

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY GURAJADA VIZIANAGARAM
IV B. Tech I Semester Advanced Supplementary Examinations March 2025
UN CONVENTIONAL MACHINING PROCESSES

(Mechanical Engineering)

Time: 3 hours

Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
 All Questions Carry Equal Marks

UNIT-I

1. a) Discuss in detail about the economic considerations of Ultrasonic machining process [7M]
 b) Explain the material removal process in AWJM with neat sketch. [7M]
 (OR)
2. a) What is the need for non-traditional machining methods? And also write its applications. [7M]
 b) Describe briefly the working of abrasive flow finishing process? [7M]

UNIT-II

3. a) What are the types of transducers used in Ultrasonic machining? Explain their working principles. What is the function of horn in USM? [7M]
 b) Write about the economic considerations in incorporating Ultrasonic machining in manufacturing process. [7M]
 (OR)
4. a) Discuss the effects of the amplitude, frequency of vibrations and abrasive grain size on the rate of material removal obtainable in ultrasonic machining. [7M]
 b) Write about the applications and limitations of Ultrasonic machining [7M]

UNIT-III

5. a) Explain the electro chemical deburring and honing processes in detail. [7M]
 b) Discuss the procedure for chemical milling along with its applications. [7M]
 (OR)
6. a) Discuss the considerations of tool design for electrochemical machining and explain the functions of electrolyte. [7M]
 b) What are the advantages and disadvantages of Electro chemical grinding? [7M]

UNIT-IV

7. a) Explain about the electric discharge grinding process and give its applications. [7M]
 b) Discuss any three power circuits used for EDM process. [7M]
 (OR)
8. a) Explain with help neat sketches any two types of flushing methods in EDM process. [7M]
 b) Describe the working principle of wire EDM process [7M]

UNIT-V

9. a) Discuss why the EBM process is carried out in vacuum and also write its applications. [7M]
 b) Explain the characteristics of laser beam machining process. [7M]
 (OR)
10. a) Enlist the various process parameters and their effect in LBM process [7M]
 b) Differentiate electron beam machining and laser beam machining processes? [7M]
