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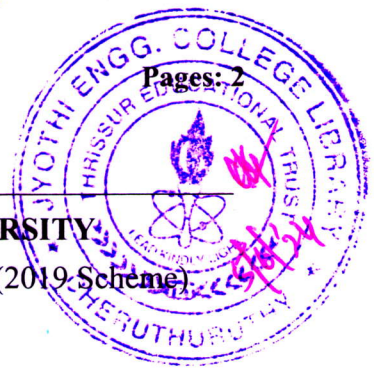
Pages: 7

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Eighth Semester B.Tech Degree (R,S) Examination May 2024 (2019 Scheme)



Course Code: MET468

Course Name: ADDITIVE MANUFACTURING

Max. Marks: 100

Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks.

- | | | Marks |
|----|--|-------|
| 1 | What are the challenges in additive manufacturing? | (3) |
| 2 | Write a note on the impact of additive manufacturing on product development. | (3) |
| 3 | What are the limitations of tool path generation. | (3) |
| 4 | Brief about support structure design. | (3) |
| 5 | What are the advantages and disadvantages of Laminated Object Manufacturing (LOM)? | (3) |
| 6 | What are the applications of Selective Laser Sintering (SLS)? | (3) |
| 7 | Brief the material jetting process. | (3) |
| 8 | What are the limitations of STL File? | (3) |
| 9 | What are the applications of additive manufacturing in electronics industry? | (3) |
| 10 | Brief about Direct Processes in AM. | (3) |

PART B

Answer any one full question from each module, each carries 14 marks.

Module I

- 11 a) Write a note on need and development of additive manufacturing system. (8)
- b) Define additive manufacturing. What are the materials used in additive manufacturing. (6)

OR

- 12 a) Explain the steps involved in AM process chain. (8)
- b) Explain the importance of AM process. (6)

Module II

- 13 a) What are the steps involved in model slicing? (8)
- b) What are the advantages of part orientation? (6)

OR

- 14 a) Explain about data format and data interfacing in additive manufacturing. (7)
b) Explain tool path generation. (7)

Module III

- 15 a) Explain with a neat sketch the working principle of Stereo Lithography (SLA). (10)
b) What are the advantages and disadvantages of Laser Engineering Net Shaping (LENS)? (4)

OR

- 16 a) Explain the working principle of Electron Beam Melting (EBM) with the help of a neat sketch. (10)
b) What are the applications of SLA. (4)

Module IV

- 17 a) What are the newly proposed data formats in AM. What are its merit over STL File format? (8)
b) How to carry out repairs in STL File? (6)

OR

- 18 a) Explain with a neat sketch the working principle of Selection Laser Melting (SLM)? (8)
b) What are the advantages and applications of 3D printing? (6)

Module V

- 19 a) Explain indirect prototyping and indirect manufacturing. (7)
b) What AM materials are already approved for medical applications and for what type of application are they suitable? (7)

OR

- 20 a) Explain the applications of additive manufacturing in aerospace sector. (7)
b) What are the fundamentals of rapid prototyping? Explain the benefits and applications of rapid tooling. (7)
