

# GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-VII (NEW) EXAMINATION – WINTER 2024

**Subject Code:3171926**

**Date:30-11-2024**

**Subject Name: Rapid Prototyping**

**Time:10:30 AM TO 01:00 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) What is Prototyping? Enlist advantages of Rapid Prototyping	03
	(b) How is 3D printing used in product design?	04
	(c) Explain the generic additive manufacturing process with neat sketch.	07
Q.2	(a) Describe the STL file format. Explain the importance of STL file in RP.	03
	(b) Explain the importance of part orientation in 3D printing with suitable example.	04
	(c) Explain the contour and tool path generation in detail with a flowchart.	07
	OR	
	(c) List the various types of solid modeling techniques and explain in detail B-Rep models.	07
Q.3	(a) Enlist the advantages and limitation for Laminated object manufacturing (LOM) process.	03
	(b) Discuss the advantages and disadvantages of Solid Ground Curing (SGC).	04
	(c) Explain Fused Deposition Modelling process with neat sketch.	07
	OR	
Q.3	(a) Write down the principle of Electron Beam Melting (EBM) Process.	03
	(b) Enlist the Applications for Selective Laser Sintering (SLS) process.	04
	(c) Explain Stereolithography process with neat sketch.	07
Q.4	(a) List out the application of laminated object manufacturing.	03
	(b) Explain different Part Building errors in RP.	04
	(c) How is rapid prototyping transforming the jewelry industry?	07
	OR	
Q.4	(a) Enlist the Applications for Direct Metal Deposition (DMD) process.	03
	(b) Discuss the advantages and disadvantages of selective laser sintering.	04
	(c) Explain Laser Engineered Net Shaping (LENS) with neat sketch.	07
Q.5	(a) Enlist the different application of RP in construction industry.	03
	(b) Enlist & explain the RP applications in the field of manufacturing & tooling.	04
	(c) Define & classify Rapid Tooling. Explain any one method of Indirect Tooling.	07
	OR	
Q.5	(a) How does aerospace technology make use of rapid tooling application?	03
	(b) Explain RP applications for automotive industries.	04
	(c) Explain the different errors occurs in RP processes.	07

\*\*\*\*\*