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A – 2700

Reg. No. :

Name :

**Sixth Semester B.Tech. Degree Examination, May 2016
(2013 Scheme)**

13.606.6 : ADVANCED MANUFACTURING PROCESSES (MPU)

Time : 3 Hours

Max. Marks : 100

- Instructions :**
- **Part – A** : Answer **all** questions.
 - **Part – B** : Answer **one full** question from **each** Module.

PART – A

1. List the difference between MEMS and microsystems. **(10×2=20 Marks)**
2. What are the three principal signal transduction methods for Micropressure sensors ?
3. Describe the role of quantum physics in the design of MEMS and Microsystems.
4. When do you use the plasma etching process ?
5. What are the mechanical problems associated with surface micromachining ?
6. Differentiate dry etching and wet etching in bulk micromachining.
7. State the photolithographic process for Microsystem Fabrication.
8. Define thermoforming.
9. What is meant by transfer moulding ?
10. Which type of moulding is used for making bottles ?

P.T.O.



PART – B

Module – I

1. a) Discuss briefly the various types of sintering. 10
- b) What are the principles behind Selective Laser Sintering process ? Explain. 10

OR

2. a) Briefly explain the applications of Selective Laser Sintering Process (SLS). 10
- b) What are the important characteristics of Vacuum casting ? Explain its process. 10

Module – II

3. a) Explain the principle of injection molding process. 2
- b) Discuss the transfer molding process with a diagram. 8

OR

4. a) Describe the compression moulding process with a sketch. 10
- b) What is thermoforming process ? Explain with a neat sketch. 10

Module – III

5. a) What are the key aspects of RPT ? Explain the need for Rapid Prototyping. 10
- b) Discuss the evolution of RP systems indicating the history and their growth rate in the industrial sector. 10

OR

6. a) Analyze the stereo lithography process with a neat sketch. 10
- b) Discuss in detail the process chain of Rapid Prototyping with a diagram. 10

Module – IV

7. a) Draw the block diagram of MEMS and explain each block. 10
- b) List the manufacturing process of MEMS and explain any one of them. 10

OR

8. a) What is the methodology used for single crystal silicon reactive etching ? Briefly explain with a sketch. 10
 - b) Describe the process of silicon micro machining by single step plasma etching with a diagram. 10
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