivery and better quality have put pressure on the company to improve its overall manufacturing performance. To address these issues, Ford plans to redesign its entire production system by eliminating waste, improving process efficiency, and creating a more flexible and responsive manufacturing environment. The transformation initiative includes mapping existing production processes, reorganizing shop floors for better workflow, implementing pull-based inventory systems, and integrating advanced quality management techniques. The company also aims to build a culture of continuous improvement by involving employees at all levels.	10	CO4	K4
Question: Analyze the above transformation plan in detail considering the following aspects:				
• Implementation of 5S and Kaizen practices to improve workplace organization and continuous improvement. • Use of Kanban and Just-in-Time (JIT) systems for inventory control and production flow.				
6. a.	A company wants to come up with an agriculture tool for farmers where he need to use 3D printing to visualize prototype new products and reduce lead times. Discuss the impact on product development and market competitiveness.	5	CO5	K3
b.	A manufacturing unit wants to integrate Industry 4.0 technologies across multiple plants, including AR/VR, IoT, and cloud computing. Discuss the Employee training and adaptation challenges.	5	CO5	K3
OR				
c.	A factory wants to adopt smart manufacturing technologies to monitor machines in real-time and predict failures. Explain the role of:	10	CO5	K3
• IoT devices and sensors • Advanced data analytics • Cyber-physical systems • Operational efficiency and reducing downtime.				
End of Paper				