

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-III (New) EXAMINATION – WINTER 2018****Subject Code:2132302****Date:01/12/2018****Subject Name:Manufacturing of Plastic Materials-1****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.

| | | MARKS |
|-----|---|-------|
| Q.1 | (a) Define giving examples i) Monomer ii) Polymer iii) Polymerization. | 03 |
| | (b) List the differences between thermoplastics and thermosets. | 04 |
| | (c) Draw a flow chart and explain the manufacturing of Melamine Formaldehyde. | 07 |
| Q.2 | (a) Explain the preparation of Unsaturated Polyester resin. | 03 |
| | (b) List the applications of Epoxy. | 04 |
| | (c) Write a short note on curing mechanism of Urea Formaldehyde | 07 |
| | OR | |
| | (c) Explain the cross linking of Polyester resin by styrene linkages | 07 |
| Q.3 | (a) Name the appropriate thermoset material used in the production of the following items i) Dinnerware ii) Adhesives and coatings iii) O-rings | 03 |
| | (b) Explain the preparation of Melamine and Formaldehyde monomers. | 04 |
| | (c) List the properties and applications of Urea Formaldehyde Resin. | 07 |
| | OR | |
| Q.3 | (a) Explain the manufacturing of Silicone Resin. | 03 |
| | (b) Explain the Dow process and Sulphonation process to manufacture Phenol. | 04 |
| | (c) List the properties and applications of Melamine Formaldehyde. | 07 |
| Q.4 | (a) List the uses of Polyurethane. | 03 |
| | (b) State the properties and applications of Phenol Formaldehyde. | 04 |
| | (c) Explain the preparation Bis-phenol A and Epichlorhydrin monomers for Epoxy Resin. | 07 |
| | OR | |
| Q.4 | (a) List the properties and applications of Polyester resin. | 03 |
| | (b) Explain the preparation and curing of Diglycidyl ether in manufacturing of Epoxy resin. | 04 |
| | (c) Draw a flow chart and explain the manufacturing of Urea Formaldehyde. | 07 |
| Q.5 | (a) How is Urea monomer prepared? | 03 |
| | (b) List the properties and applications of Silicon Resin. | 04 |
| | (c) How are Novolac and Resols formed? Explain. | 07 |
| | OR | |

| | | |
|-------|--|----|
| Q.5 | (a) List the properties of Epoxy. | 03 |
| | (b) Explain the preparation of Polyurethane. | 04 |
| | (c) With a neat flow diagram explain the process of Naptha Cracking. | 07 |
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