

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.