

R16

Code No: 138FA

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year II Semester Examinations, December - 2020

UNCONVENTIONAL MACHINING PROCESSES

(Mechanical Engineering)

Time: 2 hours

Max. Marks: 75

Answer any Five Questions
All Questions Carry Equal Marks

1. Classify unconventional machining processes according to major energy source employed in the process. [15]
2. Explain the material removal mechanisms in ultrasonic machining (USM) with a suitable diagram. Enumerate the factors affecting material removal rate in USM. [15]
3. Draw the schematic diagram of abrasive jet machining (AJM) process and explain the importance of the main elements in AJM process. [15]
4. Explain the principle, working and advantages of electro-chemical machining process. [15]
5. Describe the wire-cut EDM equipment along with its working principle. [15]
- 6.a) Illustrate the effect of (i) magnitude of current, and (ii) frequency, on the shape and size of the craters formed during EDM.
b) For RC circuit, adjusted for maximum power delivery condition, the following data are available:
R = 220 ohm, C = 22 mF and supply voltage = 88 V. Calculate charging current and frequency of discharge when the circuit is closed. [7+8]
7. Describe the Electron Beam Machining (EBM) process with a simple sketch and also relate process parameters affecting EBM performance. [15]
- 8.a) What are the essential difference between a plasma arc cutting torch and welding torch?
b) Write about the material removal rate, accuracy and surface quality levels that can be achieved by Plasma Arc Machining. [6+9]

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