

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**EIGHTH SEMESTER B.TECH DEGREE EXAMINATION, MAY 2019**

**Course Code: MP482**

**Course Name: PRODUCT DEVELOPMENT AND DESIGN**

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer any three full questions, each carries 10 marks.*

Marks

- |   |  |      |
|---|--|------|
| 1 | Draw block diagram and explain the Morphology of Design.   | (10) |
| 2 | a) Classify the different types of products.   | (5)  |
|   | b) Discuss the various reasons for new product failures.   | (5)  |
| 3 | a) Point out the various activities involved in concept development phase, with a schematic diagram. | (4)  |
|   | b) Discuss the steps involved in concept generation.   | (4)  |
|   | c) Distinguish between different architectures for a product.  | (2)  |
| 4 | a) Discuss the need and the process of industrial design.  | (5)  |
|   | b) Discuss the factors affecting architecture modularity.  | (5)  |

**PART B**

*Answer any three full questions, each carries 10 marks.*

- |   |   |      |
|---|---|------|
| 5 | How the cost of a product is determined? Explain with suitable example.       | (10) |
| 6 | a) Explain the factors to be considered for maintainability.                  | (6)  |
|   | b) Explain the term "lines of maintenance"                                    | (4)  |
| 7 | a) Explain the process of value engineering with a case study.                | (5)  |
|   | b) Explain the need for qualitative analysis in economic product development. | (5)  |
| 8 | a) Point out the benefits of Value engineering.                               | (4)  |
|   | b) Classify and explain different types of functions.                         | (3)  |
|   | c) List the different phases in value analysis.                               | (3)  |

**PART C**

*Answer any four full questions, each carries 10 marks.*

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|----|--|------|
| 9  | Discuss some creative techniques applied in product development process.         | (10) |
| 10 | a) Describe the method brain storming used for generating creativity techniques. | (5)  |
|    | b) What are the aesthetic parameters to be considered in a design?               | (5)  |

- 11 a) List any three ergonomic factors to be considered in designing i) control units (6)  
and ii) display units
- b) Compare creative and critical thinking. (4)
- 12 a) What are the advantages of Rapid Prototyping? (4)
- b) Write down step by step process of filing a patent. (6)
- 13 Explain the working of any one rapid prototyping technique with a neat sketch. (10)  
Mention any two advantages and disadvantages.
- 14 a) Explain what you mean by concurrent engineering. (5)
- b) Explain the disclosure preparation in patents and IP Acts. (5)

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