

CBCS SCHEME

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18SM56

Fifth Semester B.Tech. Degree Examination, Jan./Feb. 2023 Additive Manufacturing

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Write the distinction between AM and CNC machining. (10 Marks)
- b. Explain the process chain (steps) of AM process. (10 Marks)

OR

- 2 a. Explain in detail post processing of additive manufacturing parts. (10 Marks)
- b. Explain the applications of AM in various fields and what are the advantages of AM. (10 Marks)

Module-2

- 3 a. Write the classification of rapid prototyping systems and explain the historical development of RP system. (10 Marks)
- b. With a neat diagram explain the working principle of stereolithography. (10 Marks)

OR

- 4 a. Define prototype. Explain the types of prototypes. (10 Marks)
- b. Write the process parameters of stereolithography. (10 Marks)

Module-3

- 5 a. Explain with a neat sketch the working principle of SLS process. (10 Marks)
- b. Explain the principle of operation of solid ground curing with a neat sketch. (10 Marks)

OR

- 6 a. What are the applications of LOM? What are the materials used for LOM. (10 Marks)
- b. Explain with a neat sketch, principle of Thermal Jet Printer and Laser Engineering Net Shaping. (10 Marks)

Module-4

- 7 a. Explain the following processes with a neat sketch:
(i) Dry spinning (ii) Wet spinning (10 Marks)
- b. Explain the different modern sintering techniques with respect to powder metallurgy. (10 Marks)

OR

- 8 a. Describe briefly the steps involved in powder metallurgy and list the advantages of powder metallurgy. (10 Marks)
- b. Explain with a neat sketch the working principle of injection moulding. (10 Marks)

Module-5

- 9 a. Mention the steps in silicon rubber tooling. (10 Marks)
- b. Explain the feature constraints considered in choosing build orientations for SL process. (10 Marks)

OR

- 10 a. Explain the steps in 3D Keltool process. (10 Marks)
- b. Explain the part building error in SL process. (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.