

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-III (NEW) EXAMINATION – WINTER 2024****Subject Code:3132304****Date:29-11-2024****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

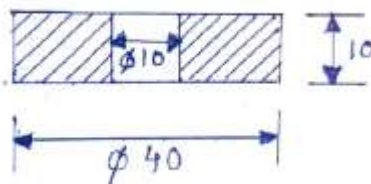
- Q.1**
- | | | |
|-----|--|-----------|
| (a) | List the properties and applications of Phenol Formaldehyde. | 03 |
| (b) | Define Bulk Factor. Explain its importance in compression molding. | 04 |
| (c) | Explain the Positive type of compression mold with a neat diagram. | 07 |
- Q.2**
- | | | |
|-----|--|-----------|
| (a) | Differentiate between Thermoplastics and Thermoset materials. | 03 |
| (b) | Describe the steps in compression molding process. | 04 |
| (c) | Explain the manufacturing of Urea Formaldehyde with a neat flow diagram and list its applications. | 07 |

OR

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|-----|---|-----------|
| (c) | Explain different preparation techniques of Phenol monomer. | 07 |
|-----|---|-----------|
- Q.3**
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|-----|---|-----------|
| (a) | List the properties and applications of Silicon. | 03 |
| (b) | Discuss about Preforms and its importance in compression molding. | 04 |
| (c) | Explain the Pot type transfer mold with a neat labeled diagram | 07 |

OR

- Q.3**
- | | | |
|-----|--|-----------|
| (a) | Discuss the properties and applications of Polyester Resin. | 03 |
| (b) | Calculate height of powder well for the product shown, made in semi-positive horizontal flash type mold. Product is made from phenol formaldehyde material having bulk factor 6. Dimension of land length is 5mm. All dimensions of the product shown are in mm. | 04 |



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|-----|--|-----------|
| (c) | Explain the Plunger type of Transfer mold with a neat labeled diagram. | 07 |
|-----|--|-----------|
- Q.4**
- | | | |
|-----|---|-----------|
| (a) | Discuss about breathing step in compression molding and explain its importance. | 03 |
| (b) | Discuss about land area and pressure pads in compression molds. | 04 |
| (c) | Compare Compression Molding with transfer molding. | 07 |
- OR**
- Q.4**
- | | | |
|-----|--|-----------|
| (a) | Discuss the difference between Novolac and Resol. | 03 |
| (b) | Explain the preparation of the following monomers i) Urea ii) Melamine | 04 |
| (c) | List the properties and applications of Melamine Formaldehyde. | 07 |
- Q.5**
- | | | |
|-----|---|-----------|
| (a) | List the properties and applications of Polyurethane | 03 |
| (b) | Discuss about screw type of transfer molding process. | 04 |

(c) Explain the preparation and curing mechanism of Urea Formaldehyde. **07**

OR

Q.5 (a) List the characteristics of thermoset molding materials and give examples. **03**

(b) Explain the importance of Preheating and different types of preheating techniques for thermoset materials. **04**

(c) List the problems, its causes and remedies for the defects occurring in compression molding. **07**
