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Total No. of Questions: 18

Total No. of Pages : 02

B.Tech. (ME) (2012 Onwards E-II) (Sem.–7) NON-TRADITIONAL MACHINING Subject Code : DE/PE-2.0

M.Code: 72006

# Time: 3 Hrs.

Max. Marks : 60

## INSTRUCTIONS 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**

### Answer briefly :

- 1. Limitations of conventional machining processes.
- 2. Characteristics of flexible manufacturing system.
- 3. What is ultrasonic transducer?
- 4. List the important characteristics of water jet machining.
- 5. Why EBM process is performed in vacuum chamber? Explain.
- 6. State the Faraday's first law of electrolysis.
- 7. For what type of works the Electrochemical grinding is best suited?
- 8. What is transfer machining?
- 9. Give the product applications of hot machining.
- 10. What is the function of servo-mechanism in EDM?



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### **SECTION-B**

- 11. How the non-conventional machining processes can be classified?
- 12. Elaborate the principle and scheme of operation of a chemical machining process.
- 13. Explain the working principle of Laser Beam Machining? What are its advantages, disadvantages and applications?
- 14. Explain the working principle of ultrasonic machining (USM) using necessary sketch. What types of abrasives are used in USM?
- 15. With the help of neat sketches, differentiate between Electrochemical Grinding and Electrochemical Honing?

#### **SECTION-C**

- 16. Calculate machining rate while machining iron electrochemically using copper electrode and sodium chloride solution (specific resistance = 5 ohm-cm) as electrolyte, power supply voltage = 20 V, current = 5000 amp, tool work gap = 0.5 cm and F = 96,500.
- 17. Explain, how the metal removal in electric discharge machining (EDM) is achieved? Describe in detail the working of an RC circuit.
- 18. Write short notes on :
  - a) Mechanism of metal removal in Plasma arc machining.
  - b) Classification of Hybrid machining processes.

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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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