

IV B.Tech I Semester Supplementary Examinations, February- 2020**ADDITIVE MANUFACTURING****(Mechanical Engineering)****Time: 3 hours****Max. Marks: 70***Question paper consists of Part-A and Part-B**Answer ALL sub questions from Part-A**Answer any FOUR questions from Part-B************PART-A (14 Marks)**

1. a) List the different materials used in manufacturing of products in SLA technique. [2]
- b) State any two limitations of laminated object manufacturing. [2]
- c) What affects the dimensional accuracy in powder-based Rapid Prototyping Systems? [2]
- d) State classification of rapid tooling. [3]
- e) Write any two differences between Magics and 3 Data Expert. [2]
- f) How does aerospace technology make use of rapid tooling applications? [3]

PART-B (4x14 = 56 Marks)

2. a) Classify rapid prototyping process. [5]
- b) Explain the working of Stereo Lithography apparatus. Write the advantages and applications of Stereo Lithography. [9]
3. a) Narrate Laminated Object manufacturing in detail with a neat sketch. [7]
- b) Discuss on any four types of materials, their applications and the processes in which they are used. [7]
4. a) Explain with a neat sketch the working principle of Selective Laser Sintering process. [7]
- b) Elaborate the principle and working of 3D printing with diagram. [7]
5. a) Discuss the process of making a rapid tool for die casting. Assume your own example as product. [7]
- b) What is Rapid Tooling? How is it different from conventional tooling? [7]
6. a) Discuss about rapid prototyping data formats. [7]
- b) State the applications of MIMICS in RP. [7]
7. a) Explain with an example the application of rapid prototyping in automotive industry. [7]
- b) Write notes on the any three of the applications of RP&T in the following fields : [7]
(i) Coin industry (ii) Bioengineering applications (iii) Electronic industries
(iv) Aerospace industry