

# GUJARAT TECHNOLOGICAL UNIVERSITY

**BE - SEMESTER-VIII (NEW) EXAMINATION – WINTER 2018**

**Subject Code: 2181913**
**Date: 15/11/2018**
**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.

**MARKS**

- |            |     |  |           |
|------------|-----|--|-----------|
| <b>Q.1</b> | (a) | Explain various methods for Gathering Customer needs?  | <b>03</b> |
|            | (b) | What are the challenges of product development?  | <b>04</b> |
|            | (c) | Describe generic product development process in detail.  | <b>07</b> |
|            |     |  |           |
| <b>Q.2</b> | (a) | Briefly discuss different types of designs.  | <b>03</b> |
|            | (b) | What is product life cycle? Explain different phases of product life cycle.  | <b>04</b> |
|            | (c) | What are product specifications, explain with example? How product specifications are important for product development?       | <b>07</b> |
| <b>OR</b>  |     |  |           |
|            | (c) | Explain different types of organization structure used in product development organizations.                                   | <b>07</b> |
|            |     |  |           |
| <b>Q.3</b> | (a) | Briefly explain 'Design of Ergonomics', 'Design for Aesthetics' and 'Design for Maintenance' with suitable examples.           | <b>03</b> |
|            | (b) | What are the evaluation methods for material selection? Describe any two briefly.  | <b>04</b> |
|            | (c) | Discuss 'Customer use pattern' for organizing and prioritizing customer need with suitable example.                            | <b>07</b> |
| <b>OR</b>  |     |  |           |
| <b>Q.3</b> | (a) | List the computational tools and techniques used during Product development and explain any one.                               | <b>03</b> |
|            | (b) | Describe 'Kano model' for 'Customer satisfaction' with the help of figure.   | <b>04</b> |
|            | (c) | What are the tools and charts used for product analysis? Explain Gozinto chart with the help of example.                       | <b>07</b> |
|            |     |  |           |
| <b>Q.4</b> | (a) | Explain different types of 'New Products' with suitable example.   | <b>03</b> |
|            | (b) | Define the term 'Product' and explain the classification of product giving suitable examples.                                  | <b>04</b> |
|            | (c) | List the engineering properties of material to be considered for design of product. Explain any three properties with example. | <b>07</b> |
| <b>OR</b>  |     |  |           |
| <b>Q.4</b> | (a) | Discuss different factors affecting 'Selection of Project (Product)' during planning phase of Product development.             | <b>03</b> |
|            | (b) | Explain any two 'Concept Generation techniques' used during Product development.   | <b>04</b> |
|            | (c) | Explain the meaning of Design for manufacture. Support your answer with six different examples.                                | <b>07</b> |

- Q.5** (a) What are different 'Cost reduction techniques' used in engineering industry? How Value engineering differ from them? **03**
- (b) Discuss the role of 'Value Engineering Co-coordinator / Facilitator' during implementation of Value Engineering programme. **04**
- (c) Discuss different methods used for 'Value Engineering Project Selection'. **07**

**OR**

- Q.5** (a) Write the basic function of 'Ceiling Fan', 'Air conditioner' and 'Cigarette lighter' in two words: A 'verb' and a 'noun'. **03**
- (b) Define the terms 'Basic function' and 'Secondary function' used in Value engineering with suitable example. **04**
- (c) Explain the process of preparing FAST diagram. **07**

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