

Code: MEMD1T5C

**I M.Tech - I Semester - Regular Examinations – February-2016**

**RAPID PROTOTYPING  
(MACHINE DESIGN)**

Duration: 3 hours

Max. Marks: 70

Answer any FIVE questions. All questions carry equal marks

1. a) How do you define a prototype in the context of modern product development? 7 M
- b) Describe the historical development of rapid prototyping and related technologies. 7 M
2. Define Rapid prototyping and explain the five basic steps involved in RP process chain with a suitable diagram. 14 M
3. a) Describe the process flow of the 3D System Stereolithography Apparatus. 6 M
- b) Write a short notes on the following: 8 M
  - i) INCS prototyping
  - ii) Photo polymerization
4. a) Describe the process flow of Cubital's Solid Ground Curing System with a neat diagram. 6 M

- b) Write a brief note on the following: 8 M  
i) Micro fabrication  
ii) Advantages of SGC technique
5. a) Describe the process flow of Stratasys' Fused Deposition Modeling with block diagram. 8 M
- b) Discuss on NASA and Boeing Rocketdyne Uses LOM™ to Create Hot Gas Manifold for Space Shuttle Main Engine? 6 M
6. a) Explain about 3D Systems' MJM System Process, Principle and its applications. 8 M
- b) Explain the concept of the shape deposition manufacturing Process. 6 M
7. Using a sketch to illustrate the Selective Laser Sintering (SLS) process and discuss the materials, model and specifications of the equipment. 14 M
8. Explain the procedure involved in Optomec's laser engineered net Shaping (LENS) system. 14 M