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Question Paper Code : 51828

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2016

Sixth Semester

Mechanical Engineering

**ME 2026/ME 606/10122 MEE 17 – UNCONVENTIONAL MACHINING PROCESSES /
UNCONVENTIONAL MANUFACTURING PROCESSES**

**(Common to B.E. Mechanical and Automation Engineering and B.E. Production
Engineering)**

(Regulations 2008/2010)

**(Common to PTME 2026 – Unconventional Machining Processes for B.E. (Part-Time)
Sixth Semester – Mechanical Engineering – Regulations 2009)**

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions.

PART – A (10 × 2 = 20 Marks)

1. List the unconventional machining processes based on chemical energy.
2. What are the advantages of Unconventional Machining processes ?
3. What is the principle of USM ?
4. List the applications of WJM.
5. Sketch the relaxation circuit of EDM.
6. State the principle of EDM.
7. What are the properties expected from the electrolysis used in the ECM ?
8. What are the advantages and disadvantages of ECM ?
9. What is the principle of Plasma Arc Machining process ?
10. What are the techniques used for controlling beam in EBM process ?

PART – B (5 × 16 = 80 Marks)

11. (a) Explain with case study, the needs of unconventional Machining processes. (16)

OR

- (b) (i) How are the unconventional machining processes classified? (6)
(ii) Compare the process application of unconventional machining processes. (10)
12. (a) (i) Derive the equation for volumetric material removal rate involved in grain throwing model of USM. (12)
(ii) Compare the types of nozzle designs employed in AWJM with neat sketches. (4)

OR

- (b) Describe the process of Abrasive jet Machining along with the effect of all the process parameters.
13. (a) Describe the wire cut EDM equipment, its working, applications and advantages. (16)
- OR**
- (b) (i) Explain the classification and characteristics of various spark erosion generators. (8)
(ii) With help of neat sketch describe the mechanism of material removal in EDM? (8)

14. (a) Explain the processes of Chemical blanking and Chemical milling with neat sketches. (16)

OR

- (b) (i) Describe the process of ECM with a neat sketch. (8)
(ii) Describe the process of ECG with a neat sketch. (8)
15. (a) Explain with a neat sketch, the working principle of Laser Beam Machining process. List its applications. (16)

OR

- (b) (i) What is plasmatron? Explain various types of plasmatron. (8)
(ii) Sketch the Electron Beam Gun and explain the functions of each part. (8)