

GUJARAT TECHNOLOGICAL UNIVERSITY
BACHELOR OF ENGINEERING – SEMESTER 3 – EXAMINATION – SUMMER 2026

Subject Code: 3132304

Date: 19/06/2026

Subject Name: Thermoset Plastics: Materials and 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.**

- Q.1** (a) Define: (1) Curing (2) Bulk factor (3) Preform **03**
(b) Write properties of Epoxy resin. **04**
(c) Compare: Thermoset plastic with Thermoplastic **07**
- Q.2** (a) Explain in brief about Bulk factor. **03**
(b) Write application of Urea Formaldehyde. **04**
(c) Compare: Compression Molding with Transfer Molding. **07**
- OR
- Q.2** (c) Write polymerization reaction and properties of Polyester resin. **07**
- Q.3** (a) List types of compression mold. **03**
(b) Explain in brief about height of powder well. **04**
(c) Explain synthesis and manufacturing of Melamine Formaldehyde. **07**
- OR
- Q.3** (a) List steps of compression molding. **03**
(b) List properties and application of Silicon. **04**
(c) Explain various preparation techniques of Phenol monomer. **07**
- Q.4** (a) List advantages of Preform. **03**
(b) List properties and application of PF resin. **04**
(c) Determine the height of powder well for a semi positive landed compression mold for a cylindrical hollow product having outer diameter 22 mm and inner diameter 18 mm. The height of product is 12 mm. The bulk factor of material is 8 and the land length is 5 mm. **07**
- OR
- Q.4** (a) Explain about importance of breathing in compression molding. **03**
(b) Explain about importance of Preheating and its methods. **04**
(c) Explain Plunger type Transfer molding with neat sketch. **07**
- Q.5** (a) Difference between Novolac and Resols. **03**
(b) Explain curing mechanism of UF resin. **04**
(c) Explain semi-positive compression mold with neat sketch. **07**
- OR
- Q.5** (a) Explain basic characteristic of Thermoset Molding materials. **03**
(b) Explain in brief preparation of Bisphenol-A. **04**
(c) List properties and application of Thermoset Polyurethane. **07**
