R13

Code No: 117JH

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, November/December - 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) What is non-traditional machining methods? [2]
b) What are the basic elements of ultrasonic machining? [3]
c) List out the applications of water jet machining. [2]
d) Give the electro-chemistry associated with electro-chemical machining. [3]
e) What is wire EDM? [2]
f) What factors are to be considered for the selection of tool material in electric discharge machining? [3]
g) What are the limitations of laser beam machining? [2]
h) Comment about accuracy of cut in electron beam machining. [3]
i) What are the limitations of plasma arc machining? [2]
j) What are the applications of chemical machining? [3]

PART-B **(50 Marks)**

2.a) Give the complete classification of modern machining methods.
b) Describe the horn of an ultrasonic machine. [5+5]

OR

3.a) Comment about the applications of modern machining methods.
b) Explain the basic mechanism of metal removal in ultrasonic machining. [5+5]

4.a) Explain the influence of nature of abrasives on metal removal rate in abrasive jet machining.
b) Comment about surface finish and accuracy in electro-chemical machining. [5+5]

OR

5. Derive an equation for metal removal rate in electro-chemical machining. [10]

6.a) Explain how the pulses can be controlled in EDM using Relaxation circuit.
b) With the help of a line diagram explain the working of electric discharge grinding. [5+5]

OR

7.a) Explain the basic mechanism of metal removal in electric discharge machining.
b) Comment about the nature of spark eroded surfaces. [5+5]

8. With the help of line diagram explain the construction, working and applications of electron beam machining. [10]

OR

9.a) What materials are generally used for generation of laser? Explain.
b) Discuss the thermal features of laser beam. [5+5]

10. With the help of suitable diagrams explain the use of various modes of plasma for various purposes in industry. [10]

OR

11. What are the steps involved in the chemical machining? Explain. [10]

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