




**Department of Mechanical Engineering  
Innovative Teaching Methods**

Activity Title	Quiz
Faculty Name/Department	Mr Tharanikumar L / Mech
Mapped Course Name & Code	CME 387 NON-TRADITIONAL MACHINING PROCESS
Date	19.09.2023
Benefitted Students (Year / Sem / Dept)	III / V / Mech
Topic	Laser Beam Machining
Description	<p>I have tried to make the questions relevant toward the evaluation of the engineer who has a background in Laser beam machining, Saying that, knowing the answers to this quiz doesn't imply that one is capable of understanding the principles involved in unconventional machining process concerning laser beam machining.</p> <p><i>(Rule: No passing Questions)</i></p>
Course Outcomes (CO)	CO2: Compare various thermal energy and electrical energy based unconventional machining processes.
Performance Indicator (PI)	1.3.1
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Activity Photos	



**Topics/ Questions:**

1. Which of the following are the properties of a laser.
  - a) Highly collimated
  - b) Monochromatic
  - c) Coherent light beam
  - d) All of the mentioned
2. Laser beam machining uses which type of power sources for machining
  - a) Very low power
  - b) Low power
  - c) Medium power
  - d) High power
3. What is the wavelength value of Ruby laser used in Laser beam machining
  - a) 633 nm
  - b) 694 nm
  - c) 856 nm
  - d) 1064 nm
4. What is the wavelength value of CO<sub>2</sub> laser used in Laser beam machining
  - a) 0.16  $\mu\text{m}$
  - b) 1.6  $\mu\text{m}$
  - c) 10.6  $\mu\text{m}$
  - d) 106  $\mu\text{m}$
5. What is the full form of LBM in advanced machining processes
  - a) Laser Beam Manufacturing
  - b) Laser Beam Machining
  - c) Light Blast Manufacturing
  - d) Light Beam Machining



6. What is the abbreviation of Laser
- Light allowed simple emission of radiation
  - Light amplification by stimulated emission of radiation
  - Light amplified simultaneous emission of rays
  - Light amplified stimulated emanation of rays
7. Which of the following are different types of lasers used in Laser beam machining?
- Solid-state ion
  - Neutral gas
  - Semiconductor
  - All of the mentioned
8. Which types of lasers are used in Laser beam machining?
- Continuous wave
  - Pulsed mode
  - Continuous wave & Pulsed mode
  - None of the mentioned
9. What are the values of wavelengths of GaAs laser used in LBM?
- 100 – 200 nm
  - 200 – 400 nm
  - 600 – 700 nm
  - 800 – 900 nm
10. Which of the following are the components of Ion beam machining
- Vacuum chamber
  - Voltage source
  - Tungsten filament cathode
  - All of the mentioned
11. How does the ions strike the work piece in machining using IBM.
- Oblique striking
  - Normal incident striking
  - Oblique & Normal incident striking
  - None of the mentioned
12. What are the values of current densities required in IBM.
- 0.25 mA/cm<sup>2</sup>
  - 0.35 mA/cm<sup>2</sup>
  - 0.55 mA/cm<sup>2</sup>
  - 0.85 mA/cm<sup>2</sup>



13. What is the value of beam diameter that is obtained in IBM.
- a) 1 cm
  - b) 3 cm
  - c) 5 cm
  - d) 7 cm
14. What is the value of voltage required for machining in Ion beam machining.
- a) 1 kV
  - b) 2 kV
  - c) 3 kV
  - d) 4 kV
15. What is the value of beam diameter that is obtained in IBM
- a) 1 cm
  - b) 3 cm
  - c) 5 cm
  - d) 7 cm
16. What is the wavelength value of Nd-YAG and Nd-glass lasers used in LBM
- a) 633 nm
  - b) 694 nm
  - c) 856 nm
  - d) 1064 nm
17. How many types of flows are possible in gas lasers.
- a) 2
  - b) 3
  - c) 4
  - d) 5
18. For which of the following materials CO<sub>2</sub> laser is not used.
- a) Plastics
  - b) Metals
  - c) Organic materials
  - d) Ceramics



**Marks:**

Group Name (if ITM is a group activity)	Reg No.	Topic	Marks
TEAM A	311821114001	LASER BEAM MACHINING	20
	311821114002		
	311821114003		
	311821114004		
	311821114005		
TEAM B	311821114007		15
	311821114009		
	311821114010		
	311821114011		
	311819114010		
TEAM C	311819114011		18
	311821114012		
	311821114014		
	311821114015		
	311821114016		
TEAM D	311821114017		15
	311821114018		
	311821114301		
	311821114302		
	311821114303		
TEAM E	311821114304	25	
	311821114305		
	311821114306		
	311821114307		
	311821114701		



**Outcomes:**

Unconventional Machining process allows you to get knowledge on different types of beams used for laser machining. This means students can gather deeper knowledge on different types of process and its wavelength parameters and the costs involved in it. This improves the student's interest on the Internal Assessment Test.

CE