

USN

10ME665

Sixth Semester B.E. Degree Examination, June/July 2019
Non – Traditional Machining

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions, selecting atleast TWO questions from each part.

PART - A

- 1 a. Classify the Non – Traditional Machining Processes based on Mechanical Energy, Chemical – electrochemical energy and Thermal – Electro thermal energy. Give examples. (06 Marks)
- b. Explain the need of Non – traditional Machining. (04 Marks)
- c. Briefly explain the factors considered for the selection of NTM processes. (06 Marks)
- d. Give any four differences between Traditional and Non – traditional Machining Processes. (04 Marks)
- 2 a. With neat sketch, explain the following with respect to USM :
i) Tool feed Mechanism and ii) Tool shape and tool material. (12 Marks)
- b. Write short note on Abrasive slurry used in Ultrasonic Machining Process. (04 Marks)
- c. What are the advantages and disadvantages of USM method? (04 Marks)
- 3 a. Briefly explain the following variables used in AJM process : (06 Marks)
i) Stand off distance (SOD) ii) Mixing ratio of Abrasive Particles and carrier gas.
- b. Briefly explain the process characteristics of AJM. (06 Marks)
- c. With a neat sketch, explain Water Jet Cutting and mention its applications. (08 Marks)
- 4 a. Explain the following elements with respect to Electro Chemical Machining (ECM) :
i) Source of D.C Power ii) Electrolyte. (08 Marks)
- b. Write the advantages and disadvantages of ECM process. (06 Marks)
- c. With the neat diagram, explain Electro – Chemical Honing Process. (06 Marks)

PART - B

- 5 a. What are the functions of Maskants used in Chemical Machining? Explain the different types of Maskants. (08 Marks)
- b. What are the factors considered for the selection of an Etchant? Give examples for the etchants used in Chemical Machining. (05 Marks)
- c. With a neat sketch, explain the Chemical Milling Process and mention any two advantages of it. (07 Marks)
- 6 a. What are the functions and characteristics / requirements of the dielectric fluids? Give examples for the dielectric used in Electric Discharge Machining (EDM) process. (08 Marks)
- b. What is meant by Flushing with respect to EDM? Explain any one method of flushing with the help of a sketch. (08 Marks)
- c. Mention the advantages and applications of EDM process. (04 Marks)
- 7 a. With the help of sketches, explain transferred arc mode and non – transferred arc mode for generating the plasma arc system. (08 Marks)
- b. Explain the process parameters of Plasma Arc Machining. (09 Marks)
- c. Mention the Safety Precautions to be followed in (PAM) process. (03 Marks)
- 8 a. With the help of a neat sketch, explain laser equipment used in Laser Beam Machining (LBM) process. Mention the advantages and limitations of LBM. (12 Marks)
- b. With a neat sketch, explain the construction and working of Electron Beam Machining [EBM] process. Mention the applications. (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.

CMRIT LIBRARY
BANGALORE - 560 037