

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI (NEW) EXAMINATION – SUMMER 2024

Subject Code:3162511

Date:22-05-2024

Subject Name:Advance Material Processing

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 rapid prototyping? Give its applications.	03
	(b) Discuss the different scan patterns use in stereolithography (SL).	04
	(c) With a neat sketch explain Selective Laser Sintering.	07
Q.2	(a) What are the merits and demerits of laminated Object manufacturing?	03
	(b) Write a short notes on: (i) Object Quadra System. (ii) Thermal jet printer.	04
	(c) Describe Fused deposition modeling process with a neat diagram.	07
	OR	
	(c) Explain the working principle and details of process parameters of an FDM machine.	07
Q.3	(a) Discuss the technical challenges of 3D printing.	03
	(b) Briefly explain the materials used in SLA.	04
	(c) Explain Laser Welding Process in details	07
	OR	
Q.3	(a) Explain application of Laser in Biomedical and nanotechnology.	03
	(b) Explain laser processing in non metals.	04
	(c) Explain Laser Cutting Process in details.	07
Q.4	(a) List common ceramic powders that are used in industry along with Their characteristics.	03
	(b) Explain the types of glasses along with their compositions and special properties.	04
	(c) Explain in detail about glass forming processes.	07
	OR	
Q.4	(a) Explain various mechanical properties of composite material.	03
	(b) What are the advantages and limitations of composites over the other class of materials?	04
	(c) Explain Injection molding process for ceramic pastes.	07
Q.5	(a) Write a short note on resin transfer moulding.	03
	(b) Explain resin film infusion.	04
	(c) Explain the process of spray lay-up and wet/hand lay-up process for manufacturing of composites.	07
	OR	
Q.5	(a) What is vacuum bagging? Explain.	03
	(b) Explain liquid phase sintering process.	04
	(c) Name different types of glass furnace. Explain any one in detail.	07