

CBCS SCHEME

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BAE405A

Fourth Semester B.E./B.Tech. Degree Examination, June/July 2026

Additive Manufacturing (3D Printing)

Time: 3 hrs.

Max. Marks: 100

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.*



Module – 1			M	L	C
Q.1	a.	Define Additive Manufacturing. Write in detail the need for Additive Manufacturing.	10	L1	CO2
	b.	Write in brief about : (i) Rapid Prototyping (ii) Reverse Engineering	10	L1	CO2
OR					
Q.2	a.	What are key steps involved in Generic Additive Manufacturing. Explain with a neat block diagram.	10	L2	CO2
	b.	Explain the distinction between Additive Manufacturing and CNC Machining.	10	L2	CO3
Module – 2					
Q.3	a.	Discuss about benefits and drawbacks of powder bed fusion processes like SLS and EBM.	10	L2	CO3
	b.	Explain in detail, the process of Stereo lithography (SL) with neat sketch.	10	L2	CO2
OR					
Q.4	a.	What are the principles and key materials used in Fused Deposition Modelling (FDM)?	10	L1	CO2
	b.	Explain in detail about Selective Laser Sintering (SLS).	10	L2	CO3
Module – 3					
Q.5	a.	Discuss the role of material modification methods in enhancing the capabilities of 3D printing objects.	10	L2	CO3
	b.	Explain the key challenges in selecting a manufacturing process and how systematic selection methods can address them.	10	L3	CO4
1 of 2					

OR

Q.6	a.	Explain the potential future directions for Beam Deposition (BD) and Direct Write (DW) Technologies.	10	L3	CO3
	b.	Compare and contrast working principles of Laminated Object Manufacturing (LOM) and ultrasonic Consolidation.	10	L2	CO3

Module – 4

Q.7	a.	Describe the key factors considered when selecting a manufacturing process for a given product.	10	L3	CO2
	b.	What is an STL file and why is it commonly used in Additive Manufacturing?	10	L3	CO3

OR

Q.8	a.	Describe briefly two post-processing techniques used in Additive Manufacturing and their purpose.	10	L3	CO4
	b.	List two potential problems associated with using STL file for AM.	10	L2	CO3

Module – 5

Q.9	a.	Describe two key benefits of using multiple materials in a single AM build.	10	L2	CO3
	b.	How does these approaches differ in terms of material distribution within the printed object?	10	L3	CO3

OR

Q.10	a.	List two examples of applications for AM in medical field besides medical models.	10	L2	CO3
	b.	Explain two challenges that DDM might face compared to traditional manufacturing methods, and how advancements in technology could potentially address these challenges.	10	L3	CO4

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