CBCS SCHEME
SRI SAIRAM COLLEGE OF ENGINEERING

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BME714A

Seventh Semester B.E/B.Tech. Degree Examination, Dec.2025/Jan.2026
Additive Manufacturing

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
1	a.	Define additive manufacturing and list its advantages over conventional manufacturing.	5	L1	CO1
	b.	Distinguish between additive manufacturing and CNC machining.	5	L2	CO1
	c.	Illustrate the generic additive manufacturing process chain with a neat sketch.	10	L3	CO1
		OR			
2	a.	Describe the role of reverse engineering in additive manufacturing.	5	L1	CO1
	b.	List and classify additive manufacturing processes.	5	L2	CO1
	c.	Apply design for additive manufacturing principles to improve component performance.	10	L3	CO1
		Module – 2			
3	a.	Define stereolithography and explain the SL resin curing process.	5	L2	CO2
	b.	Describe the working principle of selective laser sintering.	5	L2	CO2
	c.	Illustrate the various powder bed fusion mechanisms.	10	L3	CO2
		OR			
4	a.	Distinguish between SLS and EBM.	5	L2	CO2
	b.	State advantages and disadvantages of photo-polymerization process.	5	L2	CO2
	c.	Explain bio-extrusion and list its applications.	10	L3	CO2
		Module – 3			
5	a.	Define 3D printing and explain its evolution as an additive manufacturing process.	5	L1	CO3
	b.	Explain the principle of laminated object manufacturing.	5	L2	CO3
	c.	Illustrate the working of a typical beam deposition process with a neat sketch.	10	L3	CO3

		OR			
6	a.	What are the technical challenges associated with printing deposition processes.	**5**	**L1**	**CO3**
	b.	Describe the materials used and bonding methods in sheet lamination.	**5**	**L2**	**CO3**
	c.	Apply sheet lamination process to explain "Bond them form" and form then bond processes.	**10**	**L2**	**CO3**
		Module – 4			
7	a.	Define process selection and state its importance in additive manufacturing.	**5**	**L1**	**CO4**
	b.	Explain the selection methods used for part manufacturing.	**5**	**L2**	**CO4**
	c.	Explain how production planning and control is managed in additive manufacturing environments.	**10**	**L3**	**CO4**
		OR			
8	a.	List post processing techniques which are used to enhance components, which are manufactured by AM process.	**5**	**L1**	**CO4**
	b.	Explain the common problems encountered in STL files.	**5**	**L2**	**CO4**
	c.	Apply post processing methods to explain thermal and non thermal methods.	**10**	**L3**	**CO4**
		Module – 5			
9	a.	Evaluate discrete and blended multiple material processes with example.	**10**	**L4**	**CO5**
	b.	Describe the limitations of AM for medical applications.	**10**	**L3**	**CO5**
		OR			
10	a.	Compare direct digital manufacturing with rapid prototyping.	**10**	**L3**	**CO5**
	b.	Apply direct digital manufacturing in the production of customized foot wear.	**10**	**L4**	**CO5**

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