Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(ME) (2019 Onwards E-II) (Sem.-7,8) NON-TRADITIONAL MACHINING Subject Code : DE/PE-2.0 M.Code : 72006

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 are the limitations of traditional machining processes?
 - b) How the developments in the area of materials are partly responsible for evolution of advanced machining techniques?
 - c) Explain distruction between surface roughness obtained by conventional and non-traditional machining processes.
 - d) "Whether abrasive flow machining process has capability to correct large surface irregularities such as deep scratches or large bumps"? Comment.
 - e) Name the important factors that should be considered during the selection of an unconventional machining process for a given job.
 - f) Enumerate the characteristics of dielectric fluids used in EDM process.
 - g) Enumerate the limitations of laser beam machining process.
 - h) How the molten material ejects out of the machining zone in PAC?
 - i) What are the functions of an 'adaptive control system' used for EDM?
 - j) How a complex shape can be cut using EBM process?

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SECTION-B

- 2. Explain the distinction between Conventional & Non-Traditional Manufacturing Processes.
- 3. Explain the steps involved in machining using photo-chemical machining process. Show the photo-chemical machining setup and explain its working.
- 4. Show the elements of USM process. Discuss the following in relation to Ultrasonic machining process :
 - a) Functions of slurry, horn transducer, and oscillator in USM;
 - b) Types of abrasives used in USM.
- 5. Explain the mechanism of material removal in laser beam machining processes. Explain the lasing process in Gas Laser process giving neat sketch.
- 6. With the help of a neat sketch, explain the mechanism of material removal in EDM.

SECTION-C

- 7. a) Describe the elements of abrasive flow machining giving a neat sketch. Also discuss the tooling and working media used in AFM process.
 - b) Describe the following elements of water jet machining process giving a neat sketches :
 - i) Intensifier
 - ii) Accumu
 - iii) Noz
- 8. a) Discuss the material removal mechanism in plasma arc machining. Explain the working of air plasma torch giving a neat sketch.
 - b) Explain the working principle of electro-chemical machining process and also elaborate the electrochemistry of the ECM process.
- 9. Write short notes on any two of the following :
 - a) Hybrid machining processes and their applications;
 - b) Tool materials used in EDM;
 - c) Flushing techniques for dielectric fluids in EDM 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.

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