Question Paper Code	13320

B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2024

Fifth Semester

Computer Science and Business Systems

20CBPC503 - DESIGN THINKING

Regulations - 2020

Duration: 3 Hours   Max. Marks: 100

PART - A (MCQ) (20 × 1 = 20 Marks)

Answer ALL Questions

		Marks	K – Level	CO

1. What is the first phase in the design thinking process? — 1, K1, CO1
   (a) Prototype   (b) Ideate   (c) Define   (d) Empathize

2. In the 'Ideate' phase of design thinking, what is the main focus? — 1, K1, CO1
   (a) Refining the final solution   (b) Generating a wide range of ideas and solutions
   (c) Testing the developed prototype   (d) Understanding the users' needs and challenges

3. What is the key benefit of the 'Test' phase in the design thinking process? — 1, K1, CO1
   (a) Finalizing the business plan for the solution
   (b) Gathering feedback to refine and improve prototypes
   (c) Determining the cost-effectiveness of the solution
   (d) Scaling the solution for mass production

4. In a design thinking case study, what is typically analyzed? — 1, K1, CO1
   (a) The effectiveness of the solution after its release to the market
   (b) The business plan and financial projections
   (c) The steps taken to understand user needs and implement the design process
   (d) The cost analysis of production and delivery

5. An Empathy Map is used to: — 1, K1, CO2
   (a) Define the business goals of the project
   (b) Identify the technological requirements for the product
   (c) Understand the user's feelings, thoughts, and behaviors in relation to a product or service
   (d) Develop a marketing strategy for the product

6. During the Immersion activity in the Empathize phase, what is the primary focus? — 1, K1, CO2
   (a) To define a precise solution
   (b) To deeply understand the user's environment and daily experiences
   (c) To create a high-level business strategy
   (d) To select the final prototype

7. What is the key benefit of using an Empathy Map during the Empathize phase? — 1, K1, CO2
   (a) It helps prioritize features for development
   (b) It organizes and visualizes user insights to guide the design process
   (c) It creates a business plan for the project
   (d) It tests the effectiveness of the product prototype

8. In the Empathy phase, why is it important to immerse oneself in the user's environment? — 1, K1, CO2
   (a) To collect data on the market value of the product
   (b) To observe firsthand the challenges and context the user faces
   (c) To create a business strategy based on the user's financial situation
   (d) D. To test the initial prototype with real users

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create   **13320**

9. A problem statement in the Define phase should primarily focus on: *1*   *K1*   *CO3*
   (a) The solution to the problem
   (b) The technical feasibility of the product
   (c) The user's needs, pain points, and challenges
   (d) The design and user interface of the product
10. What is the main purpose of creating personas in the Define phase?   *1*   *K1*   *CO3*
    (a) To test product prototypes with real users
    (b) To represent different user types and their needs in a structured way
    (c) To evaluate the technical feasibility of the solution
    (d) To define business objectives and goals
11. Which of the following best defines a problem statement in the Define phase?   *1*   *K1*   *CO3*
    (a) A clear, concise description of the issue that needs to be addressed, with a focus on the user
    (b) A list of possible solutions to the identified problem
    (c) A detailed plan for the implementation of the design solution
    (d) A report on user feedback from the testing phase
12. In the Define phase, which of the following activities helps in creating personas and problem statements?   *1*   *K1*   *CO3*
    (a) User observation and interviews   (b) Prototyping and testing
    (c) Brainstorming solutions   (d) Reviewing market trends
13. Why is doodling considered an effective technique in the Ideation phase?   *1*   *K1*   *CO4*
    (a) It helps to generate detailed product specifications
    (b) It encourages rapid prototyping and visual thinking
    (c) It ensures the solution is technically feasible
    (d) It provides a platform for user testing
14. Which of the following is a common outcome of the Ideation phase in design thinking?   *1*   *K1*   *CO4*
    (a) A finalized prototype   (b) A set of well-defined user personas
    (c) A wide variety of ideas and potential solutions   (d) A detailed project timeline
15. In the context of the Ideation phase, how can storytelling improve the presentation of ideas and prototypes?   *1*   *K1*   *CO4*
    (a) By adding humor to the design process
    (b) By providing a narrative that makes the ideas more relatable and understandable to the audience
    (c) By focusing on technical specifications
    (d) By encouraging criticism from stakeholders
16. Which of the following techniques is used to present a prototype during the Ideation phase in an engaging and persuasive manner?   *1*   *K1*   *CO4*
    (a) Storytelling   (b) Prototyping   (c) SWOT analysis   (d) Empathy mapping
17. What is the primary purpose of creating a prototype in the design thinking process?   *1*   *K1*   *CO5*
    (a) To finalize the design solution   (b) To test and validate ideas with users
    (c) To generate new project requirements   (d) To develop a marketing strategy
18. Why is prototype testing crucial in the design thinking process?   *1*   *K1*   *CO5*
    (a) To gather user feedback and make iterative improvements
    (b) To ensure the prototype is free of errors
    (c) To develop the final product
    (d) To create a visual representation of the final solution
19. How does design thinking map to agile methodologies?   *1*   *K1*   *CO5*
    (a) Both focus on creating detailed documentation before development
    (b) Design thinking prioritizes user testing, while agile focuses on project management and iterative development
    (c) Agile methodologies are not applicable to design thinking
    (d) Both approaches focus on creating fixed, long-term solutions

