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10ME837

Eighth Semester B.E. Degree Examination, June/July 2017
Rapid Prototyping

Time: 3 hrs.

Max. Marks:100

**Note: Answer FIVE full questions, selecting
at least TWO questions from each part.**

PART - A

- 1 a. Explain the different steps involved in rapid proto typing. (10 Marks)
- b. Explain the working principle of stereolithography process, with a neat sketch. (10 Marks)
- 2 a. Explain the working principle of selective laser sintering with a neat sketch. (08 Marks)
- b. Sketch and explain the working of Fusion deposition modeling system. Briefly explain functions of various parts of the extrusion head of FDM. (12 Marks)
- 3 a. With the help of 2D sketches, explain the process of solid ground curing. (10 Marks)
- b. With a suitable sketch, explain laminated object manufacturing process. (10 Marks)
- 4 a. What do you mean by concept modelers. Name the different types of concept modelers. What are its advantages? (10 Marks)
- b. Draw and explain the working process of 3D printer. (10 Marks)

PART - B

- 5 a. What do you mean by Rapid Tooling? How is it different from conventional tooling? (06 Marks)
- b. Explain silicon rubber tooling process with sketches. (10 Marks)
- c. Write a note on 3D keltool. (04 Marks)
- 6 a. Classify the direct rapid tooling methods. (05 Marks)
- b. What is soft tooling? Compare it with hard tooling. (05 Marks)
- c. Discuss the following with respect to rapid tooling: (10 Marks)
 - (i) Spray metal deposition tools.
 - (ii) Epoxy tools.
- 7 Write short notes on the following: (20 Marks)
 - a. STL file.
 - b. MAGICS software.
 - c. MIMICS software.
 - d. Solid view software.
- 8 a. Briefly explain orientation constraints of the stereo lithography process. (08 Marks)
- b. Explain errors due to tessellation and slicing. (08 Marks)
- c. Write a note on Part finishing errors. (04 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.