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KAMALA INSTITUTE OF TECHNOLOGY & SCIENCE, SINGAPUR**23ME28PE611****III.B. Tech. II. Semester Regular Examinations, April/May- 2026****UNCONVENTIONAL MACHINING PROCESSES****(ME)****Time: 3 Hours****Max. Marks: 60**

Note: Question paper consists of Part-A & Part-B.

i) **Part-A** for 10M, ii) **Part-B** for 50marks

- Part A** is compulsory, consisting of 10 sub questions from all units carrying equal marks.
- Part-B** consists of **10 questions** (numbered from 2 to 11) carrying **10marks** each. From each unit there are 2 questions and the students should answer one of them. Hence the student should answer **5 questions** from **Part-B**.

PART-A (10Marks)			
Q. No	Questions	Marks	BTL
1.a)	What are the industrial needs for unconventional machining processes?	1M	1
1.b)	Why is unconventional mechanical machining not commonly used?	1M	1
1.c)	Name some of the most commonly used dielectric fluids in EDM.	1M	1
1.d)	List the desirable properties of a good dielectric fluid.	1M	1
1.e)	State the principle of chemical machining process.	1M	1
1.f)	What are the three different layers that can be identified in spark eroded surface?	1M	1
1.g)	Mention the operating range of AFM.	1M	1
1.h)	Compare the difference between one way and two way AFM.	1M	1
1.i)	What is rapid prototyping?	1M	1
1.j)	What are the materials used in rapid prototyping?	1M	1
PART-B (50Marks)			
Q.No	Questions	Marks	BTL
2. a)	List the unconventional machining process, which uses thermal machining or heat energy	3M	1
b)	Explain the applications, advantages limitations of USM.	7M	2
OR			
3. a)	Write a brief note on Types of transducers used in USM	4M	1
b)	Explain construction and working of ultrasonic machining (USM)	6M	2
OR			
4. a)	Write the Applications, Advantages, disadvantages and limitations of abrasive jet mechanism?	5M	1
b)	Explain the principle of Abrasive Water Jet Machining and its constructional details?	5M	2
OR			

5. a)	Assess the influence of current in MRR in EDM process.	5M	1
b)	Discuss the types of tool wear in EDM process.	5M	1
6. a)	Explain Electric discharge grinding with neat sketch?	4M	2
b)	Explain a neat sketch, explain the chemical machining process.	6M	2
OR			
7. a)	State the principle of chemical machining process.	3M	1
b)	What are functions of dielectric fluids and explain briefly?	7M	1
8. a)	Write the applications, advantages and disadvantages of CO2 laser?	5M	1
b)	Describe the parameters affecting the EBM performance process	5M	1
OR			
9. a)	Explain the construction and working of laser beam machining (LBM) with neat sketch?	5M	2
b)	Write about the magnetic abrasive finishing process working principle with a neat diagram.	5M	1
10.a)	What is fusion deposition modelling?	3M	1
b)	What is the working principle of plasma arc machining system (PAM)? Explain with a neat sketch?	7M	1
OR			
11.a)	Explain maskants and etchants?	3M	2
b)	Explain the advantages, disadvantages and limitations of electro stream drilling process?	7M	2

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