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**Question Paper Code : 21544**

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2013.

Sixth Semester

Mechanical Engineering

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

(Common to Production Engineering)

(Regulation 2008/2010)

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

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the advantages of Unconventional Machining Processes?
2. List the Unconventional Machining processes based on thermal energy.
3. Write the operating principle of Water Jet Machining process.
4. What are the parameters influencing the MRR in Ultrasonic machining process?
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 maskants in Chemical Machining process?
8. Write the formula for finding the MRR in ECM process.
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) (i) With a neat sketch, explain the need of Unconventional Machining process. (6)  
(ii) Classify unconventional machining process. (10)

Or

- (b) Compare the process capabilities and limitations of mechanical energy based, thermal energy based and electrical energy based unconventional machining processes. (16)

12. (a) (i) With a neat sketch, explain the abrasive jet machining process. (8)  
(ii) Discuss about various process parameters involved in AJM process. (8)

Or

- (b) (i) Explain with a neat sketch, the working principle of ultrasonic machining process. (10)  
(ii) Discuss about various applications of USM process. (6)

13. (a) (i) Explain the various operating principles involved in Electrical Discharge Machining process. (8)  
(ii) Discuss any four power circuits used for EDM process. (8)

Or

- (b) (i) What is flushing in EDM process? Explain about various flushing techniques. (8)  
(ii) Explain with a neat sketch, the wire cut EDM process. (8)

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 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)