

B.E. DEGREE EXAMINATIONS: APRIL/MAY 2012

Eighth Semester

MECHATRONICS ENGINEERING

U07MHE16: Rapid Prototyping

Time: Three Hours

Maximum Marks: 100

Answer All Questions:-

PART A (10 x 1 = 10 Marks)

1. A model having original dimensions is
a) prototype b) original model c) resembled product d) conceptual designed product
2. Completely hollow parts are not normally constructed by this process
a) DMLS b) SGC c) FDM d) SL
3. Powder metallurgy is related with this process
a) SLS b) SL c) LOM d) FDM
4. In this process environment influences significantly
a) SL b) DMLS c) LOM d) FDM
5. In this process the entire layer is solidified at once which reduces part creation time
a) DMLS b) SGC c) FDM d) SL
6. The resolution of the 3DP is depending upon
a) Sizes of binder droplets b) powder grains c) accuracy of nozzle d) all three
7. This offers relatively quick and cost effective methods for building physical models at any stage
a) SL b) SLS c) SGC d) concept modellers
8. Piezo electric transducer is involved in
a) SL b) LENS c) BPM d) JP system 5
9. Nickel based super alloys can be processed by
a) Object Quadra system b) LENS c) BPM d) JP system 5
10. This one is odd from the following series
a) STL b) SLC c) PRT d) IGES

PART B (10 x 2 = 20 Marks)

11. State the basic concept of rapid prototyping.

12. What do you mean by product slicing?
13. What are the purposes of CAD tools?
14. What are the materials used in SL?
15. Name any two applications of selective laser sintering.
16. Give the applications of LOM.
17. List any four advantages of FDM.
18. Define SGC.
19. What is sander's model maker?
20. Write two applications of LENS.

PART C (5 x 14 = 70 marks)

21. Discuss the various types of modeling techniques in detail.

(OR)

b) (i) Explain the industrial applications of RP. (7)

(ii) Explain the impact of rapid prototyping on a product. (7)

22. a) Explain the working principle of SL process with neat sketch.

(OR)

b) Explain the DMLS process and give its advantages and applications.

23. a) Explain about FDM machine in detail and give the various manufacturers of it.

(OR)

b) Give the advantages and disadvantages of LOM also give the applications of it.

24. a) Describe the SGC process in detail.

(OR)

b) Write short notes on the following

(i) Thermo jet printers (7)

(ii) JP system 5 (7)

25. a) (i) Explain the process LENS and give its configuration. (7)

(ii) Brief the Rapid tooling. (7)

(OR)

b) Discuss any three applications of RP in Medical field.
