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

(An Autonomous Institution affiliated to VTU, Belgaum)

Sixth Semester, B.E. - Industrial and Production Engineering

Semester End Examination; June - 2016

Non-Traditional Machining Methods

Time: 3 hrs

Max. Marks: 100

Note: i) Answer **FIVE** full questions, selecting **ONE** full question from each **unit**.
ii) Assume missing data suitably.

UNIT - I

- 1 a. Discuss the characteristic features of non-traditional machining process compared with conventional machining process. 10
- b. Classify the modern machining methods. Explain the different types of energy used for material removal. 10
- 2 a. Explain the working principle of ultrasonic machining process with neat sketch. 12
- b. Illustrate various types of tool feed mechanism. 8

UNIT - II

- 3 a. List and explain the variables of AJM that influence the rate of metal removal and accuracy of machining. 12
- b. List the advantages and disadvantages of AJM. 8
- 4 a. Explain with schematic diagram AJM. 10
- b. Describe typical engineering applications of AJM. 10

UNIT - III

- 5 a. Explain with schematic representation the working principle of ECM. List the elements of ECM process. 10
- b. Describe the Chemistry of ECM process. 10
- 6 a. Explain the process of chemical machining. Explain the role of maskants and etchant in detail. 12
- b. List the advantages of CHM. 4
- c. What are the applications of chemical machining? 4

UNIT - IV

- 7 a. Discuss electrode feed control mechanism in EDM. 10
- b. Explain the four parameters that govern the metal removal in EDM. 10
- 8 a. What are the desired properties of dielectric fluids list any four dielectric fluids? 10
- b. What is flushing? Explain any four types of flushing. 10

UNIT - V

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| 9 a. | Discuss the general guidelines for designing the torch in PAM. | 8 |
| b. | Explain Transferred arc torches and non-transferred arc torches. | 6 |
| c. | List the different cutting gases used in PAM. | 6 |
| 10 a. | Explain generation and control of electron beam with neat sketch. | 10 |
| b. | What are the applications of EBM? | 5 |
| c. | List any five advantages of EBM. | 5 |

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