

B.Tech IV Year II Semester (R13) Regular Examinations April 2017

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) With a neat sketch, explain the working principle of stereo lithography process.
- (b) Enlist the requirement that demands the use of advanced machining process.
- (c) What are the magnetostrictive materials employed in USM?
- (d) Explain any three parameters on working accuracy and metal removal rate in AJM.
- (e) Explain the process variables in ECM process.
- (f) What are the limitations of Chemical Machining process?
- (g) Write down the process characteristics of Plasma Arc Machining.
- (h) Explain the working principle of Wire cut EDM process.
- (i) What are the gases commonly used on laser and explain the characteristics of laser beam?
- (j) What are the advantages and limitations of a EBM process?

PART – B

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

UNIT – I

- 2 (a) Explain the need of modern manufacturing methods.
- (b) Give a short on Precision and Lean manufacturing.

OR

- 3 (a) Write the classification of Rapid prototyping methods.
- (b) With a neat sketch explain the working of Fused Deposition Method and explain its various applications of it.

UNIT – II

- 4 Explain the mechanics of metal removal and process parameters of Ultrasonic Machining process and also give their applications, limitations.

OR

- 5 With a neat sketch explain the construction and working of WJM system and also explain their process variables.

UNIT – III

- 6 Give a brief note on economic aspects of ECM and also explain their Metal removal rate, process variable and applications of it.

OR

- 7 (a) Explain the principle of metal removal in maskants, etchants and process variable of a chemical machining process.
- (b) What are the advantages of chemical machining process?

UNIT – IV

- 8 (a) With a neat sketch explain the construction and working of an Electric Discharge Grinding process.
- (b) Explain the choice of parameters for improved surface finish and accuracy for EDM process.

OR

- 9 (a) With a neat sketch explain the principle of metal removal rate in Plasma Arc machining process.
- (b) Describe the process and equipment of Plasma Arc Machining process.

UNIT – V

- 10 Write a short note on process parameters and performance characterization of Laser Beam Machining processes.

OR

- 11 With a neat sketch explain the construction and working of an Electron Beam Machining Process and explain the theory of mechanics of metal removal in EBM