

# CBCS SCHEME

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18ME741

## Seventh Semester B.E. 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. Define Additive Manufacturing process. List out advantages and disadvantages of Additive Manufacturing process in detail. (06 Marks)
- b. Explain Additive Manufacturing process chain with block diagram. (08 Marks)
- c. Differentiate between Additive Manufacturing and CNC. (06 Marks)

**OR**

- 2 a. Explain the classification of Additive Manufacturing process. (10 Marks)
- b. Write a note on :
- i) Reverse Engineering Technology ii) Computer Aided Design Technology. (10 Marks)

### Module-2

- 3 a. With a neat sketch, briefly explain principle operation of Stereolithography. State its applications. (10 Marks)
- b. Explain the principle operation of selective laser sintering with neat sketch. List the advantages of SLS. (10 Marks)

**OR**

- 4 a. List the advantages and disadvantages of Powder bed fusion process. (06 Marks)
- b. Sketch and explain Fused Deposition Modelling [FDM] process. Also add a note on FDM materials. (10 Marks)
- c. List the various materials which may be used for electro beam melting process. (04 Marks)

### Module-3

- 5 a. Describe three dimensional printing process, with a neat sketch. (10 Marks)
- b. Explain Principle of Operation and application of LOM. (10 Marks)

**OR**

- 6 a. With a neat sketch, explain Beam Deposition process and list its advantages and disadvantages. (10 Marks)
- b. List the various Direct write technologies and explain Ink based direct write process. (10 Marks)

### Module-4

- 7 a. Discuss guidelines for process selection in AM. (08 Marks)
- b. Write a short note on STL file. (06 Marks)
- c. Discuss problems occurred with STL file. (06 Marks)

**OR**

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.

- 8 a. Explain Post processing of Additive Manufacturing parts. (10 Marks)  
b. Explain steps involved in property enhancement using thermal technique and non thermal technique. (10 Marks)

**Module-5**

- 9 a. Explain Multi Material Manufacturing process and state its applications. (10 Marks)  
b. Explain the applications of Additive Manufacturing process in various fields. (10 Marks)

**OR**

- 10 a. Explain use of Pattern prepared by AM process for investment casting. (10 Marks)  
b. Write a note on :  
i) Align technology ii) DDM drives. (10 Marks)

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