

Code: 13A03807

B.Tech IV Year II Semester (R13) Regular & Supplementary Examinations April 2018

MODERN MANUFACTURING METHODS

(Mechanical Engineering)

Time: 3 hours

Max. Marks: 70

PART – A
(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) Illustrate and compare various nontraditional machining processes.
 - (b) List the classification of RP systems.
 - (c) List the applications and limitations of USM.
 - (d) What is the relation between MRR and abrasive grain size in AJM process?
 - (e) Explain the use of maskants and etchants in electro chemical machining process.
 - (f) What are the characteristics (requirements) of a good ECM tool?
 - (g) What is an arc gap? How is the arc gap controlled in EDM?
 - (h) What is the principle of plasma arc machining? What are the two stages in which the process of material removal is affected?
 - (i) Discuss the type of energy used in LBM.
 - (j) In electron beam machining, why is a high vacuum created in the apparatus?

PART – B
(Answer all five units, 5 X 10 = 50 Marks)**UNIT – I**

- 2 What is the necessity for unconventional machining processes? Explain the classification of unconventional machining according to major energy source employed.

OR

- 3 Narrate fuse deposition method with neat sketch.

UNIT – II

- 4 (a) State the working principle of USM equipment with neat sketch.
(b) Explain the abrasives used in USM process

OR

- 5 With a neat sketch, explain the process of AJM? Explain the process control measures to be taken to control quality and MRR.

UNIT – III

- 6 Describe the principle of ECG and ECM. Discuss about the process parameters that influences the ECM. List their applications and advantages.

OR

- 7 Briefly explain the following with respect to chemical machining:
(a) Characteristics of cut peel maskants.
(b) Selection of maskants.
(c) Limitations of chemical machining.

UNIT – IV

- 8 What are the important process parameters that control the material removal rate in EDM? Explain any four factors.

OR

- 9 Define plasma. What are the gases used in PAM? What is the main industrial application of plasma cutting systems? Discuss the advantages and limitations of plasma arc welding.

UNIT – V

- 10 Explain the features of EBM unit. Explain the effect of increasing the acceleration potential on MRR.

OR

- 11 Explain the production of laser beam and working principle of LBM. What are the unique characteristics a laser machining technique possesses that make it the only choice for the job?