

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VIII (NEW) EXAMINATION – WINTER 2023****Subject Code:2181913****Date:06-12-2023****Subject Name:Product Design and Value Engineering****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: Value, Value analysis and Value engineering. **03**  
(b) Explain the general guidelines for product design of maintainability. **04**  
(c) Discuss engineering ethics and issues of society related to design of products. **07**
- Q.2** (a) Discuss duration and cost of product development. **03**  
(b) What are specifications? Explain setting the final specification in briefly. **04**  
(c) Describe the various steps involved in product planning process. **07**
- OR**
- (c) Explain different types of organization structure used in product development organizations? **07**
- Q.3** (a) Explain the design and development of products? **03**  
(b) Explain the gathering customer needs and customers need documentation. **04**  
(c) Explain in brief generic product development process. **07**
- OR**
- Q.3** (a) Discuss importance of product planning. **03**  
(b) Explain: Design for safety. **04**  
(c) What are the tools and charts used for product analysis? Explain any one in detail. **07**
- Q.4** (a) List the computational tools and techniques used during Product development and explain any one. **03**  
(b) Explain clearly the meaning of value and worth. How is present worth calculated? **04**  
(c) Explain FAST diagram with example. **07**
- OR**
- Q.4** (a) What are the evaluation methods for material selection? **03**  
(b) Discuss: (1) Contractual training (2) Informal training **04**  
(c) List the engineering properties of material to be considered for design of product. Explain any three properties with example. **07**
- Q.5** (a) What do you mean by voice of customer? **03**  
(b) What do you mean by affinity diagram? **04**  
(c) What are the expectations of an automobile company from its product design engineer? **07**
- OR**
- Q.5** (a) Define: (1) Economic Value (2) Social Value (3) Religious Value **03**  
(b) Explain in brief value engineering job plan. **04**  
(c) Explain Gozinto chart with the help of example. **07**

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