

Enrollment No./Seat No.:

GUJARAT TECHNOLOGICAL UNIVERSITY
Bachelor of Engineering - SEMESTER - VI EXAMINATION - WINTER 2025

Subject Code: 3162308

Date: 25-11-2025

Subject Name: Advanced Plastic Processing Techniques

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) Draw a neat line diagram of a calendering unit and label its parts	03
(b) List and explain the general production methods to produce foams.	04
(c) Explain the process of Encapsulation with a neat diagram & state its uses.	07
Q.2 (a) Define the following: i) Cellular plastics ii) Structural foam iii) Syntactic foam	03
(b) Explain the Insert molding process briefly.	04
(c) Draw a neat flow diagram of Reaction Injection Molding (RIM) technique & explain its working.	07
OR	
(c) Discuss about the Ionizing Radiation processes.	07
Q.3 (a) Describe the process of casting with thermoset materials.	03
(b) List the points of difference between Closed cell & Open cell foam.	04
(c) Describe the Low Pressure Structural foam molding technique with a labeled diagram.	07
OR	
(a) Discuss about Silicon foams	03
(b) List the Advantages & Disadvantages of Structural foam.	04
(c) Draw & explain the different types of Calender Roll arrangements.	07
Q.4 (a) Differentiate between Water Assisted & Gas Assisted Injection Molding techniques.	03
(b) Explain how premixing & gelation is done in calendering process.	04
(c) Explain the Drilled & Cored rolls used in calendering process with neat diagrams	07
OR	
(a) Explain about Calender Drive system.	03
(b) List & explain the factors affecting the final density of foam.	04
(c) Explain the Internal Gas Assisted Injection molding technique with a neat sketch.	07

- Q.5 (a)** State the applications of Calendered sheet. **03**
- (b)** List the components of RIM process & explain them briefly. **04**
- (c)** Explain the Multi color injection molding process with a neat diagram & state its applications. **07**

OR

- (a)** Describe the manufacturing of Open cell Vinyl foams. **03**
- (b)** Explain briefly the Sandwich Foam Molding process. **04**
- (c)** Discuss the manufacturing of Expandable Polystyrene foam with a neat flow diagram. **07**
