

Code No: RT41034

R13**Set No. 1**

IV B.Tech I Semester Supplementary Examinations, February - 2019
UNCONVENTIONAL MACHINING PROCESSES
(Mechanical Engineering)

Time: 3 hours

Max. Marks: 70

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any THREE questions from Part-B

PART-A (22 Marks)

1. a) What are the characteristics of USM process? [3]
b) What are the electrolytes commonly used in ECM? [3]
c) How to minimize tool wear in EDM? [4]
d) What are the advantages and applications of EBM process? [4]
e) What is meant by nontransferred and transferred mode of a plasma torch? [4]
f) State the important applications and limitations of AJM process. [4]

PART-B (3x16 = 48 Marks)

2. a) Explain how material is removed in ultra-sonic machining. [8]
b) What do you understand by the term unconventional or non-traditional machining methods? What is their importance? [8]
3. a) Explain the principle, working and advantages of electro chemical machining process. [8]
b) What are the materials commonly used for making a tool in ECM? Briefly explain. [8]
4. a) For RC circuit, adjusted for maximum power delivery condition, the following data are available: R= 250 Ohms, C= 25mF and supply voltage is 75 V. Calculate charging current and frequency of discharge when the circuit is closed. [8]
b) Explain how the machine tool selections influence the characteristics of spark eroded surface. [8]
5. a) What are the types of lasers used for material processing applications? Describe how the system can be used for machining purpose. [8]
b) Mention the advantages, limitations and applications of electron beam machining. [8]
6. a) Discuss the parameters that govern the performance of plasma arc machining. [8]
b) Explain in detail various industrial applications of plasma machining. [8]
7. a) Write the factors that affects the performance of WJM process. Discuss their effects in brief. [8]
b) With neat sketch, explain magnetic abrasive finishing process. [8]