**R18**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**
**B. Tech IV Year I Semester Examinations, February/March - 2022**
**ADDITIVE MANUFACTURING**
**(Mechanical Engineering)**

**Time: 3 Hours**
**Max. Marks: 75**

**Answer any five questions**
**All questions carry equal marks**
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1.a) Many terms have been used to mean Rapid Prototyping. Discuss three such terms and explain why they have been used in place of Rapid Prototyping.
  b) Distinguish between Traditional prototyping and Rapid prototyping. [8+7]

2.a) Write some of the industrial applications of RPT process.
  b) Explain the process chain of Rapid Prototyping. [7+8]

3.a) Explain the Laminated Object Manufacturing with a neat sketch.
  b) Describe the main advantages and disadvantages of using SLA. [8+7]

4.a) Describe the critical factors that will influence the performance and functions of: (i) Cubic's LOM, (ii) Stratasys FDM.
  b) Explain the Solid ground curing process, its advantages and disadvantages. [8+7]

5.a) Explain the critical factors that influence the performance and functionalities of the following RP Processes : (i) 3D System's SLS, (ii) Z Corporation's 3DP.
  b) Distinguish between the direct *vs.* indirect types of Rapid tooling. [8+7]

6.a) Describe the Selective laser sintering process, with a neat sketch.
  b) Distinguish between conventional tooling and rapid tooling. [8+7]

7.a) Some newly proposed formats are CLI, RPI and the LEAF files. Describe them briefly and contrast their strengths and weaknesses.
  b) Explain the features of RP software's : Magics, View expert. [8+7]

8.a) Describe how RP models can be used for pre-surgical operation planning. Use appropriate examples to illustrate your answer.
  b) Why and in what circumstances would RP be considered to assist implant fabrication?
  [8+7]

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