

Hall Ticket Number:

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Code No. : 15157 (L) N/O

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), HYDERABAD

Accredited by NAAC with A++ Grade

B.E. V-Semester Main & Backlog Examinations, Jan./Feb.-2024

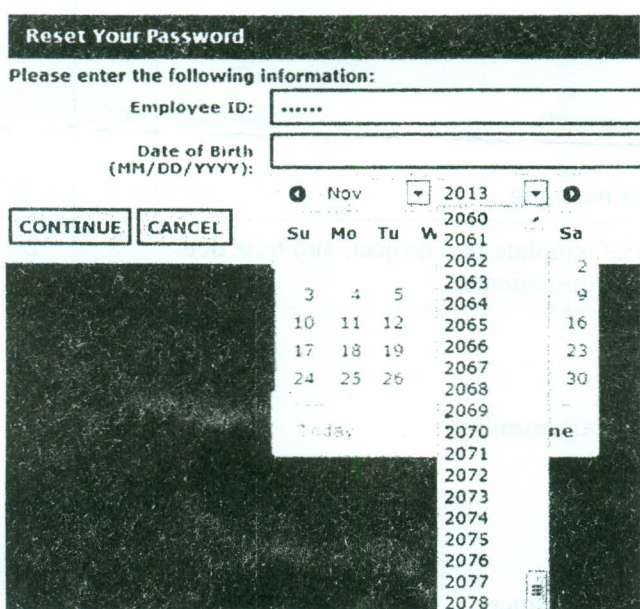
Design Thinking (OE-III)

Time: 3 hours

Max. Marks: 60


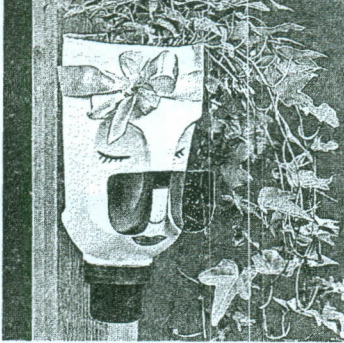
Note: Answer all questions from Part-A and any FIVE from Part-B

Part-A (10 × 2 = 20 Marks)

Q. No.	Stem of the question	M	L	CO	PO
1.	In what ways does understanding the user's perspective play a crucial role in the application of design thinking?	2	2	1	10
2.	How does design thinking contribute to a more user-centric and empathetic approach in product development? 	2	4	1	10
3.	Can you differentiate between asking generic questions and asking the right questions when trying to uncover customer needs?	2	3	2	3
4.	Choose the correct option: What is the primary goal of creating a persona empathy map in the design thinking process? A. Identifying explicit user needs B. Analyzing market trends C. Understanding the user's emotions and experiences D. Focusing on product features How does the concept of "thinking users first" contribute to successful product development?	2	2	2	3

	<p>A. By prioritizing business goals B. By focusing on product-centric approaches C. By emphasizing user needs and experiences D. By disregarding customer feedback</p>				
5.	<p>What is the key function of a Context map template in the design process?</p> <p>A. Identify opportunities for improvement B. Quantify user preferences C. Visualize the product development timeline D. Define stakeholder expectations</p> <p>Why is it important to create a Design brief template at the beginning of a project?</p> <p>A. To establish product metrics B. To define user personas C. To quantify user satisfaction D. To provide an overview of stakeholder mapping</p>	2	2	3	2
6.	<p>What is the main purpose of a Design brief template in a project, and how does it help in understanding the initial project requirements?</p>	2	2	3	2
7.	<p>Choose the correct option?</p> <p>What is a key characteristic of traditional brainstorming?</p> <p>A. Sequential idea generation B. Silent individual reflection C. Critique and evaluation during the session D. Encouraging a free flow of ideas without judgment</p> <p>Brainwriting Technique: How does brainwriting differ from traditional brainstorming?</p> <p>A. It emphasizes hierarchical organization of ideas. B. It encourages verbal communication. C. It involves written idea generation in a structured format. D. It discourages the use of visual aids.</p>	2	3	4	3
8.	<p>Pick one of the divergent ideation techniques. How does it work, and why do you think it might be effective in generating different types of ideas?</p>	2	4	4	3
9.	<p>Choose the correct option</p> <p>Question: Why is creating a prototype considered crucial in the product development process?</p> <p>A. To showcase advanced technical features B. To serve as a tangible representation of customer needs and specifications C. To replace the need for market research D. To expedite the manufacturing phase</p>	2	5	5	5

