

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY-GURUJADA VIZINAGARAM

III B. Tech I Semester Regular Examinations November -2025

DESIGN OF MANUFACTURING

(ME)

Time: 3 hours

Max. Marks: 70

The Question paper consists of Part A & Part B.

Part A is compulsory, Answer all questions. Part B Answers any one question from each unit.

1		PART-A	(20Marks)
	a)	Define DFMA and state its importance.	[2]
	b)	What are the effects of part symmetry in manual assembly?	[2]
	c)	List the factors affecting surface roughness in machining.	[2]
	d)	Define tolerance and its role in machining design.	[2]
	e)	What are the advantages of extrusion over casting?	[2]
	f)	What are the design considerations for sheet metal bending?	[2]
	g)	List the factors affecting thermal stresses in welded joints.	[2]
	h)	What is drop forging?	[2]
	i)	What are the advantages of automated assembly systems?	[2]
	j)	Define Multi-station assembly systems.	[2]
		PART-B	(50Marks)
		Unit - I	
2	a)	Explain the working of DFMA with suitable examples.	[5]
	b)	How do part symmetry, thickness and weight affect handling time in manual assembly.	[5]
		(OR)	
3	a)	Describe the systematic DFA methodology and its effect on assembly efficiency.	[5]
	b)	Discuss the reasons for not implementing DFMA in manufacturing.	[5]
		Unit - II	
4	a)	Discuss the general design rules for machining processes with examples.	[5]
	b)	Discuss the importance of surface roughness in machining.	[5]
		(OR)	
5	a)	Explain the redesigning of components for machining ease.	[5]
	b)	Give an overview of various machining processes.	[5]
		Unit - III	
6	a)	Explain the design considerations in casting processes and product design rules for sand casting.	[5]
	b)	Discuss the design guide lines for deep drawing.	[5]
		(OR)	
7	a)	Describe the design principles for extrusion process.	[5]
	b)	Briefly discuss about design for blanking.	[5]
		Unit - IV	
8	a)	Discuss the factors affecting design of weldments and thermal stresses in welded joints.	[5]
	b)	Explain the role of parting lines in drop forging die	[5]

		design.	
		(OR)	
9	a)	Explain the design factors in forging and closed die forging design.	[5]
	b)	Why pre and post treatment of welds are done? Explain.	[5]
		Unit - V	
10	a)	Explain the fundamentals of automated assembly systems and configuration types.	[5]
	b)	Compare multi-station and single station assembly systems.	[5]
		(OR)	
11	a)	Discuss quantitative analysis and evaluation of automated assembly systems.	[5]
	b)	What are escapement and placement devices in automated assembly.	[5]