20. Which of the following is a key component of a value proposition statement in design thinking?
    (a) A detailed project timeline
    (b) A clear description of the product's benefits for the user
    (c) A comprehensive market analysis
    (d) A list of features in the final product

1   K1   CO5

PART - B (10 × 2 = 20 Marks)
Answer ALL Questions

21. How design thinking is important for solving business problems?	*2*	*K1*	*CO1*
22. List out the phases of the design thinking process.	*2*	*K1*	*CO1*
23. How does a questionnaire help in the Empathize phase of design thinking?	*2*	*K1*	*CO2*
24. Define Exploratory Research.	*2*	*K1*	*CO2*
25. What are the key components of a problem statement in design thinking?	*2*	*K1*	*CO3*
26. What is immersion activity?	*2*	*K1*	*CO3*
27. Why is it important to ideate multiple solutions during the Ideation phase?	*2*	*K1*	*CO4*
28. How does storytelling enhance the presentation of prototypes in design thinking?	*2*	*K1*	*CO4*
29. Recall the role of design thinking in functional work.	*2*	*K1*	*CO5*
30. What factors should be considered when prototyping an idea in design thinking?	*2*	*K1*	*CO5*

PART - C (6 × 10 = 60 Marks)
Answer ALL Questions

31. a) Explain how the design thinking process was applied, the challenges faced, and the solutions created. What lessons can be drawn from this case study for future projects?

    10   K2   CO1

    OR

    b) How would you plan a design thinking project from start to finish? Explain the critical steps involved, resources required, and how you would engage stakeholders throughout the process.

    10   K2   CO1

32. a) In a design thinking project, you are tasked with creating an Empathy map for a specific user group. Outline the steps you would take to create an effective Empathy map, including the key areas to focus on and the types of data to gather.

    10   K2   CO2

    OR

    b) In the Empathize phase, various methods are used to collect user insights, such as immersion activities, interviews, and questionnaires. Explain how these methods complement each other in providing a comprehensive understanding of the user. Provide an example of how you would combine these methods for a case study.

    10   K2   CO2

33. a) Identify the process of creating personas in the Define phase and how personas help in understanding to frame an effective problem statement.

    10   K3   CO3

    OR

    b) Apply five why's to find the solution for the given problem. "I am a college student. I know reading is a very good habit and it also helps me with my studies and personal growth but I do not like to go to the college library, it is boring place and they do not allow us to flip through the pages to read the content.

    10   K3   CO3

34. a) Illustrate the combination of ideation games and doodling can help overcome creative blocks in the Ideation phase. How do these methods create an environment that encourages free-thinking and out-of-the-box solutions?

    10   K2   CO4

OR

b) Summarize the benefits of using games such as "Brainstorming," "SCAMPER," or "Role-playing" to stimulate creative thinking and problem-solving in a group.　　*10　K2　CO4*

35. a) Explain the concept of a value proposition statement in design thinking. How does it help in aligning the design process with user needs and business goals? Provide an example of a well-crafted value proposition statement for a design thinking project.　　*10　K2　CO5*

OR

b) Relate the key components of prototype testing documentation and how it helps in tracking progress, capturing user insights and guiding subsequent iterations of the design process.　　*10　K2　CO5*

36. a) i) Explain the key components of an effective story that accompanies a prototype and how storytelling can impact the perception and acceptance of a solution.　　*5　K2　CO4*

   ii) Outline the challenges involved in prototype testing within design thinking.　　*5　K2　CO5*

OR

b) i) Infer the types of games used by the design thinker to generate an idea.　　*5　K2　CO4*

   ii) Explain Jacob Nielsen model of Heuristic evaluation.　　*5　K2　CO5*