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Brainware University
398, Ramkrishnapur Road, Barasat
Kolkata, West Bengal-700125



BRAINWARE UNIVERSITY

Term End Examination 2025-2026

Programme – Dip.ME-2023

Course Name – Product Design

Course Code - DMEOE601B

(Semester VI)

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

- (i) Recognize the significance of product cost in product development.
 - a) It determines the number of employees required
 - b) It affects profitability and sales volume
 - c) It only applies to service-based businesses
 - d) It has no impact on product quality
- (ii) Identify the purpose of testing and refinement in product development.
 - a) Eliminating product testing costs
 - b) Evaluating prototypes and identifying necessary changes
 - c) Skipping quality control processes
 - d) Increasing product defects
- (iii) Define product development.
 - a) A process of identifying customer needs
 - b) A set of activities from concept to production
 - c) A financial planning process
 - d) A marketing strategy
- (iv) Judge the importance of establishing target specifications.
 - a) Defining measurable goals for product performance
 - b) Skipping customer research
 - c) Avoiding competitor analysis
 - d) Finalizing production costs
- (v) Recall a purpose of concept generation.
 - a) Reducing manufacturing costs
 - b) Developing new product ideas
 - c) Focusing on marketing only
 - d) Eliminating competitor products
- (vi) Indicate the reason to use structured approaches in concept generation.
 - a) To eliminate the need for prototypes
 - b) To increase product cost
 - c) To reduce costly mistakes
 - d) To avoid innovation
- (vii) Choose the purpose of internal search in concept generation.
 - a) Focusing only on final product assembly
 - b) Generating ideas using team creativity
 - c) Avoiding idea brainstorming
 - d) Eliminating prototype testing
- (viii) Choose the reason for using Likert scales in surveys.

- a) Eliminating structured feedback
- b) Ignoring respondent preferences
- c) Standardizing responses
- d) Avoiding quantitative analysis
- (ix) Identify an advantage of prototype testing.
 - a) Avoiding performance validation
 - b) Skipping quality checks
 - c) Eliminating prototype iterations
 - d) Ensuring functionality before full-scale production
- (x) Determine the phase where product architecture is initially defined.
 - a) Concept development phase
 - b) System-level design phase
 - c) Detail design phase
 - d) Manufacturing phase
- (xi) Recognize the importance of interface standardization.
 - a) Enhances compatibility
 - b) Limits design flexibility
 - c) Increases production cost
 - d) Reduces component lifespan
- (xii) Select a product that allows easy modification of components.
 - a) Modular design
 - b) Integral design
 - c) Fixed architecture
 - d) Dynamic integration
- (xiii) Identify a key method to define customer needs.
 - a) Surveys and Interviews
 - b) Trial and Error
 - c) Random Selection
 - d) Ignoring feedback
- (xiv) Choose the role of detailed design in product development.
 - a) Determines the final cost
 - b) Focuses on manufacturing details
 - c) Reduces assembly cost
 - d) Ignores material selection
- (xv) List the essential elements of the design process.
 - a) On-site visit
 - b) Concept design drawings
 - c) Client amendments
 - d) Final working drawings

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Group-B

(Short Answer Type Questions)

3 x 5=15

2. Summarize the challenges in product development. (3)
3. Describe the impact of standard materials on manufacturing efficiency. (3)
4. Explain the role of component standardization in product design. (3)
5. Describe the role of SWOT analysis in analyzing competition. (3)
6. Compare the advantages and disadvantages of modular and integral architectures. (3)

OR

- Evaluate the impact of product architecture on product development management. (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7. Identify key economic design principles that enhance manufacturability. (5)
8. Summarize the impact of material selection on product performance. (5)
9. Evaluate the advantages and limitations of modular and integral architectures in product design. (5)
10. Describe the impact of industrial design on the success of a product in the market. (5)
11. Analyze the steps involved in analyzing cause-and-effect relationships in product design. (5)
12. Evaluate the importance of robust design in minimizing variations in product performance. (5)

OR

- Examine the role of user-driven product development in improving customer satisfaction. (5)
