

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 2529

Roll No.

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B.Tech.

(SEMESTER-VI) THEORY EXAMINATION, 2012-13

UNCONVENTIONAL MANUFACTURING PROCESSES

Time : 3 Hours]

[Total Marks : 100

SECTION – A

1. Attempt **all** question parts :

10 × 2 = 20

- (a) State the limitations of conventional manufacturing process.
- (b) What is overcutting in EDM process ?
- (c) Give the practical applications of water jet machining.
- (d) What are the advantages and disadvantages of laser beam machining ?
- (e) Why can very hard material be cut better by the ultrasonic process than soft ones ?
- (f) What is jetting effect in explosive welding ?
- (g) How is plasma arc different from conventional arc ?
- (h) Define the term cladding.
- (i) State principle of electromagnetic forming process.
- (j) What is meant by lithography ?

SECTION-B

2. Attempt any **three** question parts :

3 × 10 = 30

- (a) (i) Describe the principle of ultrasonic machining.
(ii) Give the applications of ultrasonic machining.
- (b) Write a note on the special features of the equipment used in abrasive set machining.
- (c) What is laser ? How is it used to machine the materials ? Give the thermal features and analysis of the laser beam machining.
- (d) Explain the principle of operation of plasma arc welding process.
- (e) Describe the explosive forming process.



SECTION-C

Attempt **all** questions :

5 × 10 = 50

3. Attempt any **two** parts :

2 × 5 = 10

- (a) Enumerate the reasons responsible for development of newer machining methods.
- (b) Classify unconventional manufacturing processes.
- (c) Discuss why AJM technique when applied to ductile materials lead to a low rate of metal removal.

4. Attempt any **one** part :

1 × 10 = 10

- (a) Explain the EDM process in brief. Why is proper flushing so important in EDM process ?
- (b) Explain the working principle of electro chemical machining with a neat sketch.

5. Attempt any **one** part :

1 × 10 = 10

- (a) Sketch and describe any two types of tool feed systems used in ultrasonic machining.
- (b) Write a short notes on :
 - (i) Process capabilities of electron beam machining.
 - (ii) Comparison of thermal and non-thermal features of electron beam machining.

6. Attempt any **one** part :

1 × 10 = 10

- (a) Discuss about the technique used for under water welding.
- (b) Describe some of the important considerations in the design of a plasma torch. What are the essential differences between a cutting and welding torch ?

7. Attempt any **two** parts :

2 × 5 = 10

- (a) Enumerate the working principle of water hammer forming.
- (b) Describe the processing sequences for manufacturing of printed circuit boards.
- (c) Discuss about metalizing process.