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BIMEE-001

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

Term-End Examination

December, 2018

00083

BIMEE-001 : UNCONVENTIONAL MANUFACTURING PROCESSES

Time : 3 hours *Maximum Marks : 70*

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

1. (a) Make a detailed comparative analysis between conventional and un-conventional manufacturing processes. Use features of raw material, process performance and quality of product to support your answer. 7

   (b) What exactly are the items that can be considered with respect to the analysis of economics of various non-traditional machining processes ? Briefly explain. 7

2. (a) Explain the principle of Abrasive Jet Machining (AJM). Mention all its specific applications. 7

(b) What are the types of lasers used for material processing application ? Describe how the system can be used for machining purpose. 7

3. (a) Describe the working principle of Electro-Chemical Machining (ECM). Explain the ECM process with various components of its set-up. 7

(b) Explain how the gap is maintained in Electro-Discharge Machining (EDM). Explain the importance of flushing the gap. 7

4. (a) Why is Electron Beam Machining carried out in vaccum ? Explain. Describe the process with a neat sketch. 7

(b) Write the advantages, disadvantages and applications of metalizing. 7

5. (a) Explain the process of explosive welding with neat sketch. 7

(b) What are the significant process parameters used in water hammer forming ? Explain their effect on process performance. 7

6. (a) How can welding processes be used for cladding application ? Discuss. 7

(b) Differentiate between Electro Discharge Machining and Electro Discharge Forming. 7

7. (a) Describe the working principle of photolithography process. 7

(b) Make comparison between Oxyacetylene cutting and Plasma arc cutting processes. 7

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

(a) Rapid Prototyping

(b) Underwater Welding

(c) Selective Laser Sintering

(d) Electrode Materials for EDM Process

(e) Cladding

(f) Explosive Compaction