

CBCS SCHEME

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21ME731

Seventh Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025 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. Define Additive Manufacturing process. List the advantages and disadvantages with applications. (10 Marks)
b. Write a note on :
i) Stereo lithography ii) Rapid prototyping. (10 Marks)

OR

- 2 a. What are the steps followed in Additive Manufacturing process. (10 Marks)
b. Differentiate between Additive Manufacturing and CNC machining. (06 Marks)
c. Write a note on Reverse engineering. (04 Marks)

Module-2

- 3 a. Explain selective laser sintering process with sketch. (10 Marks)
b. What is photopolymerization? Explain microstereolithography process with its advantages and disadvantages. (10 Marks)

OR

- 4 a. Explain Electron beam melting process with a neat sketch, mention its advantages and disadvantages. (10 Marks)
b. Write a note on:
i) FDM process ii) Powder bed fusion process. (10 Marks)

Module-3

- 5 a. Explain the evolution of printing as an additive manufacturing. (08 Marks)
b. Explain briefly the technical challenges of 3D printing. (12 Marks)

OR

- 6 a. Write a note on :
i) Ultrasonic consolidation (UAM) ii) Laminated Object Manufacturing. (10 Marks)
b. With a neat sketch explain beam deposition process and list its advantages and disadvantages. (10 Marks)

Module-4

- 7 a. Explain the selection methods for a part and challenges in selection process. (10 Marks)
b. Write the software issues for Additive Manufacturing. (10 Marks)

OR

- 8 a. Explain post processing of Additive Manufacturing parts. (10 Marks)
b. Explain property enhancements using thermal and non-thermal techniques. (10 Marks)

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.

Module-5

- 9 a. Explain the application of Additive manufacturing in various fields. (10 Marks)
b. Write a note on :
i) Rapid tooling
ii) Bi Metallic parts. (10 Marks)

OR

- 10 a. Explain Additive manufacturing application in Medical and Art model. (10 Marks)
b. Write a note on :
i) Align technology
ii) DDM drives. (10 Marks)

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