

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: MTech/ PhD
BRANCH: MECH.

SEMESTER: II
SESSION: SP/2023

SUBJECT: ME520R1 ADDITIVE MANUFACTURING

TIME: 3 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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		CO	BL
Q.1(a)	Briefly explain the challenges in additive machining.	[5]	1 4
Q.1(b)	Classify the Actuator and Sensor with its application.	[5]	1 2
Q.2(a)	Explain the working principle of Stereo-lithography (SLA) process with a neat sketch. Numerate its advantages and Limitations.	[5]	2 2
Q.2(b)	Describe the process of Powder-Based Additive Manufacturing Systems.	[5]	2 4
Q.3(a)	Explain the processing of 3-D printing, machine, and its attachment in details.	[5]	3 2
Q.3(b)	Describe the problems in STL file with suitable example.	[5]	3 4
Q.4(a)	Classify the Direct Rapid Tooling Methods and explain anyone of them.	[5]	4 2
Q.4(b)	Explain Rapid prototyping Process in brief.	[5]	4 4
Q.5(a)	Briefly explain the characterization techniques used in additive manufacturing.	[5]	5 2
Q.5(b)	Describe the importance of Finite element simulation of additive process with suitable example.	[5]	5 4

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