19/6/25 FN

ADDITIONAL CONTROLLER OF EXAMINATIONS AU CHENNAI 600 025

B. E/ B.Tech DEGREE END SEMESTER EXAMINATIONS, JUNE 2025

ANNA UNIVERSITY, CHENNAI-600025

B.E-Manufacturing Engineering –R-2023

Second Semester

Course Code/Course Title: MF3201/MF23201 – BASICS OF MANUFACTURING ENGINEERING

Time: 3 Hrs. Answer all questions Max. Marks: 100

CO1 :	Understand the evolution and significance of manufacturing through its history and economic impact.
CO2 :	Analyze the successes and failures of the Manufacturing Organization.
CO3 :	Evaluate the impact of technological advances on manufacturing processes through the study of the factory system and mass production techniques.
CO4 :	Develop innovative solutions to improve manufacturing efficiency and productivity by examining the role of computers and lean production methodologies.
CO5 :	Apply knowledge of manufacturing history and contemporary practices to solve real-world challenges and address industry decline.

BL - Bloom's Taxonomy Levels (Guidelines)

(L1 - Remembering, L2 - Understanding, L3 - Applying, L4 - Analyzing, L5 - Evaluating, L6 - Creating)

Level of Questions		Lower Order (L1 and L2)	Intermediate Order (L3 and L4)	Higher order (L5 and L6)
Recommended Mark Distribution (%)	UG	20 to 35	Minimum 40	15 to 25

Part C question must be of High Order

Either OR Choices has to be of same order related to the same CO.

Sl. No.	PART-A (10 x2=20 Marks)	Marks	CO	BL
1.	What is the Manufacturer's Suggested Retail Price (MSRP)?	2	CO1	L2
2.	What is the primary objective of manufacturing engineering?	2	CO1	L1
3.	What is the main focus of the General Motors-Toyota NUMMI Joint Venture?	2	CO2	L1
4.	What did General Motors hope to gain from the partnership with Toyota in the NUMMI venture?	2	CO2	L2
5.	What were some key technological developments in early machine technology?	2	CO3	L2
6.	Why are plastics considered ideal for mass production?	2	CO3	L2
7.	How did the role of human operators change with the introduction of computer control?	2	CO4	L2
8.	What were the limitations of 1950s technology that hindered the development of NC machines?	2	CO4	L1

	What are some of the benefits of self-driving cars for users?	2	CO5	L2
10.	How does 3D printing compare to traditional techniques in terms of the complexity of parts that can be manufactured?	2	CO5	L2
	PART-B(5 x13=65 Marks)			
11(a) 2.	Describe the emergence of the technique of joining in manufacturing, particularly in the context of Homo sapiens and Homo neanderthalensis. How did Homo sapiens utilize joining techniques in the production of composite weapons?	13	CO1	L2
	Or			
11(b)	Examine the concept of economies of scale in manufacturing. What are its implications for production efficiency and cost reduction, and how does it differ from economies of scope?	13	CO1	L2
12(a)	Analyse the NUMMI joint venture's approach to culture change. How sustainable were the changes, and what alternative strategies could have been employed to ensure long-term success?	13	CO2	L4
	Or			
12(b)	Examine the case of NUMMI (New United Motor Manufacturing, Inc.) in the United States as a pioneering example of collaborative manufacturing between Toyota and General Motors.	13	CO2	L4
13(a)	Analyze the factors that contributed to Charles Goodyear's financial struggles despite his significant contributions to the rubber industry, considering both personal and external challenges.	13	CO3	L4
	Or			
13(b)	Critically analyze the statement: 'Electrification is among the most significant engineering achievements of the twentieth century.	13	CO3	L4
14(a)	Examine the limitations of a traditional MRP system in a manufacturing company and analyze possible alternative approaches to improve production planning.	13	CO4	L4
	Or			
14(b)	Analyze the impact of labor relations on the productivity and efficiency of a manufacturing company.	13	CO4	L4
15(a)	Assess the potential benefits and drawbacks of widespread adoption of self-driving shared cars in urban areas.	13	CO5	L4
	Or			
15(b)	Analyze the reasons for the success and failure of General Motors' investment in robotics during the 1980s.	13	CO5	L4
	PART-C (1 x15=15 Marks)			
16	Evaluate the long-term impact of Taylor's scientific management principles on modern industrial practices, considering both positive and negative aspects.	15	CO3	L5