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15ME82

Eighth Semester B.E. Degree Examination, July/August 2022 Additive Manufacturing

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. Explain Additive manufacturing process chain with a neat sketch. (08 Marks)
b. Explain stereolithography process with a neat sketch. (08 Marks)

OR

- 2 a. List out the post processing technique of additive manufacturing parts. Explain any three techniques. (08 Marks)
b. Explain the application of additive manufacturing. (08 Marks)

Module-2

- 3 a. With a neat sketch, explain the working of hydraulic motors.
i) Gear Motor ii) Balanced vane motor. (08 Marks)
b. With Torque – speed curve, explain compound motor. (04 Marks)
c. List advantages and disadvantages of DC motors. (04 Marks)

OR

- 4 Explain briefly with neat diagrams the following : i) Thyristors ii) Triacs iii) Diodes
iv) Shape memory alloy. (16 Marks)

Module-3

- 5 a. List out the polymers used for Additive manufacturing process, with a neat sketch explain polymer processing by wet spinning technique. (08 Marks)
b. Explain with neat sketch compression moulding of polymers. (08 Marks)

OR

- 6 a. Explain the various steps involved in production of a power metallurgy component. (08 Marks)
b. Explain the applications of powder metallurgy components. (08 Marks)

Module-4

- 7 a. Explain with a neat sketch the sol – gel process. (08 Marks)
b. With a neat sketch explain flame assisted ultrasonic spray pyrolysis process. (08 Marks)

OR

- 8 a. Explain with a neat sketch Transmission Electron Microscopy. (08 Marks)
b. With a neat sketch, explain Electron probe Micro Analyzer. List its advantages and disadvantages. (08 Marks)

Module-5

- 9 a. List out the advantages of CNC machines over NC machine. (06 Marks)
b. Explain briefly the various strategies for automation and process improvement. (10 Marks)

OR

- 10 a. Explain with a block diagram the levels of automation. (10 Marks)
b. Distinguish between continuous and discrete control in manufacturing industries. (06 Marks)

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