

Roll No.

Total Pages : 03

BT-7/M-20

37168

NON-CONVENTIONAL MACHINING

ME-415N

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit.

Unit I

1. Enumerate the advantages of 'Non-conventional machining' processes ? Describe various considerations involved in selection of non-conventional machining process for a particular application. **15**

2. (a) If suppose USM is used for drilling a hole (under the same machining conditions) in Aluminium and Cast Iron. Which one will have higher depth of the drilled hole and why ? **10**
- (b) Explain the functions of 'Horn' in USM. **5**

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Unit II

3. What is the self-adjusting feature in ECM ? Describe various functions served by an electrolyte in ECM. List the common electrolytes used in ECM. **15**
4. (a) Explain the following terms related to EDM : **10**
(i) Gap Flushing
(ii) W/T Ratio
(iii) Duty factor
(iv) Cycle time.
- (b) Describe various applications of EDM process. **5**

Unit III

5. (a) What is mixing ratio ? Explain the importance of maintaining an optimum mixing ratio in Abrasive jet machining. **10**
(b) Sketch and explain any *one* type of plasma torch. **5**
6. (a) Explain, why vacuum is needed in Electron beam process and explain the method to protect work table from getting damaged by the electron beam which has completely penetrated the workpiece. **10**
(b) Explain the effect of 'focusing' on the performance of laser beam machining. **5**

Unit IV

7. Illustrate with a neat diagram the process chain involved in the rapid prototyping process. Describe advantages, limitations and application of RP process. **15**
8. (a) Make a neat sketch of FDM process. Mark all the components and parts on the diagram. **5**
- (b) Illustrate various steps involved in Stereolithography Apparatus Operation. **5**
- (c) What is the material used to form a prototype in LOM process ? In what form the material is fed into the system ? **5**