



Name :

Roll No. :

Invigilator's Signature :

**CS/M.TECH(ME)/SEM-2/PTM-202/2010
2010**

NON-TRADITIONAL MACHINING PROCESSES

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Answer any *five* questions.

5 × 14 = 70

1. What do you mean by non-traditional machining processes ?
State its advantages over traditional machining processes.
Explain the mechanics of Abrasive Jet Machining (AJM).

4 + 4 + 6
2. Discuss briefly about ultrasonic machining process (USM).
Is USM really a chipless process ? What is Rotary Ultrasonic
Machining ?

9 + 3 + 2
3. State the principle of operation of Electro-chemical
Machining (ECM). In what factors does the M.R.R. depend
on ECM ? State the applications of ECM.

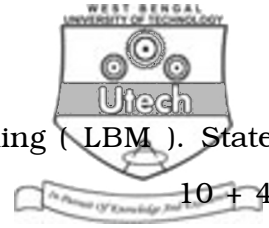
8 + 4 + 2
4. Discuss briefly about the principle of operation of Electrical
Discharge Machining (EDM) with neat sketch. State the
design considerations for EDM.

10 + 4

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5. Discuss briefly about Laser Beam Machining (LBM). State the process capabilities. 10 + 4
6. Explain the difference between chemical machining and electrochemical machining. What is the underlying principle of electrochemical grinding ? What is undercut and why must it be considered in chemical machining ? 5 + 5 + 4
7. Illustrate Electron Beam Machining (EBM) with schematic view. For cutting a 150 μm wide slot in a 1 mm thick tungsten sheet, an electron beam with 5 kW power is used. Determine the speed of cutting.
[Take specific power consumption in EBM for tungsten (c) = 12 W/mm³ /min]. 10 + 4
8. Write short notes on Electrochemical discharge machining, Nano fabrication, Micro-machining. 5 + 5 + 4
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