

# CBCS Scheme

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15ME554

## Fifth Semester B.E. Degree Examination, Dec.2017/Jan.2018 Non – Traditional Machining

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing one full question from each module.

### Module-1

- 1 a. Differentiate between Traditional and Non-traditional machining process. (08 Marks)  
b. Explain the need for Non-Traditional machining processes. (08 Marks)

OR

- 2 a. Classify the NTM processes on the basis of type of energy, mechanism of metal removal, transfer media, energy source. (10 Marks)  
b. Write in brief note on the selection of non-traditional machining processes. (06 Marks)

### Module-2

- 3 a. Sketch and explain the principle, equipment and operation of ultrasonic machining process. (10 Marks)  
b. Discuss the influence of the following parameter on USM process :  
i) Amplitude and frequency of vibration  
ii) Abrasive grain size  
iii) Effect of slurry (06 Marks)

OR

- 4 a. Explain the process variables that influence the metal removal rate in abrasive jet machining. (10 Marks)  
b. What are applications of water jet machining process? (06 Marks)

### Module-3

- 5 a. Explain with a neat sketch, the Electro chemical Grinding process. (08 Marks)  
b. Explain the effect of following parameters on Electrochemical machining process.  
i) Current density  
ii) Tool feed rate  
iii) Type of electrolyte  
iv) Velocity of electrolyte flow. (08 Marks)

OR

- 6 a. Explain with a neat sketch, the sequence of process steps involved in chemical blanking process. (10 Marks)  
b. Briefly explain the process characteristics in chemical machining process. (06 Marks)

### Module-4

- 7 a. Explain with the help of neat sketches the different types of Flushing used in EDM process. (10 Marks)  
b. What are the essential requirements of a dielectric fluid, used in EDM process? What functions does the dielectric fluid performs? (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.



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OR

- 8 a. With a neat sketch, explain the construction and working of plasma arc machining process. (08 Marks)  
b. Write the applications and advantages of plasma Arc machining. (08 Marks)

**Module-5**

- 9 a. Draw a neat sketch of Laser Beam machining (LBM). And explain briefly. (10 Marks)  
b. What are the advantages and limitations of LBM process? (06 Marks)

OR

- 10 a. Explain with sketch, the working of Electron Beam Machining (EBM). (10 Marks)  
b. Write the applications and limitations of Electron Beam Machining (EBM). (06 Marks)

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