

## ME2026 Unconventional Machining Process Anna University Question Papers

B.E/B.TECH. DEGREE EXAMINATION ,MAY/JUNE 2006

Seventh semester ,Mechanical engineering

ME2026 Unconventional Machining Process Anna University Question Bank

TIME: 3Hrs

MAXIMUM: 100 marks

### PART A (10 X2 =20)

1. What are the importance of unconventional machining.
2. Explain the classification of unconventional machining according to major energy source employed
3. List out the importance of EDM.
4. Give the product application of EDM.
5. What are the functions of electrolyte in ECM?
6. Mention the salient features of USM.
7. Define electron beam.
8. Contrast LBM and EBM.
9. Write the application of ASM.
- 10 Describe the commonly used gas mixture in PAM and their corresponding work materials

### PART B (5 X 16 =80)

- 11 (i) With the help of neat sketch , Describe the EDM process.  
(ii) Explain briefly advantages of wire EDM process.

- 12 (a) (i) Explain the principle of EGC with sketch  
(ii) List out the advantage of EGC over conventional grinding.  
(iii) Mention the product application of EGC.

OR

- (b) Explain in detail the ECM process with neat sketch and also mention the advantages and application.

- 13 (a) (i) Explain the principle of LBM with neat sketch  
(ii) List out the advantage and limitation of LBM process.

OR

- (b) (i) Explain the principle of PAM with sketch  
(ii) List out the advantage and limitation of PAM process.

- 14 (a) (i) Mention the application of EBM.

(ii) What is EBM? Sketch its set up and indicate its main parts and explain the principle of operation

OR

(b) (i) Explain the principle of USM with neat diagram.

(ii) List the commonly used abrasive powder for the tooling of USM and their properties.

15 (a) (i) Explain the method of AJM with help of schematic diagram.

(ii) Mention the advantages and limitations of AJM.

OR

(b) Explain the process parameters in water JM process.

Anna University B.E Mechanical ME1001-UNCONVENTIONAL MACHINING PROCESS  
Question paper

Seventh semester, Mechanical engineering

ME1001 UNCONVENTIONAL MACHINING PROCESS

(Common to Mechanical Engineering and Production Engineering)

Time: 3 hours Max Marks: 80

Answer any FIVE Questions.

All Questions carry equal marks

1. (a) Write a note on tool wear in ultrasonic machining process. [8]  
(b) Explain the economic factors considered while selecting the ultrasonic machining process. [8]
2. (a) Explain Abrasive Jet Machining (AJM) with suitable diagram. [8]  
(b) With a suitable sketch explain the tooling arrangement to produce one of the products for aircraft industry. [8]
3. (a) What are the various advantages of using ECM? [8]  
(b) What are the various advantages Abrasive Jet Machining (AJM) [8]
4. Describe the advantages and limitations of power supply with rotary impulse generator circuit used in EDM. [8+8=16]
5. (a) what is plasma? How it can be used for material processing? [3+5]  
(b) What are the different types of plasmotrons used in material cutting applications? [8]
6. (a) Discuss the factors influencing the choice of electrode material in EDM? [8]

(b) How the surface finish and accuracy of machining are influenced by the process parameters in EDM? [8]

## **PART – A**

### **UNIT I**

Two Marks Questions (Part A questions)

1. What is meant by conventional machining processes?.
2. What is meant by Unconventional machining processes?
3. What are thermal energy methods of unconventional machining?
4. What is electro chemical energy method of unconventional machining?
5. What are chemical energy methods of unconventional machining?
6. What are mechanical energy methods of unconventional machining?
7. List the unconventional machining process which uses mechanical energy?
8. List the unconventional machining process, which uses thermal or heat energy?
9. List the unconventional machining process which uses Electro chemical energy?
10. What are the characteristics of unconventional machining process?.
11. Name the unconventional machining processes which are used to remove max control?
12. Name the unconventional machining processes which produce best surface finish?

### **16 Marks Questions (Part B Questions)**

13. Compare the mechanical and electrical energy processes in terms of physical parameters. Shape capabilities, Process capability, and Process economy. (16)
14. Explain the reasons for the development of Unconventional Machining Process. Discuss about the criteria recommended in selection of these processes. (16)
15. Make a comparison between traditional and unconventional machining processes in terms of cost, application, scope, Machining time, advantages and limitations. (16)
16. For different non-conventional processes, present in the form of a table, various process parameters recommended (16)

**PART – A**

**UNIT II**

**Two Marks Questions**

**(Part A questions)**

1. State the working principle of Abrasive Jet Machining.
2. What are the abrasives used in AJM process?
3. What are the materials used for nozzle manufacturing in AJM process?
4. Name the carrier gases used in AJM process?
5. What is the transfer medium in AJM?
6. What are the desirable properties of carrier gas in AJM.
7. Define AJM?
8. How does AJM differ from conventional sand blasting process?
9. What are the advantages of AJM process?
10. What are the applications of AJM?.
11. Write the Disadvantages of AJM process?
12. Give the formula for find the material remove rate for brittle metal?
13. Give a summary of the abrasive of their application for different operation?
14. Write the formula for find the MRR for ductile materials?
15. What are the Process parameters affecting the MRR in AJM?
16. What are the disadvantages of using abrasives again and again?
17. What are the different types of nozzles heads used in AJM?
18. Why oxygen should not be used in AJM?
19. What are the different types abrasives used in AJM?
20. Reuse of abrasives is not recommended in AJM. Why?
21. What are the properties of water jet machining about effect cutting action?

22. What are the types of units and its purpose used in water jet cutting system?
23. Why we are using the diamond nozzle?
24. Why do you select proper cutting fluid in WJM?
25. Does there is any environmental effects while using the water jet machining?
26. What are the advantages of WJC over conventional cutting methods?
27. What are the applications of WJM?
28. What are the commonly used additives in WJM?
29. What is optical tracing system?
30. What is ultrasonic machining?
31. What are the advantages of USM?
32. What are the Disadvantages of USM?
33. What are the applications of USM?
34. What are the components of USM?
35. What is ultrasonic transducer?
36. Write short noted on piezoelectric crystals?
37. What is magneto strictive effect?