Code: 13A03807 **R13**

B.Tech IV Year II Semester (R13) Advanced Supplementary Examinations July 2018

MODERN MANUFACTURING METHODS

(Mechanical Engineering)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

(a) What are the various types of energy sources used in non-traditional machining techniques?
(b) What are key aspects of RPT?
(c) What is the effect of abrasive grain size on machining rate in USM?
(d) What are the abrasives used in AJM process? List the applications of WJM process.
(e) What are the main functions of electrolysis in the ECM?
(f) List out the advantages and applications of CM.
(g) List the main functions of dielectric fluids used in EDM.
(h) Define plasma. What are the gases used in PAM?
(i) What is the function of magnetic deflection coin used in EBM process?
(j) State the principle of LBM. What are the characteristics of laser used in laser machining?

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 How the unconventional manufacturing processes are classified? Explain the various types energies involved & mechanism of metal removal.

OR

3 Discuss the evolution of RP systems indicating the history and their growth rate in the industrial sector.

UNIT – II

4 Explain the following in detail: (i) Types of transducers for USM. (ii) Feed mechanisms in USM. (iii) USM typical applications. (iv) Abrasives for USM.

OR

5 (a) Describe the principle and equipment for Water Jet Machining.
(b) Explain different applications and process control features of WJM.

UNIT – III

6 Explain the working principle of electrochemical discharge grinding and discuss the process capabilities and applications.

OR

7 Briefly discuss about electrochemical deburring process parameters of chemical machining process that influence the performance of the machining.

UNIT – IV

8 Explain the process of electrical discharge grinding (EDG) and list any two of its advantages, limitations and applications.

OR

9 Explain the process of PAM with a neat sketch. With respect to principle, equipment process parameter, advantages, disadvantages and applications.

UNIT – V

10 Discuss about the process capabilities of EBM and the process parameters of EBM in improving machining quality.

OR

11 Explain the thermal features of laser beam machining. Discuss the performance of various types of lasers.