Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII (NEW) EXAMINATION – SUMMER 2022

Subject Code:3171926 Date:08/06/2022

Subject Name:Rapid Prototyping

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)**	What is Prototyping? Enlist advantages of Rapid Prototyping.	**03**
	(b)	Compare Additive and Subtractive techniques in terms of Accuracy & Repeatability.	**04**
	(c)	Explain the steps for typical Rapid Prototyping Process.	**07**
Q.2	**(a)**	Describe the STL file format. Explain the importance of STL file in RP.	**03**
	(b)	Differentiate uniform slicing and adaptive slicing with suitable example.	**04**
	(c)	Explain the strengths and weaknesses of CLI & HP/GL file formats.	**07**
		OR	
	(c)	Differentiate RPI and STL file format in terms of advantages & disadvantages.	**07**
Q.3	**(a)**	Define the following terms. • Chord Height • Staircase effect • Infill	**03**
	(b)	Explain the importance of part orientation in 3D printing with suitable example.	**04**
	(c)	Define & classify Rapid Tooling. Explain any one Method of Direct Tooling.	**07**
		OR	
Q.3	**(a)**	Enlist the Applications for Direct Metal Deposition (DMD) process.	**03**
	(b)	Explain about photo polymerization process with neat sketch.	**04**
	(c)	Define & classify Rapid Tooling. Explain any one method of Indirect Tooling.	**07**
Q.4	**(a)**	Enlist the Applications for Selective Laser Sintering (SLS) process.	**03**
	(b)	Explain different Part Building errors in RP.	**04**
	(c)	Explain Fused Deposition Modelling (FDM) RP process with neat sketch.	**07**
		OR	
Q.4	**(a)**	Enlist the advantages and limitation for Laminated object manufacturing (LOM) process.	**03**
	(b)	Discuss the various post-processing errors occur in RP methods.	**04**
	(c)	Explain Stereolithography (SLA) process RP process with neat sketch.	**07**

Q.5	**(a)**	Write down the principle of Electron Beam Melting (EBM) Process.	**03**
	(b)	Explain RP applications for automotive industries.	**04**
	(c)	Define reverse engineering. Enlist various steps of reverse engineering and explain any one non-contact type method for acquiring point cloud data.	**07**

OR

Q.5	**(a)**	Write down the principle of Electron Beam Melting (EBM) Process.	**03**
	(b)	Enlist & explain the RP applications in the field of manufacturing & tooling.	**04**
	(c)	Explain different applications of RP in Medical field.	**07**

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