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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Sixth Semester, B.E. - Mechanical Engineering

Semester End Examination; May / June - 2019

Non-Traditional Machining

Time: 3 hrs

Max. Marks: 100

Note: Answer FIVE full questions, selecting ONE full question from each unit.

UNIT - I

- 1 a. What is the significance of non-traditional machining process? 5
- b. Write the comparison between conventional and non-conventional machining process. 5
- c. With a neat sketch, explain the working of USM process. 10
- 2 a. Write a short note on tool feed mechanisms used in USM process. 10
- b. Explain the effect of process parameters in USM process. 10

UNIT - II

- 3 a. With the help of a neat sketch, explain abrasive jet machining process. 10
- b. Explain the application of relaxation circuits used in EDM process. 10
- 4 a. Explain the principle orientation of electric discharge machining with a neat sketch. 5
- b. List different types of dielectric fluids used in EDM. Explain its properties. 5
- c. Discuss the effect of abrasive size, standoff distance, nozzle design, velocity of abrasive jet and carrier gas during the process of abrasive jet machining. 10

UNIT - III

- 5 a. What are the characteristics of electrolyte? Mention any four electrolytes used in ECM. 8
- b. Explain the principle used in chemical machining. What are factors to be consider in the selection of etchants? 12
- 6 a. With a neat sketch, explain electrochemical grinding. 10
- b. List the advantages, disadvantages and applications of chemical machining. 10

UNIT - IV

- 7 a. List the different types of Lasers. Explain any one laser formation with its principle along with a neat sketch. 10
- b. Explain with a neat sketch the explosive forming process. 10
- 8 a. List the parameters involved in LBM. Explain any four in detail. 10
- b. Give a comparison between conventional and high velocity forming methods. 10

UNIT - V

- 9 a. Explain the process parameters involved in PAM process. 10
- b. With a neat sketch, explain the Electron Beam process. 10
- 10 a. With a neat sketch, explain plasma arc machining process. 10
- b. Mention any two advantages, disadvantages and applications of EBM process. 10