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Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Eighth Semester B.Tech Degree Supplementary Examination August 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 | Classify and explain additive manufacturing process? | (3) |
| 2 | Write a note on product development by AM? | (3) |
| 3 | What are the softwares currently used for AM? | (3) |
| 4 | What are the limitations of tool path generation? | (3) |
| 5 | What are the process variables in SLS? | (3) |
| 6 | What are the applications of LOM? | (3) |
| 7 | What is STL file? | (3) |
| 8 | What are the merits of SLM? | (3) |
| 9 | What is rapid tooling? | (3) |
| 10 | What are the fundamentals of rapid prototyping? | (3) |

PART B

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

Module I

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|----|--|-----|
| 11 | a) Write a note on the materials used in additive manufacturing? | (6) |
| | b) Explain the procedure of product development in additive manufacturing process? | (8) |

OR

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|----|---|------|
| 12 | a) What is the basic principle of additive manufacturing process? | (4) |
| | b) Explain the steps involved in AM process? | (10) |

Module II

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| 13 | a) Explain about data formats and data interfacing? | (6) |
| | b) Briefly explain part orientation with illustrations? | (8) |

OR

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| 14 | a) Explain model slicing and slicing methodologies? | (7) |
| | b) Explain the features of any one slicing software? | (7) |

Module III

- 15 a) With the help of a neat sketch explain the working principle of FDM? (10)
b) What are the applications of Selective laser sintering (SLS)? (4)

OR

- 16 a) Explain the working principle and process of Electron Beam Melting (EBM)? (8)
b) Brief about the strength, weakness, and applications of Laminated Object Manufacturing (LOM)? (6)

Module IV

- 17 a) Explain the process, strength, and weakness of 3D Printing (3DP)? (8)
b) Explain any two translators used in place of STL? (6)

OR

- 18 a) Explain various STL file problems? (8)
b) Explain working principle and application of SLM? (6)

Module V

- 19 a) Explain the applications of RPT in manufacturing and tooling? (8)
b) Brief the steps followed in RPT? (6)

OR

- 20 a) Explain direct and indirect tooling with examples? (6)
b) Explain with applications the AM materials approved for biomedical applications? (8)
