

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

00626 **Term-End Examination**
June, 2015

**BIMEE-001 : UNCONVENTIONAL MANUFACTURING
PROCESSES**

Time : 3 hours

Maximum Marks : 70

Note : Answer any five out of seven questions. All questions carry equal marks. Standard symbols and notations have usual meaning.

1. (a) Explain the various factors that should be considered during the selection of an appropriate unconventional machining process for a given job. 7
- (b) 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
2. (a) Explain the principle of AJM. Mention all its specific applications. 6

- (b) Discuss in detail the AJM process parameters that influence the rate of material removal and accuracy in the machining. 8
3. (a) With a neat sketch explain the EDM process with its applications. 6
- (b) Explain how the gap is maintained in EDM. Explain the importance of flushing the gap. 8
4. (a) Briefly discuss the effects of high temperature and pressure of electrolyte on the ECM process. Also discuss the economics of ECM. 6
- (b) Why is electron beam machining carried out in vacuum ? Explain. Describe the process with a neat sketch. 8
5. (a) Explain the production of plasma and working principle of plasma arc cutting system. 7
- (b) Discuss in brief ultrasonic machining process. 7
6. (a) What are the significant process parameters used in water hammer forming ? Name them and explain their effect on process performance. 7
- (b) Explain the process of explosive compaction with a neat sketch and discuss the influences of its process parameters. 7

7. (a) How are ultrasonic vibrations generated in
USM ? Describe. 6
- (b) What is meant by “optical pumping” ?
Briefly explain the “population inversion”
with respect to laser beam machining. 8
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