

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VIII (NEW) EXAMINATION – SUMMER 2024

Subject Code: 2181913

Date: 18-05-2024

Subject Name: Product Design and Value Engineering

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.

- Q.1 (a) Classify the products giving suitable examples. 03
(b) Explain the characteristics of successful product development. 04
(c) Explain the importance of duration and cost of product development. 07

- Q.2 (a) Explain the noise and vibrations considerations to be considered for design of machines/machine tools. 03
(b) Explain the design for safety. 04
(c) Discuss the design for manufacturing and assembly and its importance in product development. 07

OR

- (c) Discuss the design for environment, legal factors and social issues in detail. 07

- Q.3 (a) State the current challenges of product development. 03
(b) Explain the different phases of product life cycle in detail. 04
(c) Write a detailed note on: Various methods to identify the customer needs. 07

OR

- Q.3 (a) Explain the customer satisfaction and voice of customer. 03
(b) Explain the generic development process in detail. 04
(c) Explain the various steps involved in product planning process with block diagram. 07

- Q.4 (a) Explain the Rigidity consideration in product design. 03
(b) Explain the evaluation methods for material selection in brief. 04
(c) You are appointed as Product Design engineer in a car manufacturing industry. 07
How will you modify or develop the existing product? Explain in detail.

OR

- Q.4 (a) Explain the different phases of value engineering job plan in brief. 03
(b) What are product specifications? Explain its importance in product development? 04
(c) Explain the value engineering functions and its evaluation. 07

- Q.5 (a) Explain the consideration of human aspects in value engineering. 03
(b) State and explain the different 'Cost reduction techniques' used in engineering industry? 04

- (c) Discuss the importance of leadership, team work and communication in value engineering. **07**

OR

- Q.5** (a) Define: Economic Value, Social Value and Religious Value. **03**
(b) Explain the role of 'Value Engineering Co-coordinator during implementation of Value Engineering program. **04**
(c) Explain FAST diagram in detail and its importance. **07**
