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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Eighth Semester, B.E. - Mechanical Engineering

Semester End Examination; July - 2021

Additive Manufacturing Techniques

Time: 3 hrs

Max. Marks: 100

Note: Answer any FIVE full questions.

- 1 a. Explain briefly need for the compression in product development with a block diagram. 10
- b. Explain briefly classification of additive manufacturing process. 10
- 2 a. Explain briefly steps to be followed in additive manufacturing process. List the advantages and disadvantages of the same. 10
- b. Explain briefly principle of operation, process parameters, merits and demerits of stereo lithography with a neat sketch. 10
- 3 a. With a neat sketch, explain briefly selective laser sintering along with its applications. 10
- b. With a neat sketch, explain briefly fused deposition modelling process. 10
- 4 a. With a neat sketch, explain briefly laminated object manufacturing. 10
- b. With a neat sketch, explain briefly solid ground curing with its applications. 10
- 5 a. Explain briefly, vacuum casting process and list the advantages and disadvantages of the vacuum casting process. 10
- b. Explain briefly medical model and art models in additive manufacturing process. 10
- 6 a. Sketch and explain thermal Jet printer. Also mention its advantages and disadvantages. 10
- b. With a neat sketch, explain briefly Genesis Xs printer. 10
- 7 a. Distinguish between soft tooling verses hard tooling. 10
- b. Explain briefly the concept of aluminum filled epoxy tooling with a neat sketch. 10
- 8 a. Explain briefly classification of rapid tools and its applications. 10
- b. Explain briefly the concept of sand casting tooling and laminate tooling. 10
- 9 a. Explain briefly factors influencing accuracy. 10
- b. Explain briefly data preparation errors and errors due to tessellation and slicing. 10
- 10 a. Explain the influence of part build orientation in SL process SLS process. 10
- b. List out and explain the errors in finishing. 10

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