

Code No. M0327 /R07

**R07**

**Set No.1**

**IV B.Tech I Semester Supplementary Examinations, February/March, 2011**

**UNCONVENTIONAL MACHINING PROCESSES**

**(Mechanical Engineering)**

**Time: 3 hours**

**Max. Marks: 80**

**Answer any FIVE Questions  
All Questions carry equal marks**

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1. (a) Name the different types of Unconventional Machining Processes. [4]  
(b) Explain the important characteristics of any six Unconventional Processes. [12]
2. (a) What are the different types of abrasive slurries? Explain their important characteristics. [8]  
(b) Explain the tool feed mechanism used in ultrasonic machining. [8]
3. (a) What is Abrasive Jet machining and Abrasive Water Jet Machining? Write any four differences between them. [8]  
(b) Explain the effect of 'grain size' and 'pressure' on the accuracy and rate of metal removal of in abrasive water jet machining. [8]
4. (a) Explain the various process parameters that affect the surface finish of component machined using ECM process. [8]  
(b) What are the different types of electrolytes used in ECM? Explain their characteristics. [8]
5. (a) Draw the simple sketch of Electro Discharge Machine and label the important elements. [8]  
(b) Explain the different types of errors occurred while machining the material using EDM? [8]
6. (a) Explain the features of an electron gun used electron beam machining. [8]  
(b) Explain the engineering applications of laser beam machining. [8]

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7. (a) Discuss the advantages and limitations of chemical machining process. [8]  
(b) What is transferred mode of plasma arc? Explain the advantages and differences between transferred and non-transferred mode of plasma arc. [8]
8. (a) Enumerate the differences between abrasive flow finishing and magnetic abrasive finishing processes. [8]  
(b) Describe process of electro-stream drilling process with the help of simple sketch. [8]

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**Set No.2**

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**UNCONVENTIONAL MACHINING PROCESSES**

**(Mechanical Engineering)**

**Time: 3 hours**

**Max. Marks: 80**

**Answer any FIVE Questions  
All Questions carry equal marks**

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1. (a) What are the differences between conventional and unconventional machining processes? [8]
- (b) Explain the need of using unconventional machining processes. [8]
2. (a) Draw the simple sketch of Ultrasonic Machine, label the important components on it and explain briefly. [10]
- (b) Write the applications of ultrasonic machining process. [6]
3. (a) What are the important factors to be considered while selecting the abrasive material in abrasive water jet machining? [8]
- (b) List out any four advantages and disadvantages of abrasive water jet machining. [8]
4. (a) Discuss the important characteristics of electrolytes used in ECM. [8]
- (b) Explain the factors that affect the material removal rate in Electro Chemical Machining process. [8]
5. (a) Discuss the various input parameters that affect the quality of the product produced on electric discharge machine. [10]
- (b) Write any two applications, advantages and disadvantages of EDM process. [6]
6. (a) Name the different types of lasers used in laser beam machining process and explain their importance. [8]
- (b) Explain the principle and process of electron beam machining. [8]

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7. (a) What is mask in Chemical Machining process? Discuss the different [8]  
methods of preparing the masks.
- (b) Write any four applications and limitations of Plasma Machining Process. [8]
8. (a) Explain the process of shaped tube electrolyte machining with the help of [8]  
simple sketch.
- (b) Discuss the applications and limitations of shaped tube electrolyte [8]  
machining.

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**Set No.3**

**IV B.Tech I Semester Supplementary Examinations, February/March, 2011  
UNCONVENTIONAL MACHINING PROCESSES  
(Mechanical Engineering)**

**Time: 3 hours**

**Max. Marks: 80**

**Answer any FIVE Questions  
All Questions carry equal marks  
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1. Write any four important reasons why the unconventional machining [16]  
processes are used over conventional machining. Explain with salient  
points.
2. (a) Describe the principle involved in ultrasonic machining method and explain [8]  
with simple sketch.  
(b) List any four advantages and disadvantages while machining the [8]  
components using Ultrasonic Method.
3. (a) What are the precautionary measures to be taken during machining of [8]  
components on Abrasive Water Jet machine? Discuss briefly.  
(b) Explain the various parts of Abrasive Water Jet Machine. [8]
4. (a) Describe the working principle of Electro Chemical Machining method. [8]  
(b) List the any four advantages and limitations of using electro chemical [8]  
machining method.
5. (a) Describe the process of EDM with the help of neat sketch. [8]  
(b) Enumerate the differences between EDM and ECM. [8]
6. (a) Describe the electron beam machining process with the help of neat sketch. [8]  
(b) List out any four differences between electron beam machining and laser [8]  
beam machining.

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**Set No.3**

7. (a) Explain the differences between chemical machining and electro chemical machining processes. [8]
- (b) Discuss the factors that affect the quality of the product machined using plasma machining process. [8]
8. (a) What is magnetic abrasive finishing method? Explain the working of magnetic abrasive finishing process. [8]
- (b) What are the differences between magnetic abrasive finishing method and abrasive water jet machining method? [8]

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**Set No.4**

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UNCONVENTIONAL MACHINING PROCESSES  
(Mechanical Engineering)**

**Time: 3 hours**

**Max. Marks: 80**

**Answer any FIVE Questions  
All Questions carry equal marks**

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- 1.(a) List out the different types of Unconventional Machining Processes. [4]
- (b) Write the important characteristics of any four Unconventional Machining Processes. [12]
- 2.(a) What is ultrasonic machining? Explain the process of metal removal in ultrasonic machining. [8]
- (b) Explain the advantages and limitations of ultrasonic machining. [8]
- 3.(a) Explain the various process parameters which affect the surface finish of the component machined on Water Jet Machine? [8]
- (b) Enumerate the differences between Water Jet Machining and Abrasive Water Jet Machining. [8]
- 4.(a) Describe the working mechanism of Electro Chemical Machining Process. [8]
- (b) Discuss the advantages and limitations of Electro Chemical Machining Process. [8]
- 5.(a) Explain any four factors that affect the material removal rate in Electric Discharge Machining? [8]
- (b) Describe, with the help of simple sketch, the process of Wire-cut EDM. [8]
- 6.(a) With the help of neat sketch, explain the process of electron beam machining. [8]
- (b) Explain the precautionary measures to be taken while machining the components on EBM and LBM. [8]

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**Set No.4**

7. (a) Distinguish between chemical machining and electrochemical machining. [4]  
(b) Explain the working principle involved in plasma machining method. [8]  
(c) Write the advantages of using plasma machining. [4]
8. (a) Draw the simple sketch of abrasive flow finishing process and explain the working principle. [10]  
(b) Enumerate the differences between abrasive jet machining and abrasive flow finishing. [6]

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