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Course Code

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Sixth Semester B.E. Degree Examinations, May/June 2025

ADDITIVE MANUFACTURING

Duration: 3 hrs

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
 2. Missing data, if any, may be suitably assumed.

<u>Q. No</u>	<u>Question</u>	<u>Marks</u>	<u>(RBTl:CO:PO)</u>
<u>Module-1</u>			
1.	a. List and explain about generic additive manufacturing process.	10	(2 : 1 : 1.3.1)
	b. Briefly explain about need and benefits of additive manufacturing.	10	(2 : 1 : 1.3.1)
(OR)			
2.	a. Briefly discuss about computer aided design.	10	(2 : 1 : 1.3.1)
	b. Explain the variations of one AM machine to another.	10	(2 : 1 : 1.3.1)
<u>Module-2</u>			
3.	a. Briefly explain with a neat sketch, working process of Stereolithography along with advantages and disadvantages.	10	(2 : 2 : 1.4.1)
	b. Briefly explain with a neat sketch, working process of Micro-Stereolithography along with advantages and disadvantages.	10	(2 : 2 : 1.4.1)
(OR)			
4.	a. Sketch and explain SL resin curing process.	10	(2 : 2 : 1.3.1)
	b. With a neat sketch, briefly explain about powder fusion mechanism.	10	(2 : 2 : 1.3.1)
<u>Module-3</u>			
5.	a. Briefly explain with a neat sketch, working process of Laminated Object Manufacturing along with advantages and disadvantages.	10	(2 : 3 : 1.4.1)
	b. Briefly explain with a neat sketch, working process of Ultrasonic Consolidation along with advantages and disadvantages.	10	(2 : 3 : 1.4.1)
(OR)			
6.	a. Write a brief note on typical materials and microstructure.	10	(1 : 3 : 1.4.1)
	b. With a neat sketch explain Ink based Direct Write technology.	10	(2 : 3 : 1.3.1)
<u>Module-4</u>			
7.	a. Briefly explain about guidelines of selection methods in AM process.	10	(2 : 4 : 1.4.1)
	b. Briefly illustrate on problems with STL files and file manipulation.	10	(2 : 4 : 1.3.1)
(OR)			

Note: (RBTl - Revised Bloom's Taxonomy Level: CO - Course Outcome: PI- Performance Indicator)

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|----|----|--|----|----------------|
| 8. | a. | Explain preparation of CAD models and support removal process. | 10 | (2 :4 : 1.3.1) |
| | b. | Generalize about production planning and control. | 10 | (2 :4 : 1.4.1) |

Module-5

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| 9. | a. | Explain about pattern for investment and casting. | 10 | (2 :5 : 1.4.1) |
| | b. | Briefly explain about rapid tooling and new materials development. | 10 | (2 :5 : 1.3.1) |

(OR)

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|-----|----|---|----|----------------|
| 10. | a. | Briefly explain about bimetallic parts and remanufacturing. | 10 | (2 :5 : 1.3.1) |
| | b. | Explain the future of digital manufacturing. | 10 | (2 :5 : 1.4.1) |

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