

Seat No./Enrollment No.: _____

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

Subject Code: 3161922

Date: 01/06/2026

Subject Name: Advanced Manufacturing Processes

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) State the need for advanced machining processes in industry. **03**
 - (b) Explain role of electrolyte in ECM process. **04**
 - (c) Explain Ultrasonic Machining (USM) with diagram and material removal mechanism. **07**
- Q.2**
- (a) Write types of Lasers with their properties. **03**
 - (b) Compare WJM and AWJM processes. **04**
 - (c) Evaluate different unconventional machining processes based on applications. **07**
- OR
- Q.2**
- (c) Evaluate suitability of different machining processes for hard materials. **07**
- Q.3**
- (a) Explain why masking is essential in chemical machining. **03**
 - (b) Explain process parameters affecting MRR in AJM. **04**
 - (c) Draw and explain cause-effect (Ishikawa) diagram for EDM process. **07**
- OR
- Q.3**
- (a) Explain why vacuum is required in EBM process. **03**
 - (b) Explain effect of stand-off distance in AJM. **04**
 - (c) Analyze the effect of process parameters on MRR and surface finish in EDM. **07**
- Q.4**
- (a) Discuss the importance of slicing in rapid prototyping. **03**
 - (b) Compare FDM and SLA processes based on accuracy, cost, and materials. **04**
 - (c) Explain FDM process in detail and analyze factors affecting part strength and surface finish. **07**
- OR
- Q.4**
- (a) Explain how build orientation affects RP output quality. **03**
 - (b) Analyze how RP contributes to product development and innovation. **04**
 - (c) Explain Laminated Object Manufacturing (LOM) and analyze its advantages and limitations. **07**
- Q.5**
- (a) Discuss importance of cullet in glass manufacturing. **03**
 - (b) Describe soda-lime glass composition, properties **04**
 - (c) Explain Pultrusion process with neat sketch and analyze factors affecting product quality. **07**

OR

- Q.5**
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|---|-----------|
| (a) Explain Continuous Glass Fibers Process with neat sketch. | 03 |
| (b) Describe steps in glass manufacturing. | 04 |
| (c) Describe compression moulding for composites and analyze its advantages and limitations. | 07 |
