

**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)

**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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