

**B.Tech. – VIEP – MECHANICAL ENGINEERING
(BTMEVI)**

00983

Term-End Examination

June, 2018

**BIMEE-001 : UNCONVENTIONAL MANUFACTURING
PROCESSES**

Time : 3 hours

Maximum Marks : 70

Note : Answer any five questions. All questions carry equal marks.

1. (a) Compare and contrast the various unconventional machining processes on the basis of type of energy employed; material removal rate, transfer media and economical aspects. 7

- (b) What are the limitations in conventional manufacturing processes ? What is the need of unconventional manufacturing processes ? 7

2. (a) Explain the principle of Abrasive Jet Machining (AJM). Mention all its specific applications. 7
- (b) Explain how the gap is maintained in Electric Discharge Machining (EDM) processes and discuss the importance of flushing the gap. 7
3. (a) Explain the principle of Electric Discharge Machining (EDM) processes. Specify its applications. 7
- (b) Briefly discuss the effects of high temperature and pressure of electrolyte on the ECM processes. Also discuss the economics of ECM. 7
4. (a) Explain the principle of Laser Beam Machining processes. Mention its applications. 7
- (b) Why is electron beam machining carried out in vacuum? Describe the process with neat sketch. 7
5. (a) Briefly discuss the mechanism involved in material removal by ultrasonic machining. 7
- (b) Write the advantages, disadvantages and applications of metalizing. 7

6. (a) Explain the production of plasma and the working principle of plasma arc cutting system. 7
- (b) Explain the principle of water hammer forming. State its applications. 7
7. (a) Describe the working principle of electromagnetic forming. 7
- (b) Explain the process of explosive compaction with a neat sketch and discuss the influences of its process parameters. 7

8. Write short notes on any *four* of the following : $4 \times 3 \frac{1}{2} = 14$

- (a) Underwater Welding
- (b) Cladding
- (c) Explosive Forming
- (d) Photo-Lithography Process
- (e) Explosive Welding
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