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Eighth Semester B.E. Degree Examination, Dec.2019/Jan.2020

Rapid Prototyping

Time: 3 hrs.   Max. Marks:100

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

PART – A

1 a. What are the key aspects of RPT?   (05 Marks)
   b. Explain the need for rapid prototyping.   (03 Marks)
   c. Discuss the evolution of RP systems indicating the history and their growth rate in the industrial sector.   (12 Marks)

2 a. List the classification of RP systems.   (06 Marks)
   b. What are the advantages of Rapid Prototyping?   (08 Marks)
   c. Explain with a neat sketch the working principle of Selective Laser Sintering (SLS).   (06 Marks)

3 a. What do you understand by solid ground curing process? Explain with a neat sketch.   (10 Marks)
   b. What are the various LOM materials and their typical applications? State any four important parts in FDM process with their function.   (10 Marks)

4 a. What are concept modelers? What are its advantages? Name at four concept modelers apart from JP5 system.   (10 Marks)
   b. Explain the steps involved in fabrication of models employing JP system 5. Draw the sketch of process steps.   (10 Marks)

PART – B

5 a. Classify direct rapid tooling methods.   (04 Marks)
   b. What are the steps involved in production of inserts using 3D Keltool process?   (06 Marks)
   c. With sketches, explain spray metal deposition techniques.   (10 Marks)

6 a. Describe the role of indirect methods of rapid tool production. What are its limitations?   (06 Marks)
   b. With sketches, explain the different steps involved in vacuum casting.   (14 Marks)

7 a. Write a note on magics, mimics and magic communicator software.   (10 Marks)
   b. Write a note on internet based softwares.   (10 Marks)

8 a. Explain the orientation constraints of SL process.   (10 Marks)
   b. Explain the following stair stepping problems during slicing:
      i) Slicing tessellated arcs
      ii) Mismatching in height between slice portions.   (10 Marks)

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24 JAN 2020