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

Autonomous Institute Affiliated to VTU

June / July 2025 Semester End Main Examinations

Programme: B.E.

Branch: Mechanical Engineering

Course Code: 22ME5PENTM

Course: Non-Traditional Machining

Semester: V

Duration: 3 hrs.

Max Marks: 100

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

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.			UNIT - I	CO	PO	Marks
	1	a)	Explain the importance of non-traditional machining process and list any five differences between conventional and unconventional machining processes.	CO1	PO1	06
		b)	With a neat sketch, explain the process principle of ultrasonic machining.	CO1	PO1	08
		c)	Explain the process parameters of abrasive jet machining.	CO1	PO1	06
			OR			
	2	a)	Explain the influence of process parameters on the material removal rate in USM.	CO2	PO1	10
		b)	List the advantages, disadvantages and applications of abrasive jet machining process.	CO1	PO1	10
			UNIT - II			
	3	a)	Explain the process parameters of abrasive waterjet machining.	CO2	PO1	06
		b)	With a neat figure, explain the equipment details of abrasive flow machining.	CO2	PO1	10
		c)	List the advantages and disadvantages of abrasive flow machining.	CO2	PO1	04
			OR			
	4	a)	With a neat sketch, explain the principle of abrasive water cutting.	CO1	PO1	10
		b)	With a neat sketch, explain the principle of abrasive flow machining.	CO1	PO1	10

		UNIT - III			
5	a)	Explain with the help of a neat diagram, the main components of Electrochemical machining.	CO3	PO1	10
	b)	Explain the steps of chemical machining with a neat sketch.	CO3	PO1	10
		OR			
6	a)	With a neat sketch, explain the process principle of EDM.	CO3	PO1	08
	b)	List the advantages, disadvantages and applications of EDM process.	CO3	PO1	06
	c)	Explain with sketch the equipments of wire-EDM.	CO3	PO1	06
		UNIT - IV			
7	a)	Explain with the help of a neat sketch, the process principle of EBM.	CO3	PO1	08
	b)	Write a note on laser drilling, laser cutting, laser marking and laser welding.	CO3	PO1	12
		OR			
8	a)	With neat sketches, explain the machining system of PAC.	CO3	PO1	10
	b)	Explain with neat sketches, the process principle and equipments of TEM process.	CO3	PO1	10
		UNIT - V			
9	a)	With neat sketches, explain the FDM and LOM process.	CO4	PO1	10
	b)	With neat sketches, explain the solid ground curing and 3D printing process.	CO4	PO1	10
		OR			
10	a)	With neat sketch, explain selective laser sintering, state the advantages and limitations of it	CO4	PO1	10
	b)	What is rapid prototyping, state the classification, advantages and limitations of it.	CO4	PO1	10
