



CBGS 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.

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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