

CBCS SCHEME

15MA742



Seventh Semester B.E. Degree Examination, June/July 2019 Non Traditional Machining

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. Classify the non conventional machining processes according to energy source used. Also, mention the process examples. (04 Marks)
- b. Write the summary of the materials applications of the various non-traditional machining processes. (12 Marks)

OR

- 2 a. Discuss the important aspects that must be studied before selecting a particular non traditional machining process. (08 Marks)
- b. Compare the different modern machining processes with regard to their relative efficiencies. (08 Marks)

Module-2

- 3 Explain with a schematic diagram, the ultrasonic machining equipment. (16 Marks)

OR

- 4 Explain the basic setup of AJM and discuss how material is removed from the work piece. Also, mention the abrasive particles used in AJM. (16 Marks)

Module-3

- 5 a. Illustrate the ECM setup and explain its important elements. (10 Marks)
- b. A dc power supply of 18 V and 5000 A was used in ECM using copper electrode and sodium chloride solution. A tool work gap of 0.5 mm was maintained. The data for iron anode is given below: Atomic weight = 56, Valency = 2, Density = 7.9 g/cm³. Calculate the machining rate and electrode feed rate for the following data for electrolyte : Specific resistance = 5 ohm-cm, current efficiency = 100% , Faraday constant = 96,500 coulombs. (04 Marks)
- c. Mention any 2 applications of ECM process. (02 Marks)

OR

- 6 Explain the steps involved in chemical blanking. Also list any 6 advantages of chemical blanking. (16 Marks)

Module-4

- 7 a. Discuss the role of dielectric medium in EDM process. (04 Marks)
- b. What are the functions and desirable properties of dielectric fluid? (08 Marks)
- c. Explain any 2 methods of achieving flushing in EDM. (04 Marks)

OR

- 8 a. Illustrate the equipment used in plasma arc machining. (06 Marks)
- b. Mention the applications and advantages (5 each) of PAM. (10 Marks)

Module-5

- 9 a. Illustrate how LASER is generated. (08 Marks)
b. List the advantages and limitations of LBM. (08 Marks)

OR

- 10 a. Sketch the electron beam gun used in EBM and explain its working. (11 Marks)
b. List any 5 advantages of EBM process. (05 Marks)
