Reg. No.												

Question Paper Code	11939

B.E./B.Tech. - DEGREE EXAMINATIONS, APRIL/MAY 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.	List the different types of abrasives used in AJM.	2,K1,CO1
2.	What is the principle of USM?	2,K1,CO1
3.	Distinguish wire cut EDM and EDM process.	2,K2,CO2
4.	Summarize the commonly used gas mixtures in PAM.	2,K2,CO2
5.	What is the use of maskant in CHM?	2,K1,CO3
6.	What are the important functions of abrasive particles used in ECG?	2,K1,CO3
7.	Describe the desired properties of MR fluid.	2,K2,CO4
8.	Summarize the components of AFM process.	2,K2,CO4
9.	Explain hybrid machining process.	2,K2,CO5
10.	Why is non-traditional machining process not popular?	2,K1,CO5

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11.	a)	What is the fundamental principle of abrasive jet machining? Briefly explain with a neat diagram, the AJM process.	13,K1,CO1
		OR	
	b)	Explain the principle of USM and its equipment. Explain the factors, which influence the MRR in USM. Compare USM with traditional Abrasive machining.	13,K1,CO1
12.	a)	Explain the working principle of Wire cut EDM machine With neat sketch.	13,K2,CO2
		OR	
	b)	Explain the construction and working principle of LBM with neat sketch.	13, K2,CO2
13.	a)	Explain in detail the ECM process with neat sketch and also mention the advantages and applications.	13,K1,CO3

OR

b) Explain the working principle of electrochemical discharge grinding and discuss the process capabilities and applications. *13,K1,CO3*

14. a) Explain the working principle of AFM with a neat sketch. *13,K2,CO4*

OR

b) Explain in detail about the MR fluid in Magneto rheological Finishing process. *13,K1,CO4*

15. a) Explain working principle of Hybrid Machining process with advantages, limitations and application. *13,K3,CO5*

OR

b) Explain in detail:
(i) Micromachining. *5,K2,CO5*
(ii) Nano-machining. *8,K2,CO5*

PART C (1 × 15 = 15 Marks)

16. a) Summarize the needs for development of Non-traditional machining processes? Explain with examples. *15,K1,CO6*

OR

b) Explain in detail the application and importance of non-traditional machining in industry 4.0. *15,K1,CO6*