Code No: 156DC

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year II Semester Examinations, February - 2023
UNCONVENTIONAL MACHINING PROCESSES
(Common to ME, MCT)

Time: 3 Hours **Max. Marks: 75**

Note: i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART - A

(25 Marks)

1.a)	What are the advantages of non-traditional metal cutting?	[2]
b)	Explain the nature of slurry used in ultrasonic machining.	[3]
c)	What are the applications of abrasive jet machining?	[2]
d)	Comment about tool design electro chemical machining.	[3]
e)	What is the basic principle of metal removal in electric discharge grinding?	[2]
f)	List out the applications of wire-EDM.	[3]
g)	Comment about the cutting speed in laser beam machining.	[2]
h)	Explain the influence of spot diameter on energy density in electron beam machining	[3]
i)	List out the limitations of plasma arc machining.	[2]
j)	Explain the applications of chemical machining.	[3]

PART – B

(50 Marks)

2.a)	Explain the mechanism of metal removal in ultrasonic machining.	
b)	Compare and contrast various non-traditional machining processes.	[4+6]
	OR	
3.a)	Explain the economic considerations of ultrasonic machining.	
b)	Comment about the limitations of modern machining processes.	[5+5]
4.a)	Explain the influence of the size, shape and concentration of abrasive particles on rate of metal removal obtained in abrasive jet machining.	
b)	Describe the electro chemical honing process.	[5+5]
	OR	
5.a)	List out the applications and limitations of abrasive water jet machining.	
b)	Explain the principle of working of electro chemical grinding process.	[6+4]
6.a)	Explain the applications of electric discharge machining.	
b)	Comment about the surface finish in EDM.	[5+5]
	OR	
7.a)	With the help of line diagram, explain the working of Electric Discharge Grinding.	
b)	Explain the factors to be considered for the selection of tool material in EDM.	[6+4]

8.a) Explain the steps involved the generation of laser beam.
b) Discuss the need for vacuum and its influence on electron beam machining. [5+5]

OR

9.a) Explain the process capabilities of electron beam machining.
b) Discuss the thermal features of laser beam machining. [6+4]

10.a) Explain the non-transferred mode of plasma generation.
b) Explain the principle of working of chemical machining. [5+5]

OR

11. With the help of a line diagram, explain the steps involved in the shaped tube electrolyte machining. [10]

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