Code No: **R1642032** **R16** **Set No. 1**

IV B.Tech II Semester Advanced Supplementary Examinations, Aug/Sep - 2022

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 FOUR questions from Part-B

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PART–A *(14 Marks)*

1. a) Identify why unconventional mechanical machining process is not popular? [2]
   b) What are the applications of Chemical Machining Process? [3]
   c) Explain the functions of dielectric fluid. [3]
   d) Describe the Acronym of LASER? [2]
   e) What do you mean by plasma? [2]
   f) Demonstrate, why reuse of abrasives is not recommended in abrasive jet machining process? [2]

PART–B *(4x14 = 56 Marks)*

2. a) How is the effect of amplitude and frequency of vibration on material removal and surface finish obtainable in ultrasonic machining. [7]
   b) How do you classify unconventional machining processes? Discuss briefly. [7]

3. a) What are reactions are possible in cathode (tool) and anode (work piece) in ECM process? (Assume electrolyte NaCI). What are the operations performed in ECM [7]
   b) Explain various types of tool designs in ECM [7]

4. a) Explain the different types of power circuits used in EDM process [7]
   b) Explain briefly EDM process characteristics. [7]

5. a) Describe the process parameters of EBM and influence on machining quality. [7]
   b) Sketch and explain Solid state Laser beam machining process [7]

6. Explain the principle of plasma arc machining with a neat sketch. State its advantages, limitations and applications [14]

7. a) Explain the process variables that influence the metal removal rate in abrasive jet machining. [8]
   b) Sketch and explain Electrostream drilling machining process. [6]