

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(ME) (Sem-6)
NON-TRADITIONAL MACHINING

Subject Code : DE/ME-2.0

M.Code : 71252

Date of Examination : 12-06-2023

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. **SECTION-A** is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. **SECTION-B** contains **FIVE** questions carrying **FIVE** marks each and students have to attempt any **FOUR** questions.
3. **SECTION-C** contains **THREE** questions carrying **TEN** marks each and students have to attempt any **TWO** questions.

SECTION-A

1. Answer briefly :

- a) What is CIM production process?
- b) Enumerate the limitations of conventional machining processes that necessitate the evolution of non-traditional machining processes.
- c) Classify the non-traditional machining processes based on energy sources.
- d) Name some of the tool materials used in EDM?
- e) Discuss the various functions of tool cone in ultrasonic machining process.
- f) What are the gases commonly used in LASER?
- g) Explain the effect of the concentration of electrolyte on the process efficiency of electrochemical machining.
- h) What is dielectric fluid? What are its functions in EDM process?
- i) Make a comparison of solid state lasers with gas lasers.
- j) Explain why EBM process is performed usually in a vacuum chamber?

SECTION-B

2. Explain the difference between Conventional & Non-Traditional manufacturing processes.
3. Explain briefly principle and working of Abrasive flow machining giving a neat sketch and explain the key elements of AFM setup.
4. With a neat sketch, explain the working principle of Plasma Arc Machining.
5. Sketch a schematic diagram of electrochemical machining process set-up. Explain the mechanism of material removal.
6. Describe with sketch the working of a hybrid non-conventional machining process in which two mechanical non-conventional machining processes are combined.

SECTION-C

7.
 - a) Describe the working and principle of water jet machining with the help of a neat sketch. State the advantages, limitations and applications of water jet machining.
 - b) With the help of neat sketch, explain the principle of USM. Discuss the effects of different process parameters on the metal removal rate in USM.
8.
 - a) With the help of suitable sketches describe the process of photo-chemical machining. Give specific applications of this process.
 - b) Discuss the effects of various parameters on metal removal in ECM process.
9.
 - a) Why is effective flushing of dielectric so important in EDM process? Give details of various dielectric flushing techniques.
 - b) Provide a schematic illustration of the laser-beam machining process and explain its working principal with material removal mechanism. Give the advantages & limitations of the process.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.