

CBCS SCHEME

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15ME82

Eighth Semester B.E. Degree Examination, Aug./Sept.2020 Additive Manufacturing

Time: 3 hrs.

Max. Marks: 80

Note: i) For Regular Students: Answer any FIVE full questions irrespective of modules.
ii) For Arrear Students : Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Explain Additive Manufacturing Process Chain with a neat block diagram. (06 Marks)
b. Explain stereolithography process with a neat sketch. Write its merits, demerits and applications. (10 Marks)
- 2 a. Distinguish between stereolithography and selective laser sintering processes. (06 Marks)
b. Explain with a neat sketch, Fused Deposition Modeling Process. What are its advantages, disadvantages and applications? (10 Marks)

Module-2

- 3 a. Explain the types of D.C. motors with field coils with neat sketches. (08 Marks)
b. Explain briefly with neat diagrams the following: (08 Marks)
(i) Thyristors (ii) Triacs
- 4 a. Compare hydraulic and pneumatic systems. (06 Marks)
b. Write a note on shape memory alloys. (10 Marks)

Module-3

- 5 a. Explain with a neat sketch polymer processing by wet spinning. (08 Marks)
b. Explain in detail the liquid phase sintering. (08 Marks)
- 6 a. Explain with a neat sketch Dry Spinning Method for additive manufacturing. (08 Marks)
b. Explain with a neat sketch powder production by vacuum atomization technique. (08 Marks)

Module-4

- 7 a. Explain with a neat sketch the sol-gel process. (06 Marks)
b. Explain the principle of Scanning Electron Microscopy (SEM) with a neat sketch. What are its applications? (10 Marks)
- 8 a. Explain with a neat sketch, flame assisted ultrasonic spray pyrolysis. (08 Marks)
b. Explain with a neat sketch the salient features of Atomic Force Microscopy (AFM). (08 Marks)

Module-5

- 9 a. Write a note on NC, CNC and DNC machine tools. (06 Marks)
b. Explain briefly the various strategies for automation and process improvement. (10 Marks)
- 10 a. Explain with a block diagram the levels of automation. (10 Marks)
b. Distinguish between continuous control in process industries and discrete control in manufacturing industries. (06 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.