

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2025*****Fifth Semester******Mechanical Engineering*****CME387 - Non-traditional Machining Processes*****Regulations - 2021******Duration : 3 Hrs******Maximum : 100 Marks******PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)***

Q.No	Questions	BLT	CO	Marks
1.	Distinguish between traditional and non-traditional machining.	L2	1	2
2.	List the functions of transducers in ultrasonic machining.	L2	1	2
3.	Name the electrolytes which are used in electro chemical machining.	L1	2	2
4.	State the results due to improper selection of electrolyte in ECM.	L2	2	2
5.	What is an arc gap? How is the arc gap controlled in EDM?	L1	3	2
6.	Summarize the advantages of Plasma Arc Machining.	L1	3	2
7.	What is Nano finishing process?	L1	4	2
8.	List the types of surface finishing processes.	L1	4	2
9.	Why do we choose electric discharge diamond grinding?	L2	5	2
10.	List the needs for hybrid machining processes.	L1	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

Q.No	Questions	BLT	CO	Marks
11.	a i Illustrate the schematic layout of abrasive jet machine and explain wear rate of nozzle in AJM.	L3	1	8
	ii Explain the basic limitations of conventional manufacturing process.	L2	1	8
	OR			
	b i Explain the principles, equipment, transducer, tool holders, tools, abrasives, applications and advantages of Ultrasonic Machining.	L3	1	8
	ii Justify the need of unconventional manufacturing process in today's industries.	L2	1	8
12.	a i With a neat sketch, explain the principle of electro-chemical grinding.	L3	2	8
	ii Explain why the life of the ECG wheel is much higher than conventional grinding.	L2	2	8
	OR			
	b i Explain in detail about the types of maskants used in chemical machining.	L3	2	8

	ii	Write the advantages and limitations of Electro chemical deburring.	L2	2	8
13.	a i	Explain the thermal features of Laser beam machining. Discuss the performance of various types of Lasers.	L3	3	8
	ii	Explain the three types of spark generators used in EDM.	L3	3	8
		OR			
	b i	Describe the principle, equipment and applications of Plasma Arc Machining.	L3	3	8
	ii	Briefly explain various types of dielectric fluid and its functions in EDM process.	L2	3	8
14.	a i	Briefly explain the role of Chemo mechanical polishing (CMP) in Semiconductor manufacturing.	L2	4	8
	ii	Illustrate the process parameter and process capabilities of AFM.	L2	4	8
		OR			
	b i	Illustrate with a neat sketch, explain the schematic of Magnetorheological finishing.	L2	4	8
	ii	Explain with suitable example, how Magnetic abrasive finishing is applied in different industries.	L2	4	8
15.	a i	Explain the benefits of hybrid unconventional machining technologies and elaborate on the challenges and opportunities.	L3	5	8
	ii	Discuss the factors to be considered, while selecting the non-traditional machining processes.	L2	5	8
		OR			
	b i	Compare and contrast the principles of operation between abrasive jet machining, abrasive water jet machining and ultrasonic machining.	L4	5	8
	ii	Explain the recent developments in non-traditional machining processes.	L2	5	8