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Question Paper Code : 60828

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

Sixth Semester

Mechanical Engineering

ME 2026/ME 606/10122 MEE 17 — UNCONVENTIONAL MACHINING
PROCESSES/UNCONVENTIONAL MANUFACTURING PROCESSES

(Common to Mechanical and Automation Engineering and
Production Engineering)

(Regulations 2008/2010)

(Also 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. Why non-traditional machining processes are called non-traditional?
2. Enlist the requirement that demands the use of advanced machining process.
3. What is the principle of USM?
4. List the application of WJM.
5. Name any four electrode materials used in Electrical Discharge Machining process.
6. List out the applications of wire cut EDM process.
7. What are etchants in chemical machining process?
8. Write the formula for finding the MRR in ECM process.
9. What is the principle of Laser beam machining process?
10. Write down the applications of electron beam machining process.

PART B — (5 × 16 = 80 marks)

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

Or

- (b) How are the unconventional machining processes classified? Explain.

12. (a) (i) Explain the process of abrasive jet machining. (6)
(ii) What are the variables that affect the cutting phenomena in AJM process? And also explain the effect of any two variables on MRR. (10)

Or

- (b) (i) Sketch the water jet cutting unit and also explain the mechanism of jet Cutting. (8)
(ii) With a neat sketch explain the working principle of ultrasonic machining process. (8)

13. (a) Explain the Process of Wire cut EDM with a neat sketch. (16)

Or

- (b) Write short notes on the following in the context of EDM. (4 + 4 + 4 + 4)
(i) Types of flushing
(ii) Types of spark generators
(iii) Types of electrode holders
(iv) Properties of Dielectric.

14. (a) (i) Discuss the various process parameters affecting the surface finish and MRR in chemical machining process. (10)
(ii) List the advantages of chemical machining process. (6)

Or

- (b) Explain with a neat sketch, the electro chemical machining process. List its advantages, limitations and applications. (16)

15. (a) Explain the process of PAM with a neat sketches. With respect to Principle, equipment process parameter, Advantages, disadvantages and Applications. (16)

Or

- (b) Explain the principle of LBM with neat sketch and list out the advantages and disadvantages?