

# CBCS SCHEME

USN

|  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|
|  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|

18AU653

## Sixth Semester B.E. Degree Examination, Dec.2023/Jan.2024 Non Traditional Machining

Time: 3 hrs.

Max. Marks: 100

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

### Module-1

- 1 a. Define Non-Traditional Machining. What are the needs for NTM process? Explain briefly. (06 Marks)
- b. Write the differences between conventional and Non-convention a machining. (06 Marks)
- c. Discuss in detail about various aspects needs to be considered before selecting NTM process. (08 Marks)

**OR**

- 2 a. List 3 advantages and limitations of NTM. (06 Marks)
- b. List the applications of NTM. (06 Marks)
- c. Discuss the classification of NTM process based on different sources of energy. (08 Marks)

### Module-2

- 3 a. Explain with neat sketches working principle of abrasive Jet machining and also give advantages and application of AJM process. (10 Marks)
- b. Discuss the following variables that affect the material remover rate in AJM.
  - i) Carrier gas
  - ii) Standoff distance
  - iii) Type of abrasive
  - iv) Velocity of abrasive jet
  - v) Work material. (10 Marks)

**OR**

- 4 a. Explain with neat sketch working principle of water jet machining. List advantages and disadvantages of WJM. (10 Marks)
- b. Along with advantages and application, explain in define about Electron Beam Machining. (10 Marks)

### Module-3

- 5 a. With neat sketch explain working principle of ECM process. (10 Marks)
- b. Explain with neat sketch, Electrochemical honing process. (06 Marks)
- c. List any 4 applications of ECM process. (04 Marks)

**OR**

- 6 a. Explain with neat sketch chemical blanking process and chemical milling process. (08 Marks)
- b. Explain following in chemical machining process
  - i) Maskants
  - ii) Etchants (06 Marks)
- c. Explain the advantages and applications of chemical machining process. (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.

**Module-4**

- 7 a. With the help of neat sketch, explain working principle of EDM. (10 Marks)  
b. Explain the different methods of dielectric of flushing in Electric Discharge Machining. (06 Marks)  
c. Sketch and explain traversing wire EDM process. (04 Marks)

**OR**

- 8 a. Explain with sample sketch Heat Affected Zone (HAZ) in EDM showing an three regions. (04 Marks)  
b. Explain dielectric medium, its function and desirable properties of EDM process. (10 Marks)  
c. Explain the mechanism of metal removal in Electro Discharge Machining (EDM). (06 Marks)

**Module-5**

- 9 a. Explain with neat sketch construction and working principle of plasma Arc Machining (PAM). (08 Marks)  
b. What are the safety precautions in PAM? Explain. (06 Marks)  
c. What are the advantages of disadvantages of PAM? (06 Marks)

**OR**

- 10 a. With neat diagram, explain construction and working principle of LBM. (08 Marks)  
b. What are the characteristics and process parameters of LBM? (06 Marks)  
c. What are the advantages and limitations of LBM? (06 Marks)

\* \* \* \* \*