

Code No: 117JH

R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year I Semester Examinations, March - 2017

UNCONVENTIONAL MACHINING PROCESSES

(Mechanical Engineering)

Time: 3 Hours

Max. Marks: 75

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

Part- A (25 Marks)

- 1.a) State the advantages and limitations of non-traditional machining processes over traditional machining process. [2]
- b) Classify different unconventional machining process based on material to be machined. [3]
- c) What do you mean by deburring process? [2]
- d) Write the characteristics of Electro chemical machining. [3]
- e) Write the characteristics of die-electric medium used in EDM process. [2]
- f) What do you mean by taper effect in EDM process? [3]
- g) How do you estimate the material removal in laser beam machining process? [2]
- h) Enumerate the different types of lasers used in Laser machining. [3]
- i) List out the applications of plasma machining process. [2]
- j) State the principle of operation in chemical machining process. [3]

Part-B (50 Marks)

- 2.a) Why do we need conventional machining processes explain with a suitable example?
 - b) Explain in detail the characteristics of ultrasonic machining process. [5+5]
- OR**
- 3.a) Discuss the features and functioning of horn used in ultrasonic machining.
 - b) With the help of a neat diagram explain the equipment and principle of ultrasonic machining. [5+5]
- 4.a) Explain in detail the mechanics of material removal in abrasive water jet machining.
 - b) State the advantages and limitations of water jet machining over Chemical machining process. [5+5]
- OR**
- 5.a) What do you mean by Etch factor and how can it be controlled in chemical machining?
 - b) What are the various process parameters to be considered to obtain the high Material removal rate and quality of machined surface in electro chemical machining process? [5+5]
- 6.a) Explain the working of wire EDM process and state its advantages and limitations.
 - b) Explain in detail the spark ignition in EDM process. [5+5]

OR