Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE(MINOR) - SEMESTER–IV EXAMINATION – SUMMER 2023

Subject Code:114AN01 Date:14-08-2023

Subject Name:Introduction to Additive Manufacturing

Time:02:30 PM TO 05:00 PM Total Marks:70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

			Marks
Q.1	**(a)**	State the advantages of Additive manufacturing process.	**03**
	(b)	Differentiate between additive manufacturing and subtractive manufacturing.	**04**
	(c)	Explain the stages of additive manufacturing process?	**07**
Q.2	**(a)**	Explain photo-polymerization process in brief?	**03**
	(b)	State the benefits of photo-polymerization.	**04**
	(c)	Explain Rapid Freezing process in detail?	**07**
		OR	
	(c)	Write principle and working of polyjet 3D- printing technique?	**07**
Q.3	**(a)**	What materials are used for SLA printing?	**03**
	(b)	State and briefly explain the print parameters of SLA printing?	**04**
	(c)	Write principle and working of Stereo lithography Apparatus (SLA).	**07**
		OR	
Q.3	**(a)**	Enlist the application of SLS method	**03**
	(b)	State the process parameters of SLS method	**04**
	(c)	Explain Selective Laser Sintering(SLS) with neat sketch.	**07**
Q.4	**(a)**	State the limitations of Additive manufacturing.	**03**
	(b)	Explain Wrapping defect and state parameters that effect wrapping defect.	**04**
	(c)	Write possible future growth and opportunities of additive manufacturing in automobile field.	**07**
		OR	
Q.4	**(a)**	State the process parameters of EBM method.	**03**
	(b)	State the materials used in FDM methods.	**04**
	(c)	State the common defects used in 3D printing and methods to resolve them.	**07**
Q.5	**(a)**	State the materials used in LOM technique	**03**

	(b)	ExplainColourjet Printing (CJP) in brief?	**04**
	(c)	Explain basic principle and working of Fused Deposition Modeling process (FDM).	**07**

OR

Q.5	**(a)**	State the limitations of Additive manufacturing.	**03**
	(b)	Compare and write benefits and drawbacks of FDM and LOM.	**04**
	(c)	Explain basic principle and working of, Selective Deposition Lamination(SDL).	**07**

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