R18

Code No: 156DC

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, March - 2024

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 is the need for unconventional machining processes?	[2]
b)	Write briefly about the recent developments in unconventional machining processes.	[3]
c)	What are the abrasives used in AJM process?	[2]
d)	Name the electrolytes which are used in electro chemical machining.	[3]
e)	What is the dielectric fluids commonly used in EDM?	[2]
f)	What is the basic principle of EDM?	[3]
g)	State the principle of LBM.	[2]
h)	What are the important process parameters of electron beam machining processes?	[3]
i)	What is etchant in chemical machining process?	[2]
j)	Define abrasive flow machining.	[3]

PART – B

(50 Marks)

2.a)	Explain the factors that should be considered during the selection of an appropriate unconventional machining process for a given job.	
b)	Explain the factors, which influence the MRR in USM in detail.	[5+5]

OR

3.a)	Summarize the needs for development of unconventional machining processes? Explain with examples.	
b)	Describe the principle and working of a USM with a neat sketch. List the advantages, and applications of USM.	[5+5]
4.a)	With a neat sketch, explain the principle of electro-chemical grinding in detail.	
b)	With a neat sketch explain the process of AJM in detail.	[5+5]

OR

5.a)	Describe the principle and equipment for Water Jet Machining in detail.	
b)	What are the materials commonly used for making a tool in ECM? Briefly explain.	[5+5]

6.a) With the help of neat sketch, describe the EDM process in detail.

b) What are the desirable properties of a dielectric fluid? Give some examples for dielectric fluids. [5+5]

OR

7.a) List the recent developments in EDM process and state the limitations of EDM process.

b) Draw the scheme of Electro discharge wire cutting machine and explain its principle of operation. [5+5]

8. Explain in detail the working of electron beam machining process with advantages, limitations and applications. [10]

OR

9. Explain in detail the principle of working of Laser beam machining process and state its advantages, limitations and applications. [10]

10.a) Summarize the different fields of applications of Magnetic assisted abrasive flow machining

b) Explain the principle of plasma generation and mechanism of metal removal in plasma arch machining. [5+5]

OR

11.a) Explain Electro-stream drilling process with a neat sketch in detail.

b) What are the applications of plasma in manufacturing industries? [5+5]

---ooOoo---