

CBCS SCHEME



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17ME554

Fifth Semester B.E. Degree Examination, Dec.2019/Jan.2020

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. Define Non-Traditional Machining. What are the need for N.T.M process. Explain briefly. (06 Marks)
- b. What are the comparison between conventional and non-conventional machining. (06 Marks)
- c. What are the various aspects to be considered before selecting a N.T.M process? Discuss briefly. (08 Marks)

OR

- 2 a. Give classification of N.T.M process. (06 Marks)
- b. What are the specific advantages, limitations and applications of non-traditional machining processes? (10 Marks)
- c. Enumerate the physical parameters of the Non-traditional machining process. (04 Marks)

Module-2

- 3 a. With the help of neat sketch, explain working principle of ultrasonic machining process. (10 Marks)
- b. Explain with neat diagrams, process parameters in USM. (06 Marks)
- c. What are the process characteristics of USM? Explain briefly. (04 Marks)

OR

- 4 a. Explain with neat sketch, working principle of Abrasive Jet machining and also give advantages and applications of A.J.M process. (10 Marks)
- b. With the help of neat sketch, explain water jet machining process and also give advantages and disadvantages of W.J.M. (10 Marks)

Module-3

- 5 a. With a neat sketch, explain the working principle of ECM process. (10 Marks)
- b. Explain with a neat sketch, Electro Chemical Grinding (ECG). (06 Marks)
- c. What are the process parameters of ECM? Explain briefly. (04 Marks)

OR

- 6 a. Explain the following in Chemical Machining Process : (06 Marks)
- i) Maskants ii) Etchants.
- b. Sketch and explain Electro Chemical Honing (ECH). (06 Marks)
- c. Explain with neat sketches of chemical blanking and Chemical Milling process. (08 Marks)

Module-4

- 7 a. With the help of a neat diagram, working principle of Electrical Discharge Machining process. (08 Marks)
- b. Explain with neat sketch, the travelling wire EDM process. (06 Marks)
- c. Mention various dielectric flow pattern of EDM process. Explain any two with sketches. (06 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. What are the process parameters of PAM? Explain briefly. (05 Marks)
- c. What are the safety precautions in PAM? Explain. (05 Marks)

Module-5

- 9 a. Explain with neat sketch, working principle of Laser Beam Machining process (LBM). (08 Marks)
- b. What are the advantages, limitations and applications of LBM? (06 Marks)
- c. What are the process parameters and characteristics of LBM? (06 Marks)

OR

- 10 a. Explain with the help of a neat diagram, Operation Principle of Electron Beam Machining (EBM). (10 Marks)
- b. What are the advantages, limitations and applications of EBM process? (06 Marks)
- c. Explain need for EBM and mechanism of metal removal of EBM process. (04 Marks)
