

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – SUMMER 2024****Subject Code:3162308****Date:24-05-2024****Subject Name:Advanced Plastic Processing Techniques****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) Define i) Compression Resistance ii) Syntactic foam iii) Foamed Plastics	03
	(b) Discuss about the general production methods to produce foam.	04
	(c) Define Reaction Injection Molding. Explain the steps in RIM process with a neat flow diagram and list the advantages and applications of RIM process.	07
Q.2	(a) Draw the line diagram of a Calendering unit layout and label its parts. List the applications of Calendering.	03
	(b) Compare Open Cell and Closed cell foam.	04
	(c) Explain the steps in Low Pressure Structural Foam molding technique with a neat sketch.	07
	OR	
	(c) List the post-calendering processes and explain them briefly.	07
Q.3	(a) Discuss briefly about Blowing Agents used for making foamed plastics	03
	(b) Define Structural foam. List the advantages and disadvantages of Structural foam.	04
	(c) Explain the different types of calendar roll arrangements with neat diagrams.	07
	OR	
Q.3	(a) Explain briefly the process of casting with thermoset resins. List the materials used for casting.	03
	(b) List and explain the major equipments used in RIM process	04
	(c) Describe the Expandable Polystyrene foam molding technique with a neat flow diagram. List the applications of PS foams.	07
Q.4	(a) Discuss about Silicon Foams.	03
	(b) List and explain the factors affecting the final density of foam	04
	(c) Describe the construction of Drilled and Cored calendar rolls used for heating with neat sketches.	07
	OR	
Q.4	(a) Describe the manufacturing and applications of Cellular Polyethylene foams.	03
	(b) Discuss about the Premixing and Gelation step in Calendering process	04
	(c) List the uses of Ionizing Radiation processing and explain them briefly.	07
Q.5	(a) Discuss about the Insert Molding technique and list its applications	03
	(b) Discuss the manufacturing of Open cell and Closed cell Vinyl foams.	04
	(c) Explain the process of Multicolor injection molding and list its advantages and applications	07

OR

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| Q.5 | (a) | Discuss any one Drive system used for Calender rolls. | 03 |
| | (b) | Explain the Encapsulation process with a neat sketch | 04 |
| | (c) | Explain any one Gas Assisted Injection molding technique with a neat sketch and list the advantages, disadvantages and applications of Gas Assisted Injection molding. | 07 |
