

CBCS SCHEME

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15ME554



Fifth Semester B.E. Degree Examination, July/August 2022

Non-Traditional Machining

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. Distinguish between conventional machining methods and Non-traditional machining methods. (08 Marks)
- b. What is the need for an Non-Traditional Machining (NTM) process? What are the criterion involved in NTM process selection. (08 Marks)

OR

- 2 a. Classify the Non-Traditional Machining process on the basis of mechanism of metal removal, Transfer media, Type of energy and energy source. (08 Marks)
- b. What are the advantages, limitation and applications of non-traditional machining process over conventional machining process? (08 Marks)

Module-2

- 3 a. Sketch and explain the working principle of ultrasonic machining process and also mention its advantages. (08 Marks)
- b. Explain with neat sketch various tool feed mechanism used ultrasonic machining process. (08 Marks)

OR

- 4 a. Explain any three process variables that influence the rate of metal removal and accuracy of machining in abrasive jet machining. (06 Marks)
- b. What are the process variables that effect the performance of water jet machining process? (05 Marks)
- c. With the help of neat sketch, explain water jet machining process. (05 Marks)

Module-3

- 5 a. Explain the chemistry of ECM process with a neat Diagram, (08 Marks)
- b. Discuss the various process parameters of electrochemical machining process. (08 Marks)

OR

- 6 a. Write a note on etchants indicating factors to select. (06 Marks)
- b. Explain the chemical blanking process with the flow chart. (05 Marks)
- c. Write advantages, limitations and applications of chemical machining process. (05 Marks)

Module-4

- 7 a. Explain with sketch, the mechanism of metal removal in electric discharge machining. (08 Marks)
- b. Write the functions and characteristics of dielectric fluid. (08 Marks)

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.

OR

- 8 a. Explain with sketch the principle of working of plasma arc machining. (08 Marks)
b. Explain process parameters and process characteristics of PAM process. (08 Marks)

Module-5

- 9 a. Sketch and explain mechanism of metal removal in Laser beam machining process. (06 Marks)
b. Discuss the various process parameter of LBM process. (05 Marks)
c. List the advantages, limitations and applications of LBM process. (05 Marks)

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OR

- 10 a. Sketch and explain the generation and control of electron beam used in EBM process. (08 Marks)
b. List the advantages, limitations and applications of EBM process. (08 Marks)

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