

U.S.N.

# B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

## June 2025 Semester End Main Examinations

Programme: B.E.

Semester: IV

Branch: Industrial Engineering & Management

Duration: 3 hrs.

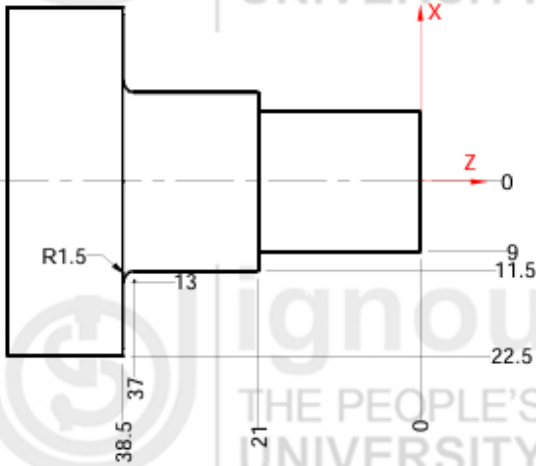
Course Code: 23IM4PCCIM

Max Marks: 100

Course: Computers in Manufacturing

**Instructions:** 1. Answer any FIVE full questions, choosing one full question from each unit.  
2. Missing data, if any, may be suitably assumed.

<b>Important Note:</b> Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.			<b>UNIT - I</b>	<b>CO</b>	<b>PO</b>	<b>Marks</b>
	1	a)	Discuss the different types of Computer aided process planning	CO1	PO1	10
		b)	Distinguish between CAD and CAM	CO1	PO1	10
			<b>OR</b>			
	2	a)	Discuss with the help of a block diagram, the concept of product life cycle	CO1	PO1	10
		b)	Explain the merits and demerits of automation process	CO1	PO1	10
			<b>UNIT - II</b>			
	3	a)	Discuss Adaptive Control with Optimization and adaptive Control with Constraints w. r. t Numerical Control	CO1	PO1	10
		b)	Discuss in detail the various applications of NC system	CO1	PO1	10
			<b>OR</b>			
	4	a)	Explain the classifications of the NC system	CO1	PO1	10
		b)	Discuss various types of power drives used and their applications.	CO1	PO1	10
			<b>UNIT - III</b>			
	5	a)	Explain turning tool geometry with a neat diagram and discuss its importance in machining.	CO1	PO1	10
		b)	What is a modular tooling system? Explain its advantages in flexible manufacturing systems.	CO1	PO1	10
			<b>OR</b>			

	6	a)	Explain the roles of different types of Tool Magazines in automation of the CNC industry.	CO1	PO1	10
		b)	What is an ATC? Explain the step-by-step working of an ATC in CNC milling centre?	CO1	PO1	10
			<b>UNIT - IV</b>			
	7	a)	Write short note on “Canned Cycles” in CNC part Programming.	CO2	PO2 PO5	05
		b)	Write any five preparatory ‘G’ code and any five miscellaneous ‘M’ code functions along with their formats.	CO2	PO2 PO5	10
		c)	Explain the need for tool length compensation in CNC part Programming and its utility.	CO2	PO2 PO5	05
			<b>OR</b>			
	8	a)	 <p>Write the CNC part programming for the above geometry</p>	CO2	PO2 PO5	12
		b)	Discuss tool radius compensation and tool length compensation used in CNC part programming with their advantages.	CO2	PO2 PO5	08
			<b>UNIT - V</b>			
	9	a)	Discuss common robot configurations used in industries	CO3	PO2 PO3 PO9 PO12	10
		b)	Discuss common robot programming methods used in industries	CO3	PO2 PO3 PO9 PO12	10
			<b>OR</b>			
	10	a)	Give the detailed description of applications of industrial robots and also list their limitations.	CO3	PO2 PO3 PO9 PO12	10
		b)	What is the role of interlocks and the use of sensors in a Robot? Explain.	CO3	PO2 PO3 PO9 PO12	10

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