

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) EXAMINATION – SUMMER 2022****Subject Code:3172318****Date:14/06/2022****Subject Name:Plastics Product Design****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) | Compare rotational molding with Extrusion blow molding process. | 03 |
| | (b) | Define Product design and Check list. List the ideal check list for product design. | 04 |
| | (c) | Explain wall thickness design considerations while designing the product. | 07 |
| Q.2 | (a) | Justify the material and method used to manufacture a compass box. | 03 |
| | (b) | What care should be taken while selecting a material for making milk pouch? | 04 |
| | (c) | Explain the product design process for designing a industrial gear. | 07 |
| | | OR | |
| | (c) | Explain the product design process for designing an overhead water storage tank. | 07 |
| Q.3 | (a) | List the short term and long term properties for designing a plastic product | 03 |
| | (b) | Explain the importance of designing radii and fillets in a product. | 04 |
| | (c) | List the preliminary steps in product design. | 07 |
| | | OR | |
| Q.3 | (a) | List any two materials with their properties which are used to make pipes for water supply. | 03 |
| | (b) | Which is the process suitable for producing plastic disposable dish? Justify. | 04 |
| | (c) | What is the importance of ribs and bosses? What are the design considerations to be taken while designing ribs and bosses? | 07 |
| Q.4 | (a) | Compare injection molding with thermoforming process. | 03 |
| | (b) | What care should be taken while selecting a material for making switches for electrical applications? | 04 |
| | (c) | Explain molded holes in product design. | 07 |
| | | OR | |
| Q.4 | (a) | What is the importance of decorating a part in part design? | 03 |
| | (b) | Explain the selection of material for designing a contact lens. | 04 |
| | (c) | Explain the process steps for designing plastic chair. | 07 |

- Q.5** (a) Justify the material and method used to manufacture a Air craft wings. **03**
- (b) What is the importance of metal inserts in plastic part? Explain briefly about types of inserts. **04**
- (c) Explain the process steps for designing any plastic product with hinge. **07**

OR

- Q.5** (a) List the reasons for product design. **03**
- (b) List any four self-lubricating plastic materials. **04**
- (c) List the advantages & disadvantages of stretch blow molding process. **07**
