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Eighth Semester B.E. Degree Examination, Dec.2016/Jan.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 need for time compression in product development with a neat sketch and also shortly explain history of R.P. Systems. (12 Marks)
- b. Briefly explain the classification of R.P. Systems and mention advantages of R.P. use. (08 Marks)
- 2 a. With a neat sketch, explain the working principle of “Stereo Lithography” system and mention the process parameters. (10 Marks)
- b. What do you understand by build style used in STL process? Explain different types of build styles with neat sketches. (10 Marks)
- 3 a. With a neat sketch, explain working principle of “Selective Laser Sintering”. (10 Marks)
- b. Sketch and explain the working principle of “Fused Deposition Modeling”. (10 Marks)
- 4 a. Draw the neat labeled diagram for,
 - (i) Solid ground curing process.
 - (ii) Laminated object manufacturing.
 Mention the materials used. (12 Marks)
- b. What are concept modelers? Explain steps involved in fabrication of models employing JP system 5. Draw the sketch of the process. (08 Marks)

PART – B

- 5 a. What are rapid tooling and conventional tooling? How are the inserts produced using 3D KELTOOL process? Explain. (10 Marks)
- b. Explain the following:
 - (i) Silicon rubber tooling.
 - (ii) Aluminium filled epoxy tooling. (10 Marks)
- 6 a. Explain sand cast tooling and laminate tooling. (10 Marks)
- b. Explain copper polyamide and epoxy tooling. (10 Marks)
- 7 a. Explain STL repair and STL manipulation with respect to magic R.P. software. (10 Marks)
- b. Explain the following softwares used in R.P. : (i) Magics (ii) Solid view (10 Marks)
- 8 a. Explain build orientation constraints of steriolithography process. (10 Marks)
- b. For slicing a ball. Explain the following errors during data preparation:
 - (i) Mismatching in height.
 - (ii) Step error due to slicing tessellated arcs. (10 Marks)

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