

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-III (NEW) EXAMINATION – WINTER 2021****Subject Code:3132304****Date:21-02-2022****Subject Name:Thermoset Plastics: Materials and 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) Thermoset Polymers/ Thermoset Resin (ii) Crosslinking (iii) Pot life	03
	(b) Write the moulding sequence of Compression moulding along with its process parameters.	04
	(c) Write the comparison between Thermoplastics and Thermosets.	07
Q.2	(a) Define (i) Saturated compounds (ii) Unsaturated compounds	03
	(b) State the advantages and disadvantages of Transfer moulding.	04
	(c) Write the manufacturing process of- (i) Urea (ii) Melamine (iii) Formaldehyde (iv) Hexamethylene Tetramine	07
	OR	
	(c) What are the types of transfer moulding machines? Explain in detail all the types.	07
Q.3	(a) Write properties and applications of Thermoset Polyurethane.	03
	(b) Write the structure, properties and applications of Melamine formaldehyde.	04
	(c) How is Urea Formaldehyde manufactured? Explain in details.	07
	OR	
Q.3	(a) Write properties and applications of Epoxide Resin.	03
	(b) Write the structure, properties and applications of Polyester resin.	04
	(c) What are the raw materials used for synthesis of Phenol Formaldehyde? Explain the manufacturing process of phenol by 2 any two processes.	07
Q.4	(a) Write the properties and application of Silicon Resin.	03
	(b) Write polymerization reaction of Polyester resin	04
	(c) Explain the synthesis and manufacturing of Melamine formaldehyde.	07
	OR	
Q.4	(a) Define silicon resin and state its general characteristics.	03
	(b) State the advantages and disadvantages of Thermoset materials.	04
	(c) Write any 7 faults observed in compression moulded products along with the diagram and remedies.	07

- Q.5 (a)** State the types of Compression moulds. **03**
- (b)** Define- **04**
- (i) Preheating
 - (ii) Functionality
 - (iii) Bulk factor
- (c)** Explain the compression moulding process in detail. **07**
- OR**
- Q.5 (a)** State the difference between Novolac and Resole. **03**
- (b)** Define- **04**
- (i) Epoxy Resin
 - (ii) Unsaturated polyester Resin
 - (iii) Melamine Formaldehyde
- (c)** Write the difference between compression moulding and transfer moulding. **07**
