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EAST POINT COLLEGE OF ENGINEERING & TECHNOLOGY
An Autonomous Institution Affiliated to Visvesvaraya Technological University (VTU) Belagavi

USN | | | | | | | | | | |

24ME44

Fourth Semester B.E. Degree Examination, May 2026
NON-TRADITIONAL MACHINING

TIME:3 hrs. Max.Marks:100

Note: 1. Answer **any FIVE** full questions, choosing **ONE** question from **each MODULE.**
2. M: Marks, L: Bloom's level,C: Course outcomes.
3. Assume missing data suitably.

		Module-1	M	L	C
Q.1	**a**	What is non-traditional machining? Classify the modern machining processes based on the nature of energy employed.	**10**	**L2**	**CO1**
	b	Justify the need of unconventional manufacturing process in today's industries.	**6**	**L2**	**CO1**
	c	List the applications of NTM.	**4**	**L1**	**CO1**
		OR			
Q.2	**a**	List and explain the various factors to be considered for selection of machining processes in NTM.	**8**	**L2**	**CO1**
	b	Differentiate between conventional (traditional) and non-traditional machining processes with examples.	**6**	**L2**	**CO1**
	c	List any three advantages and limitations of NTM.	**6**	**L1**	**CO1**
		Module–2			
Q.3	**a**	Discuss the influence of the following parameters on USM process: (i) Amplitude and frequency of vibration. (ii) Grain size. (iii) Slurry (iv) Viscosity (v) Static load	**10**	**L2**	**CO2**
	b	Draw the schematic diagram of abrasive jet machining and explain its working principle. Also mention the advantages of AJM.	**10**	**L2**	**CO2**
		OR			
Q.4	**a**	What is Ultrasonic machining? With neat sketch, explain the main elements of ultrasonic machining process.	**10**	**L2**	**CO2**
	b	Explain the effect of following variables that influence material removal rate in abrasive jet machining: (i) Stand-off distance (ii) Types of abrasives (iii) Carrier gas (iv) Velocity of abrasive jet (v) Size of abrasive grain	**10**	**L2**	**CO2**
		Module–3			
Q.5	**a**	Describe various process parameters affecting ECM.	**10**	**L2**	**CO3**
	b	Explain with flow chart the chemical blanking process. Mention its applications.	**10**	**L2**	**CO3**
		OR			
Q.6	**a**	Explain with diagram, working of electro chemical grinding (ECG).	**8**	**L2**	**CO3**
	b	Explain in brief the following in chemical machining process: i) Maskants ii) Etchants	**8**	**L2**	**CO3**
	c	Differentiate between 'chemical milling' and chemical blanking'.	**4**	**L2**	**CO3**

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Module–4					
Q.7	**a**	Explain with a neat sketch, Electro-chemical Grinding (ECG).	**10**	**L2**	**CO4**
	b	Write down advantages, disadvantages and applications of chemical machining process	**10**	**L2**	**CO4**
OR					
Q.8	**a**	Differentiate between NTM and hybrid NTM.	**10**	**L2**	**CO4**
	b	With a neat sketch explain Electro Chemical honing.	**10**	**L2**	**CO4**
Module–5					
Q.9	**a**	Draw a neat sketch of a typical setup for Laser Beam Machining (LBM) and explain briefly.	**8**	**L2**	**CO5**
	b	Explain the principle of Electron beam machining.	**6**	**L2**	**CO5**
	c	State the advantages, disadvantages and applications of EBM.	**6**	**L1**	**CO5**
OR					
Q.10	**a**	Sketch and explain electron beam machining process.	**10**	**L2**	**CO5**
	b	Describe the apparatus used to generate laser	**10**	**L2**	**CO5**

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