

# CBCS SCHEME

15ME554



## Fifth Semester B.E. Degree Examination, Jan./Feb. 2021 Non Traditional Machining

Max. Marks: 80

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

### Module-1

- 1 a. Classify the various types of non-traditional processes based on nature of energy employed. (06 Marks)
- b. Brief the various process parameters to be considered of the selection of non-traditional processes. (06 Marks)
- c. List the various advantages and disadvantages of non-traditional processes. (04 Marks)

OR

- 2 a. Compare traditional and non-traditional processes. (06 Marks)
- b. Explain the need and characteristics of non-traditional machining. (06 Marks)
- c. List the various applications of non-traditional processes. (04 Marks)

### Module-2

- 3 a. With a neat sketch, explain the working of abrasive jet machining. (06 Marks)
- b. Brief the various abrasives used in ultrasonic machining. (06 Marks)
- c. List the various advantages, disadvantages and applications of abrasive jet machining. (04 Marks)

OR

- 4 a. With a schematic diagram, explain briefly water jet machining processes. (06 Marks)
- b. List the various, applications, advantages and limitations of water jet machining. (06 Marks)
- c. Classify the various types of tool feed mechanism used in ultrasonic machining and brief the spring loaded feed mechanism with a neat sketch. (04 Marks)

### Module-3

- 5 a. With a neat sketch, explain the working principle of electro chemical machining process. (06 Marks)
- b. Explain with a neat sketch the principle of electro chemical grinding. (06 Marks)
- c. Brief the electro chemical machining process characteristics. (04 Marks)

OR

- 6 a. What are the functions of an electrolyte used in ECM? Mention the properties of the electrolytes used in Electro Chemical Process (ECM). (06 Marks)
- b. Explain the chemical blanking process with a flow chart. (06 Marks)
- c. What are the advantages and disadvantages of Electro Chemical Machining? (04 Marks)

### Module-4

- 7 a. Explain with a neat sketch, construction and working of electric discharge machining. (06 Marks)
- b. Name the various types of flushing and explain with the help of neat sketch any one type of flushing method used in electric discharge machining. (06 Marks)
- c. What are the various functions of dielectric fluid? Used in electric discharge machining. (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.

OR

- 8 a. With a neat sketch, explain the working of plasma arc machining. (06 Marks)  
b. Classify the various types of torch used in plasma arc machining and explain with a neat sketch working of air plasma torch. (06 Marks)  
c. Mention the various advantages, disadvantages and applications of plasma arc machining. (04 Marks)

**Module-5**

- 9 a. With a suitable sketch, explain the electron beam machining process. (06 Marks)  
b. What are the process parameters of electron beam machining? (06 Marks)  
c. What are the various advantages, disadvantages and applications of electron beam machining? (04 Marks)

OR

- 10 a. Explain the working of laser beam machining process with a neat sketch. (06 Marks)  
b. List out the commonly used gases in laser beam machining. (06 Marks)  
c. What are the advantages and disadvantages of laser beam machining. (04 Marks)

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