

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – WINTER 2023****Subject Code:3162308****Date:13-12-2023****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

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| Q.1 | (a) Define the following i) Closed cell foam ii) Syntactic foam iii) Open cell foam | 03 |
| | (b) Describe Encapsulation process with a neat sketch. | 04 |
| | (c) Explain the low pressure structural foam molding technique with a neat sketch. | 07 |
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| Q.2 | (a) List and explain the general production methods of foam. | 03 |
| | (b) Draw and label the Calendar unit layout and list the applications of Calendered sheet. | 04 |
| | (c) Define Reaction Injection Molding and explain the RIM process with a neat flow diagram. | 07 |
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| OR | | |
| | (c) Describe the External Gas Assisted Injection Molding technique with a neat sketch. | 07 |
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| Q.3 | (a) List the advantages, disadvantages and applications of RIM products | 03 |
| | (b) Discuss briefly about Water Assisted Injection Molding. | 04 |
| | (c) Explain the process to manufacture Expandable Polystyrene foams with a neat sketch. | 07 |
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| OR | | |
| Q.3 | (a) Discuss briefly giving examples about the function of a Blowing agent used in producing foams. | 03 |
| | (b) Define Structural foam. List its advantages and disadvantages. | 04 |
| | (c) Explain the Drilled and Cored Rolls with neat sketches. | 07 |
| Q.4 | (a) Describe the process of Casting of plastics and list the materials used for casting. | 03 |
| | (b) Discuss briefly about PE foams. | 04 |
| | (c) Explain the process of Multicolor Injection molding with necessary diagram. | 07 |
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| OR | | |
| Q.4 | (a) Explain about Premixing and Gelation in Calendaring process. | 03 |
| | (b) List and explain the factors affecting the final density of foam. | 04 |
| | (c) Explain the different types of Calendar Roll arrangements with neat diagrams. | 07 |
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| Q.5 | (a) Discuss about Silicon foams. | 03 |
| | (b) Explain cross linking thermoplastics for wire and cables. | 04 |
| | (c) Describe Insert Molding process with neat sketch. | 07 |
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| OR | | |
| Q.5 | (a) Discuss about Radio frequency curing through non-ionizing radiation. | 03 |
| | (b) List and two faults and its remedies in calendaring process. | 04 |
| | (c) Explain the following i) Open cell Vinyl foams ii) Closed Cell Vinyl foams. | 07 |
