



CBCS SCHEME

17ME554

Fifth Semester B.E. Degree Examination, July/August 2021 Non-Traditional Machining

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions.

- 1 a. What are the basic factors upon which the unconventional machining processes are classified? Explain. (12 Marks)
b. Justify the need of unconventional manufacturing process in today's industries. (04 Marks)
c. List the advantages and disadvantages of NTM. (04 Marks)
- 2 a. Distinguish between conventional and unconventional manufacturing process. (10 Marks)
b. Explain the parameters influencing the NTM process selection. (10 Marks)
- 3 a. What is Ultrasonic Machining? Explain the ultrasonic machining process with schematic diagram. (10 Marks)
b. Discuss the effects of :
(i) Grain size (ii) Amplitude and frequency of vibration
(iii) Applied static load (iv) Slurry
(v) Tool and work material on MRR in USM. (10 Marks)
- 4 a. Explain with schematic diagram the abrasive Jet Machining process. (08 Marks)
b. Mention any two advantages, disadvantages and applications of AJM. (06 Marks)
c. With a neat sketch explain Water Jet Machining process. (06 Marks)
- 5 a. With a neat sketch, explain the working principle of ECM process. (08 Marks)
b. Explain the process parameters of ECM. (08 Marks)
c. Differentiate ECM with conventional grinding. (04 Marks)
- 6 a. Explain the sequence of operation in chemical machining. (10 Marks)
b. Differentiate between 'Chemical Milling' and 'Chemical Blanking'. (05 Marks)
c. Discuss the factors to be considered in selection of 'Maskants' and the types that used in Chemical Machining. (05 Marks)
- 7 a. Explain the working principle of EDM with a neat sketch. (10 Marks)
b. Explain the different methods of dielectric flushing in Electric Discharge Machining. (06 Marks)
c. List the advantages and applications of EDM. (04 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.

- 8 a. What is Plasma Arc Machining? Explain PAM process with neat a sketch. (10 Marks)
b. What are the factors that govern the performance of PAM? Explain any one of them. (06 Marks)
c. Explain the safety precaution in PAM. (04 Marks)
- 9 a. With a neat sketch, explain the mechanism of metal removal in LBM process. (10 Marks)
b. Write a note on different types of lasers used in LBM process. (06 Marks)
c. What are the advantages and applications of Laser Beam Machining? (04 Marks)
- 10 a. With a neat sketch explain the working principle of Electron Beam Machining process. (10 Marks)
b. Comment on the parameters affecting on the machining process in EBM. (06 Marks)
c. Differentiate between LBM and EBM processes. (04 Marks)

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