

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – SUMMER 2023****Subject Code:3162308****Date:14-07-2023****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

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| Q.1 | (a) Define the following 1) Open cell foams 2) Syntactic foams 3) Cellular plastics | 03 |
| | (b) Describe the process of Encapsulation with a neat sketch | 04 |
| | (c) Explain the process steps in low pressure structural foam molding technique with a neat sketch | 07 |
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| Q.2 | (a) Explain how the blowing agents are useful in making foamed plastics. | 03 |
| | (b) Define Structural foam. List the advantages and disadvantages of structural foam. | 04 |
| | (c) Explain about Drilled and Cored Rolls used for heating calendars with neat sketches. | 07 |
| OR | | |
| | (c) Discuss about Non Ionizing Radiation processing. | 07 |
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| Q.3 | (a) Explain briefly the process of casting with thermoset resins. | 03 |
| | (b) Discuss about PE foams. | 04 |
| | (c) Describe the production of Expandable Polystyrene beads with a neat sketch. | 07 |
| OR | | |
| Q.3 | (a) List the applications of i) Calendered sheets ii) RIM products. | 03 |
| | (b) Compare Open Cell and Closed Cell foam. | 04 |
| | (c) Explain the Gas assisted Injection molding technique. | 07 |
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| Q.4 | (a) Discuss about Foamed Vinyls. | 03 |
| | (b) Discuss about the Insert Molding technique and its applications. | 04 |
| | (c) Explain the process steps of Reaction Injection molding with a neat flow diagram | 07 |
| OR | | |
| Q.4 | (a) Describe the Water assisted Injection molding (WAIM) technique. | 03 |
| | (b) List and explain the factors affecting the final density of foam. | 04 |
| | (c) Explain Premixing and Gelation in Calendering process. | 07 |
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| Q.5 | (a) Discuss about Silicon (RTV) foams. | 03 |
| | (b) Draw and explain different types of calendar roll arrangements | 04 |
| | (c) Explain Multicolor Injection molding technique. | 07 |
| OR | | |
| Q.5 | (a) Draw and label the line diagram of Calendering process. | 03 |
| | (b) Describe the post calendaring processes briefly. | 04 |
| | (c) Explain the production, materials and applications of PU foams. | 07 |
