

Register No : _____

THE KAVERY ENGINEERING COLLEGE
(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV /DEC 2024

Seventh Semester

Information Technology

OME352 - Additive Manufacturing

(Common to Computer Science and Engineering)

Regulations - 2021

Duration : 3 Hrs

Maximum : 100 Marks

PART - A (ANSWER ALL QUESTIONS) (Marks 10*2=20)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
1.	What are the benefits of additive manufacturing?	RE	1	2
2.	Mention two applications of Bio-printing.	UN	1	2
3.	What materials are used in digital light processing?	RE	2	2
4.	What is a material extrusion process?	RE	2	2
5.	Define powder bed fusion?	RE	3	2
6.	Name two materials used in electron beam melting.	RE	3	2
7.	What is the main advantage of material jetting over other additive manufacturing processes?	UN	4	2
8.	Name two industries where directed energy deposition is widely used.	AP	4	2
9.	How does inkjet printing differ from nozzle dispensing in direct write technology?	UN	5	2
10.	What is aerosol-based direct write technology?	RE	5	2

PART - B (ANSWER ALL QUESTIONS) (Marks 5*13 = 65)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a Discuss the various AM file formats, including STL and AMF, and how they influence the AM process.	AP	1	13
	Or			
	b Explore the business opportunities in AM and how they are revolutionizing different sectors.	AP	1	13
12.	a Explain the working principle of the Stereolithography Apparatus (SLA) process. Discuss its advantages and limitations.	UN	2	13
	Or			
	b Discuss in detail the process, materials, applications, and limitations of fused deposition modeling in AM.	UN	2	13

13.	a	Explain in detail the processes, advantages, and applications of Selective Laser Sintering (SLS).	UN	3	13
Or					
	b	Describe the electron beam melting (EBM) process, including its benefits and industrial applications.	UN	3	13
14.	a	Explain the Multijet Modeling (MJM) process in detail and discuss its benefits and limitations.	UN	4	13
Or					
	b	Describe the Laser Engineered Net Shaping (LENS) process, highlighting its advantages and applications.	UN	4	13
15.	a	Compare laminated object manufacturing with other additive manufacturing processes in terms of speed, material usage, and cost.	AP	5	13
Or					
	b	Discuss the environmental impact of direct write technologies and their contribution to reducing material waste.	AP	5	13

*PART – C (Marks 1*15 = 15)*

<i>Q.No</i>		<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
16.	a	Provide a comprehensive overview of Additive Manufacturing (AM), including its need, benefits, and unique capabilities.	AP	1	15
Or					
	b	Explore the role of AM in advanced healthcare, with a focus on bioprinting and its potential to revolutionize medical treatments.	AP	1	15