Reg. No.															

Question Paper Code	12897

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2024

Fifth Semester

Mechanical Engineering

20MEEL510 – NON TRADITIONAL MACHINING TECHNIQUES

Regulations - 2020

Duration: 3 Hours | Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	Describe the importance of non-traditional machining process.	2	K2	CO1
2.	What are the commonly used additives in Abrasive Jet Machining?	2	K1	CO1
3.	List the roles of dielectric fluid in Electric Discharge Machining.	2	K1	CO2
4.	How to minimize tool wear in Electric Discharge Machining?	2	K1	CO2
5.	Write the Faraday's first law of electrolysis.	2	K1	CO3
6.	What is the purpose of etchants in Chemical Machining?	2	K1	CO3
7.	List any two advantages of Chemical Machining Process.	2	K1	CO4
8.	Write any two advantages of Magneto Rheological Finishing.	2	K1	CO4
9.	State the industrial needs for unconventional machining processes.	2	K1	CO5
10.	What are the applications of Nano machining?	2	K1	CO5

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

			Marks	K – Level	CO
11.	a)	With a neat sketch explain the principle of Abrasive Jet Machining. Mention some of the specific applications and limitations.	13	K2	CO1
		OR			
	b)	Explain the principle of ultrasonic machining and its equipment. Explain the factors, which influence the material removal rate.	13	K2	CO1
12.	a)	Explain the general arrangement of an Electrical discharge machining process and list out its advantages, disadvantages, and applications.	13	K2	CO2
		OR			
	b)	Explain the principle, construction and working of Wire-cut electrical discharge machining process and state its merits and applications.	13	K2	CO2
13.	a)	Describe the principle of Electro Chemical Grinding and discuss about the process parameters that influences.	13	K2	CO3
		OR			

b) Explain the process of electrochemical machining with neat sketch and discuss about influences of process parameters in machining output. *13 K2 CO3*

14. a) Illustrate and explain one way and two way Abrasive flow machining with neat diagram. *13 K2 CO4*

OR

b) Explain the equipments, effect of process parameters, applications, advantages, and limitations magneto rheological abrasive flow finishing. *13 K2 CO4*

15. a) Explain the different products manufactured by 3D Printing machine. *13 K2 CO5*

OR

b) Illustrate with neat sketch, the working principle of Elastic Emission Machining. *13 K2 CO5*

PART - C (1 × 15 = 15 Marks)

16. a) Formulate your thoughts regarding the laser beam machining of non-metallic material. Give several possible applications, including their advantages as compared to other process. *15 K2 CO6*

OR

b) Compare traditional and non-traditional machining processes in terms of cost, application, scope, machining time, advantages and limitations. *15 K2 CO6*