KUMARAGURU college of technology
character is life

Register Number:……

M.TECH DEGREE EXAMINATIONS: DEC 2022

(Regulation 2018)

First Semester

MASTERS OF TECHNOLOGY MANAGEMENT

P18TME0035: Industrial Design and Development

COURSE OUTCOMES

CO1: Understand the product life cycle and management

CO2: Sketch UI and UX for the product/prototypes

CO3: Build rapid prototypes using digital fabrication techniques

CO4: Use hand and power tools for building mechanical design for prototypes.

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions: -

PART A (10 x 1 = 10 Marks)

1. What design discipline is Dieter Rams famous for? CO2 [K_2]

   a) Industrial design b) Graphic design

   c) Fashion design d) Web design

2. Collecting _____ is an important portion of testing a prototype in the test stage of design thinking CO2 [K_2]

   a) Pictures b) Money

   c) Feedback d) E-mails

3. Product quality is ultimately reflected in the _____ and the price that customers are willing to pay. CO1 [K_2]

   a) Development cost b) Development time

   c) Market share d) Development capability

4. Product development is an interdisciplinary activity with three central functions. These are CO1 [K_2]

   a) Design, Marketing, and Manufacturing b) Design, Sales, and Marketing

   c) Marketing, Manufacturing and Sales d) Design, Finance, and Manufacturing

5. What is the first and most basic element of design? CO2 [K_2]

   a) Shape b) Line

   c) Color d) Size

6. During the planning stage, the Manufacturing division's task is to: CO3 [K_2]

a) Identify production constraints and set supply chain strategy
b) Articulate market opportunity and define market segments
c) Consider product platforms and assess new technology
d) Allocate project resources

7. The concept development phase consists of many sequential activities; however, the whole process is often _____ in nature. CO4 [K_2]

a) Linear
b) Iterative
c) Circular
d) Exponential

8. Which of the following is a service business? CO2 [K_2]

a) Grocery Delivery
b) Tanning Swimsuits
c) Clothes With UV Protection
d) Self-Cleaning Carpet

9. The life cycle of a product includes CO4 [K_2]

a) Extraction of natural resources
b) Processing of raw materials
c) Manufacturing of products
d) All of the mentioned

10. What sub-fields does UX (User Experience) Design include? CO2 [K_2]

I. User Research
II. Usability Testing
III. Visual Design
IV. Information Architecture

a) I & II
b) II & III
c) III & IV
d) I, II & III & IV

PART B (10 x 2 = 20 Marks)

11. List the advantages of swot analysis CO3 [K_2]
12. Explain the fundamental principles of design CO2 [K_2]
13. What are the different types of DFT techniques? CO1 [K_2]
14. What are the steps involved in Concept generation? CO4 [K_2]
15. List the steps in the DFM process. CO1 [K_2]
16. What is the purpose of prototyping? CO3 [K_2]
17. List the stages of the product development cycle CO1 [K_2]
18. Explain BOM and types of BOM CO1 [K_2]
19. Explain the concept of product design incorporated into Industrial design. CO4 [K_2]
20. Describe the significance of UX & UI in industrial applications CO2 [K_2]

PART C (6 x 5 = 30 Marks)

21.	Compare Industrial Design and Product Design.	CO3	[K_5]
22.	Explain in detail the DFM process with suitable examples.	CO1	[K_5]
23.	Describe the schematic layout for the Ashok Leyland Dost vehicle and mention the various aspects involved in different layers of BOM.	CO1	[K_5]
24.	Discuss the methodology used in new product development.	CO4	[K_2]
25.	Explain different types of Research techniques for innovation	CO2	[K_2]
26.	Discuss Combinational Vs Sequential testing and write a note on ad hoc DFT methods.	CO3	[K_2]

Answer any FOUR Questions

PART D (4 x 10 = 40 Marks)

27.	Explain the need for CAE/CAD/CAM in Industrial design, using suitable illustrations.	CO3	[K_5]
28.	Explain the basics principle used in prototyping design and prototyping technologies.	CO4	[K_2]
29.	Case study "Gearbox Casing"- Consider the production of gearbox casing from conceptualization to Customer end product. Each stage in the design process should be described, together with the DFM and DFT.	CO1	[K_5]
30.	Design the information Architecture of your dream college / University	CO2	[K_6]
31.	Create wireframes for a mobile application for your college website. Depict at least one end-to-end functionality via these wireframes.	CO2	[K_6]

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