



# CBCS SCHEME

USN

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18ME641

Sixth Semester B.E. Degree Examination, Dec.2023/Jan.2024

## Non-traditional Machining

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

### Module-1

- 1 a. Explain the need of NTM and give the complete classification of NTM. (10 Marks)  
b. Difference between traditional and non-traditional machining process. (10 Marks)

OR

- 2 a. Explain NTM process selection. (10 Marks)  
b. Explain different feed mechanisms used in Ultrasonic Machining (USM). (10 Marks)

### Module-2

- 3 a. Explain the parameters that effect on metal removal in USM process. (10 Marks)  
b. With a neat sketch explain equipment and operation of Ultrasonic machining. (10 Marks)

OR

- 4 a. With neat sketch explain equipment and operation at Abrasive Jet Machining (AJM). (12 Marks)  
b. Explain process characteristics of AJM. (08 Marks)

### Module-3

- 5 a. Explain the chemistry of ECM process with diagram. (08 Marks)  
b. With a neat sketch explain chemical blanking process and list out CHM applications. (12 Marks)

OR

- 6 a. Explain process parameters of ECM. (10 Marks)  
b. With a neat sketch, explain chemical milling process. (10 Marks)

### Module-4

- 7 a. Explain with sketch, the mechanism of metal removal in electrical discharge machining. (10 Marks)  
b. Which are the important considerations are to be made in the design of plasma torch? (10 Marks)

OR

- 8 a. With a neat sketch, explain the working of PAM. List out the advantage and limitations of process. (14 Marks)  
b. With a neat sketch, explain Electrical Discharge Grinding (EDG). (06 Marks)

### Module-5

- 9 a. With a neat sketch, explain equipment of Laser Beam Machining (LBM). (10 Marks)  
b. Explain process parameters of EBM and its applications. (10 Marks)

OR

- 10 a. With a neat sketch, explain electron beam machining and list out its advantages and disadvantages. (12 Marks)  
b. With a neat sketch, explain Nd – YAG (neodymium Yttrium – aluminum garnet) layer used in LBM. (08 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and/or equations written eg, 42+8 = 50, will be treated as malpractice.