

Code: 23ME4601B

**III B.Tech - II Semester - Regular Examinations – APRIL 2026****ADVANCED MANUFACTURING PROCESSES  
(MECHANICAL ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

Note: 1. This question paper contains two Parts A and B.

2. Part-A contains 10 short answer questions. Each Question carries 2 Marks.

3. Part-B contains 5 essay questions with an internal choice from each unit. Each Question carries 10 marks.

4. All parts of Question paper must be answered in one place.

BL – Blooms Level

CO – Course Outcome

**PART – A**

		BL	CO
1.a)	Classify NTM processes based on energy source.	L2	CO1
b)	Define Ultrasonic Machining (USM).	L2	CO1
c)	Identify nozzle material important in abrasive jet machining (AJM).	L2	CO1
d)	How does abrasive water jet machining (AWJM) differ from Water Jet Machining (WJM)?	L2	CO1
e)	Define Electro chemical grinding (ECG).	L2	CO2
f)	Write about an etchant in chemical machining.	L2	CO2
g)	Define discharge gap in Electric Discharge Machining (EDM).	L2	CO3
h)	List two advantages of EDM over conventional machining.	L2	CO3
i)	Explain any two types of Lasers.	L2	CO4
j)	Define stand-off distance in plasma arc machining (PAM).	L2	CO4

## PART – B

			BL	CO	Max. Marks
<b>UNIT-I</b>					
2	a)	Compare conventional and non-traditional machining.	L2	CO1	5 M
	b)	Explain the factors affecting process selection in NTM.	L2	CO1	5 M
<b>OR</b>					
3		Discuss process parameters influencing MRR and surface finish in ultrasonic machining (USM).	L2	CO1	10 M
<b>UNIT-II</b>					
4		Explain the Abrasive Jet Machining (AJM) process in detail with labeled diagram, process variables and metal removal mechanism.	L2	CO1	10 M
<b>OR</b>					
5	a)	Summarize the working principle of Abrasive Flow Finishing (AFF).	L2	CO1	5 M
	b)	Classify the factors influence MRR in abrasive water jet machining (AWJM).	L2	CO1	5 M
<b>UNIT-III</b>					
6		Relate the principle of electro stream drilling (ESD) and shaped tube electrolytic machining (STEM) including advantages, disadvantages and typical applications.	L3	CO2	10 M
<b>OR</b>					

7	a)	Interpret the principle of chemical machining (CHM).	L3	CO2	5 M
	b)	Prepare short notes on maskants and etchants used in chemical machining.	L3	CO2	5 M
<b>UNIT-IV</b>					
8		Interpret the Electric Discharge Grinding (EDG). Explain its working principle, advantages, limitations and applications.	L3	CO3	10 M
<b>OR</b>					
9	a)	Show the function of dielectric fluid and its properties.	L3	CO3	5 M
	b)	What are the major process parameters in Electric Discharge Machining (EDM) and how do they affect machining?	L3	CO3	5 M
<b>UNIT-V</b>					
10		Illustrate construction and working of laser beam machining (LBM) with advantages, limitations and applications.	L3	CO4	10 M
<b>OR</b>					
11	a)	Illustrate the working of Plasma Arc Machining.	L3	CO4	5 M
	b)	Articulate the theory of material removal in electron beam machining (EBM).	L3	CO4	5 M