

Seat No./Enrollment No.: _____

GUJARAT TECHNOLOGICAL UNIVERSITY
BACHELOR OF ENGINEERING – SEMESTER 6 – EXAMINATION – SUMMER 2026

Subject Code: 3162511

Date: 29/05/2026

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.**

- Q.1**
- (a)** Write the classification of Rapid Prototyping Systems. **03**
 - (b)** Write advantages and disadvantages of laminated object manufacturing (LOM) **04**
 - (c)** Explain in detail stereo lithography systems with neat and clean sketch. **07**

- Q.2**
- (a)** Write advantages and limitations of laser processing **03**
 - (b)** Explain the laser–material Interaction Theories. **04**
 - (c)** List out common ink jet printing techniques and explain any two techniques in detail. **07**

OR

- Q.2**
- (c)** Explain in detail fused deposition modeling (FDM) with neat and clean sketch. **07**

- Q.3**
- (a)** List different manufacturing methods of composites. **03**
 - (b)** Write classification of composites. **04**
 - (c)** Describe the Genisys Xs 3D Printer in detail. **07**

OR

- Q.3**
- (a)** Explain mechanical properties - Stiffness and Strength of composite material. **03**
 - (b)** Explain spray hand lay-up method. **04**
 - (c)** Write a short note on solid ground curing (SGC) **07**

- Q.4**
- (a)** How does Rapid Prototyping Work? **03**
 - (b)** Explain three phases of rapid prototyping. **04**
 - (c)** Describe the Resin Transfer Moulding (RTM) and Resin Film Infusion (RFI), **07**

OR

- Q.4**
- (a)** Why Rapid Prototyping required? **03**

(b) Write a short note on RPT Basic Process (five-step process). **04**

(c) Describe the Vacuum Bagging and Filament Winding process of composite. **07**

Q.5 **(a)** Write Common Ceramic Powders full name properties and application and of Al_2O_3 , ZrO_2 , Si_3N_4 , and SiC . **03**

(b) Describe different types of glass furnaces with applications. **04**

(c) Explain the composition of glass and discuss its important properties. **07**

OR

Q.5 **(a)** Explain the Sintering in Ceramic Processing. **03**

(b) B – List the raw materials used in glass manufacturing and explain their functions. **04**

(c) Define glass and explain the glassy state with its characteristics. **07**
