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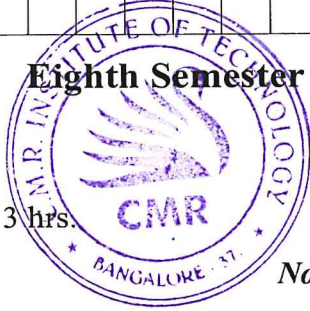
10ME837

**Eighth Semester B.E. Degree Examination, July/August 2021**

**Rapid Prototyping**

Time: 3 hrs.

Max. Marks:100



**Note: 1. Answer any FIVE full questions.  
2. Provide necessary sketches.**

- 1
  - a. Define Rapid prototyping. Enlist the difference between conventional machining and rapid prototyping. (06 Marks)
  - b. Classify the RP technique, with the help of flow chart. (04 Marks)
  - c. Briefly explain the stereo-lithography process with neat schematic sketch. List the parameters of SLA system that influence the part quality. (10 Marks)
- 2
  - a. Describe the process of fused deposition modeling and list the factors that affect the part quality. (10 Marks)
  - b. Explain the working principle of selective laser sintering process, with a neat sketch. (10 Marks)
- 3
  - a. Describe the operational principle of a solid ground curing system illustrating the dataflow and process security. (10 Marks)
  - b. Explain the process of laminated object manufacturing with a schematic sketch. What are the inherent limitations of prototype made out of this process? (10 Marks)
- 4
  - a. Define concept modeler. List the various techniques of concept modeler. (04 Marks)
  - b. List out the technical specification of object quadra system. (06 Marks)
  - c. Explain with a neat block diagram the working of Sander's model maker. Enlist its merits, demerits and application. (10 Marks)
- 5
  - a. Discuss the following with respect to rapid tooling.
    - (i) Spray metal deposition tools/techniques.
    - (ii) Silicon Rubber tooling
 (12 Marks)
  - b. Explain quick cast process and its compatibility with investment casting. (08 Marks)
- 6
  - a. Differentiate between soft and hard tooling. (04 Marks)
  - b. Describe 3D Keltool process with neat sketches. (08 Marks)
  - c. How does the processing of Rapid Steel 2.0 material differs from that of Rapid Steel 1.0 material? (08 Marks)
- 7
  - a. Define STL file. Differentiate between fine STL file and coarse STL file. (05 Marks)
  - b. Write short notes on the following:
    - (i) MIMICS S/W
    - (ii) E-manufacturing through web-based technology.
 (10 Marks)
  - c. Explain the basic requirements of STL file generation. (05 Marks)
- 8
  - a. Briefly explain data preparation errors. (10 Marks)
  - b. Briefly explain the part building errors and part finishing errors. (10 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.