



CBCS SCHEME



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18ME641

Sixth Semester B.E. Degree Examination, Feb./Mar. 2022 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. What are the various aspects to be considered before selecting non-traditional machining process? Discuss briefly. (08 Marks)
- b. List the advantages, limitations and applications of NTM processes. (12 Marks)

OR

- 2 a. Distinguish between traditional and non-traditional machining processes. (06 Marks)
- b. Explain the classification of NTM process based on different sources of energy. (08 Marks)
- c. Explain the need for non-traditional machining process. (06 Marks)

Module-2

- 3 a. With the help of neat sketch, explain the working principle of ultrasonic machining process. (10 Marks)
- b. Explain with graph, the effect of various process parameters on material removal rate in USM process. (10 Marks)

OR

- 4 a. Explain with neat sketch working principle of abrasive jet machining and also give advantages and applications of AJM process. (10 Marks)
- b. Discuss the following variables that influence the material removal rate in AJM:
 - (i) Carrier gas
 - (ii) Standoff distance
 - (iii) Type of abrasive
 - (iv) Velocity of abrasive jet
 - (v) Work material(10 Marks)

Module-3

- 5 a. With a neat sketch, explain the working principle of ECM process. (10 Marks)
- b. Explain various process characteristics in ECM. (06 Marks)
- c. Discuss different applications of ECM. (04 Marks)

OR

- 6 a. Explain the following in chemical machining process: (i) Maskants (ii) Etchants (06 Marks)
- b. Explain with a neat sketch, the sequence of operation in chemical milling process. (08 Marks)
- c. Give some practical applications of chemical machining. (06 Marks)

Module-4

- 7 a. Explain mechanism of metal removal in EDM with neat sketch. (10 Marks)
- b. Explain dielectric medium, its function and desirable properties in EDM process. (10 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.



18ME641

OR

- 8 a. Explain with neat diagram, construction and working principle of Plasma Arc Machining (PAM). (10 Marks)
b. List out different applications of PAM process. (05 Marks)
c. Discuss advantages and limitation of PAM process. (05 Marks)

Module-5

- 9 a. Explain with neat sketch the mechanism of metal removal in laser beam machining. (10 Marks)
b. List the advantages and limitations of LBM process. (06 Marks)
c. What are the process parameters and characteristics of LBM process? (04 Marks)

OR

- 10 a. Explain need for EBM and mechanism of metal removal of EBM process. (08 Marks)
b. List the advantages, limitations and application of Electron Beam Machining (EBM). (06 Marks)
c. Explain the process variables of EBM. (06 Marks)

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