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

PAPER ID : 2529 Roll No. | | | | | | | | | | |

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 : $5 \times 10 = 50$

3. Attempt any **two** parts : $2 \times 5 = 10$

   (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 : $1 \times 10 = 10$

   (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 : $1 \times 10 = 10$

   (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 : $1 \times 10 = 10$

   (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 : $2 \times 5 = 10$

   (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.
