Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S8 (R,S) Examinations April 2026 (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	Define Additive manufacturing and explain the qualification criteria for a process to be qualify as additive manufacturing.	(3)
2	Write a note on the impact of additive manufacturing on product development.	(3)
3	Explain the concept of uniform slicing.	(3)
4	What are the advantages of Part orientation?	(3)
5	What are the advantages and disadvantages of Laminated Object Manufacturing (LOM)?	(3)
6	What are the materials used in Fused Deposition Modelling (FDM)?	(3)
7	Illustrate with an example the STL file format.	(3)
8	What are the advantages and disadvantages of 3DP?	(3)
9	What are the benefits of rapid tooling?	(3)
10	List out the applications of additive manufacturing in Aerospace industry?	(3)

PART B

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

Module I

11	a)	Explain the steps in AM process chain.	(8)
	b)	Write a note on the benefits and applications of AM.	(6)

OR

12	a)	Explain in detail the classification of additive manufacturing process on the basis of materials used.	(8)
	b)	Compare and contrast Additive, Subtractive and Formative philosophies in manufacturing.	(6)

Module II

13	a)	Explain model slicing and slicing methodologies?	(8)
	b)	Explain about data format and data interfacing in additive manufacturing.	(6)

OR

14	a)	Explain tool path generation. What are the common tool paths used in AM process.	(8)
	b)	Explain the features of any one slicing software.	(6)

Module III

15	a)	With neat sketch, explain the working principle and process, advantages and limitations of Selective Laser Sintering (SLS).	(8)
	b)	Brief about strength, weakness and applications of SLA.	(6)

OR

16	a)	With the help of neat sketch explain the process, working principle, advantages and limitations of FDM.	(8)
	b)	Write a short note on the materials used for SLS.	(6)

Module IV

17	a)	Explain in detail the different STL file problems.	(8)
	b)	Explain the process of Material jetting with a neat sketch.	(6)

OR

18	a)	Explain with a neat sketch the process, working principle, advantages and limitations of Selection Laser Melting (SLM).	(8)
	b)	Explain any two newly proposed file formats used other than STL.	(6)

Module V

19	a)	Discuss in detail about the main aspects Rapid prototyping wheel.	(8)
	b)	Explain direct tooling and indirect tooling with suitable examples.	(6)

OR

20	a)	Explain the biomedical applications of AM.	(8)
	b)	Discuss about the benefits of Rapid prototyping.	(6)

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