Reg. No.												

Question Paper Code	12477

B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2023

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.	Summarize the limitation of traditional machining processes.	*2,K2,CO1*
2.	What is abrasive Slurry?	*2,K1,CO1*
3.	Write down the basic requirements of dielectric fluid used in Electric Discharge Machining.	*2,K1,CO2*
4.	Enumerate the commonly used gas mixture in Plasma Arc Machining.	*2,K2,CO2*
5.	List the factors that influence oxidation in Electro Chemical Machining.	*2,K1,CO3*
6.	What are the important functions of abrasive particles used in Electro Chemical Grinding?	*2,K1,CO3*
7.	What is magneto rheological finishing?	*2,K1,CO4*
8.	Compare the difference between one way and two ways Abrasive Flow Machining.	*2,K2,CO4*
9.	Describe the meaning of Stand Off Distance and its effect on machining.	*2,K2,CO5*
10.	Identify the need of non-traditional machining in industry 4.0.	*2,K2,CO6*

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11.	a)	Compare the mechanical and electrical energy processes in terms of physical parameters, shape capabilities, process capability, and process economy.	*13,K2,CO1*
		OR	
	b)	Explain the process of Abrasive Water Jet Machining and discuss the applications and limitations.	*13,K2,CO1*
12.	a)	Elaborate the process of Plasma Arc Machining with a neat sketch. Write the advantages, disadvantages and applications.	*13,K2,CO2*
		OR	
	b)	Explain the general arrangement of an electrical discharge machining process and list out its advantages, disadvantages, and applications.	*13,K2,CO2*

13. a) Explain in detail about the types of maskants used in chemical machining. *13,K2,CO3*

OR

b) Explain the working of electro chemical grinding process with a neat sketch. Also list down its advantages and limitations. *13,K2,CO3*

14. a) Explain in detail about the process parameters of Abrasive Flow Machining. *13,K2,CO4*

OR

b) Summarize and explain the process parameters of magneto rheological finishing and its applications. *13,K2,CO4*

15. a) Explain the working principle of Hybrid Machining process with advantages, limitations and application. *13,K2,CO5*

OR

b) Explain with neat sketch about working principle of Elastic Emission Machining Process. *13,K2,CO5*

PART - C (1 × 15 = 15 Marks)

16. a) Is it possible to produce spur gears by advanced machining processes, starting with round blank? Conclude. *15,K2,CO6*

OR

b) Summarize the needs for development of Non-traditional machining processes? Explain with examples. *15,K2,CO6*