

Code No: 157AB**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**

- 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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