Enrollment No.....................................

Faculty of Engineering
End Sem Examination Dec 2024
OE00083 Value Creation Through Design Thinking

Programme: B.Tech.   Branch/Specialisation: All

Duration: 3 Hrs.   **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

			Marks	BL	PO	CO	PSO
Q.1	i.	What is the main goal of design thinking? (a) To maximize profits (b) To create innovative solutions for complex problems (c) To reduce product development time (d) To increase customer satisfaction from Un	1	1	1,3	1	
	ii.	Which stage of design thinking involves understanding the needs and wants of the end-users? (a) Ideation (b) Prototyping (c) Empathize (d) Define	1	1	1,3	1	
	iii.	In design thinking, generating a large number of ideas in a short amount of time is called as- (a) Brainstorming (b) Mind mapping (c) SWOT analysis (d) Six Thinking Hats	1	1	1,3	2	
	iv.	The "Diverge" phase in design thinking is related to: (a) Analyzing data (b) Narrowing down ideas (c) Generating multiple ideas (d) Testing prototypes	1	1	1,3	2	
	v.	In design thinking, the process of creating a tangible representation of ideas is known as: (a) Ideation (b) Prototyping (c) Testing (d) Refinement	1	1	1,3	3	

P.T.O.

vi. How does prototyping support the overall design process in design thinking? **1** [1] [1,3] [3]
(a) It helps to develop the final product version directly
(b) It allows users to test the solution
(c) It reduces the need for user feedback
(d) It is only used for promotional purposes

vii. What are the "Channels" in a business model canvas? **1** [1] [1,3] [4]
(a) Who are your customers?
(b) Customer touch points
(c) What is the best offer given?
(d) None of these

viii. During the "Test" stage in design thinking, what should be evaluated? **1** [1] [1,3] [4]
(a) The efficiency of the team
(b) The project's timeline and budget
(c) The feasibility of the prototype
(d) The performance of the product in the market

ix. Which is an iterative and incremental method of managing development and design? **1** [1] [1,3] [5]
(a) Waterfall model
(b) Agile methodology
(c) Cyclic methodology
(d) All of these

x. Why do so many new products fail? Select the LEAST LIKELY reason- **1** [1] [1,3] [5]
(a) Overestimation of the size of the market size
(b) Hostility on the part of the sales force
(c) Incorrectly positioned the product
(d) Poor quality product

Q.2 i. Briefly explain design thinking. **2** [2] [1,3] [1]
ii. What are the challenges faced in innovation? **3** [2] [1,3] [1]
iii. Describe the methods of identifying customer's needs. **5** [2] [1,3] [1]
OR iv. Explain the stages of the design thinking process. **5** [2] [1] [1]

Q.3 i. Briefly explain the brain-storming process. **2** [2] [1] [2]
ii. Describe the Steps of the concept generation process for product design. **8** [2] [12]
OR iii. Describe the "QFD" method to transfer customer needs to product specifications with a suitable diagram. **8** [3] [3] [2]

Q.4 i. What is a prototype? Explain briefly. **3** [2] [3] [3]
ii. What are the types of prototyping techniques? Describe any three prototyping techniques with suitable examples. **7** [2] [3] [3]
OR iii. Define "MVP". Describe any three methods of MVP testing. **7** [2] [3] [3]

Q.5 i. What is a business model canvas? What are the advantages of business model canvas? **4** [2] [1] [4]
ii. Describe any three methods of business model testing. **6** [2] [1] [4]
OR iii. Explain the product development framework with a suitable diagram. Explain the characteristics and advantages of the framework for service context. **6** [2] [2] [4]

Q.6 Write a short note on any two:
i. Principles of design for the environment. **5** [2] [1] [5]
ii. Spiral product development process. **5** [2] [3] [5]
iii. Agile product development process. **5** [2] [3] [5]

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Q.1   i)   b) To create innovative solutions for complex problems   **1**

       ii)   c) Empathize   **1**

       iii)   a) Brainstorming   **1**

       iv)   c) Generating multiple ideas   **1**

       v)   b) Prototyping   **1**

       vi)   b) It allows users to test the solution   **1**

       vii)   b) Customer touch-points   **1**

       viii)   c) The feasibility of the prototype   **1**

       ix)   b. Agile Methodology   **1**

       x)   b. Hostility on the part of the sales force.   **1**

Q.2   i.   Briefly explain design thinking.   **2**
               Brief explanation……………………………2 marks
       ii.   What are the challenges faced in innovation? (Any six challenges)   **3**
               Six challenges……………………………… 3 marks
               (Each Challenge=0.5 Marks)
       iii.   Describe the methods of identifying customer's needs.   **5**
               Description of method………………………..5 marks
OR   iv.   Explain the stages of the design thinking process   **5**
               Explanation of 5 Stages………………………5 marks
               (Each stage 1 marks)

Q.3   i.   Briefly explain the brain-storming process.   **2**
               Brief explanation……………………………...2 marks
       ii.   Describe the Steps of the concept generation process for product   **8**
               design.
               A detailed description of all the steps…………8 marks
OR   iii.   Describe the "QFD" method to transfer customer needs to product   **8**
               specifications with a suitable diagram.

Diagram……………………………………………..2 marks
Description of method…………………………6 marks

Q.4   i.   What is a prototype? Explain briefly.   **3**
               Brief explanation………………………………3 marks
       ii.   What are the types of prototyping techniques? Describe any three   **7**
               prototyping techniques with suitable examples.
               Types of prototyping techniques………………..1 marks
               Description of three techniques………………….6 marks
               (Each technique…….2 marks)
OR   iii.   Define "MVP"? Describe any three methods of MVP testing.   **7**
               Definition………………………………………..1 mark
               Description of three techniques………………….6 marks
               (Each technique…….2 marks)

Q.5   i.   What is a business model canvas? What are the advantages of   **4**
               business model canvas?
               A brief explanation of business model canvas………..2 marks
               Advantages………………………………………2 marks
       ii.   Describe the methods of business model testing. (Any Three)
               Three methods of business model testing……………6 marks   **6**
               (Each method…………..2 marks)
OR   iii.   Explain the product development framework with a suitable   **6**
               diagram. Explain the characteristics and advantages of this
               framework for service context.
               Characteristics…………………………………………3 marks
               Advantages………………………………………..2 marks
               Diagram…………………………………………… 1 marks

Q.6   Write a short note on: (Attempt any two)

       i.   Principles of design for the environment   **5**
               Description of design for the environment……….5 marks
       ii.   Spiral product development process   **5**
               Description of product development process……..5 marks
       iii.   Agile product development process   **5**
               Description of Agile product development process…..5 marks

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