	<p>Question: What is the primary purpose of conducting structured tests in product development?</p> <p>A. To speed up the production timeline B. To ensure the prototype's compliance with legal regulations C. To evaluate the quality and functionality of the prototype D. To reduce the overall cost of development</p>				
10.	How can building a model or prototype help in making sure a new product works the way it's supposed to?	2	2	5	5
	Part-B (5 × 8 = 40 Marks)				
11. a)	<p>Developing an Inclusive Product for a Diverse Market</p> <p>Background: A company is planning to launch a new product that targets a diverse and inclusive market.</p> <p>Question: Utilize design thinking to outline a strategy for developing a product that caters to the needs of a diverse audience. Discuss how empathy and user-centricity play a role in this process and provide examples of potential challenges and solutions.</p>	5	4	1	10
b)	What will design thinking help you to compete in? Answer in about 50 to 75 words.	3	2	1	10
12. a)	Utilize empathy and design thinking principles to create an empathy map for a fictional user persona on the product or service you and your team has thought of? Demonstrate how this map can guide the identification of specific customer needs.	4	4	2	3
b)	<p>Background: A fitness app has seen a decline in user engagement. Users express dissatisfaction, but the reasons are unclear.</p> <p>Question: Apply empathy and design thinking principles to conduct user interviews and draft persona empathy maps. How can these tools help identify underlying customer needs, and what specific changes might be implemented to address the users' concerns and improve engagement?</p>	4	3	2	3
13. a)	Imagine you are starting a small business. Create a simplified Design Action Plan for your business, highlighting the essential steps to translate user needs into specific product features.	6	6	3	2
b)	<p>Defining a challenge often begins by noticing problems. Sometimes it comes out as wishes ("I really wish we had...") sometimes it comes out as complaints ("It annoys me that we are not..."). Either starting point is fine. Select a problem from above to be your design challenge. Now let's turn this into a How Might We Challenge(HMW)</p> <p>Question: How Might we design a _____ that _____ for _____ ?</p>	2	3	2	10
14. a)	Think about a time when you had to brainstorm ideas with a group. What worked well, and what could have been done differently to make the session more effective?	4	5	4	3

<p>b)</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>BEFORE</p>  </div> <div style="text-align: center;"> <p>AFTER</p>  </div> </div> <p>How has SCAMPER been used in this transformation?</p>	<p>4</p>	<p>3</p>	<p>4</p>	<p>3</p>
<p>15. a)</p>	<p>Explain why creating a prototype is considered an essential step in the product development process. How does a prototype serve as a tangible representation of both customer needs and product specifications?</p>	<p>4</p>	<p>6</p>	<p>5</p>	<p>5</p>
<p>b)</p>	<p>Background: An automotive design team utilized observers' debrief sessions as a critical component of their product development process. The team aimed to refine the design and functionality of a new electric vehicle.</p> <p>Question:</p> <p>In a case study focusing on the observers' debrief in automotive design, elaborate on how these sessions were conducted to enhance the development of an electric vehicle. Discuss the specific insights gained from the debrief sessions, their impact on design modifications, and how this iterative process contributed to the overall success of the electric vehicle in the market. Highlight any innovative practices or challenges faced during the observers' debrief sessions and their implications for future automotive design projects.</p>	<p>4</p>	<p>2</p>	<p>5</p>	<p>5</p>
<p>16. a)</p>	<p>Why do we need Design Thinking? Mention 3 factors?</p>	<p>4</p>	<p>1</p>	<p>1</p>	<p>10</p>
<p>b)</p>	<p>#1 – Taiichi Ohno, the creator of the 5-Why technique, is quoted using the following example to teach using 5-Whys for root cause analysis: Fill in the blanks by asking the appropriate questions.</p> <p>_____</p> <p>The student lacked relevant work experience in their field. _____</p> <p>_____</p> <p>The student did not participate in internships or practical training during their academic years.</p> <p>_____</p> <p>The university's curriculum did not emphasize or require practical experiences for students.</p> <p>_____</p>	<p>4</p>	<p>3</p>	<p>1</p>	<p>3</p>

	<p>Because there was a lack of collaboration between the university and industry partners to facilitate internships and practical training opportunities.</p> <p>What do you think?</p> <p>Is the _____ the root cause? Yes...</p>				
17.	Answer any <i>two</i> of the following:				
a)	How does a Design brief template serve as a foundational document for a project, and why is it important to have a clear and concise design brief?	4	4	3	2
b)	<p>Case Study Question on Sustainability: Enhancing Environmental Initiatives</p> <p>Background: A company with a commitment to sustainability is struggling to generate innovative ideas to enhance its environmental initiatives. Despite having a dedicated sustainability team, the company faces challenges in breaking away from conventional approaches. The company believes that infusing creativity into their sustainability efforts is crucial for making a meaningful impact.</p> <p>Interesting Case Study Question:</p> <p>As a sustainability consultant, outline how you would leverage the "Reverse" aspect of the SCAMPER technique to spark creativity in the company's environmental initiatives. Provide a step-by-step plan, focusing on how the team can explore unconventional solutions by reversing traditional practices. Additionally, suggest strategies to embed a culture of continuous creativity and sustainable innovation within the company's sustainability team.</p>	4	3	4	3
c)	Imagine you are the lead tester for a mobile banking application undergoing user acceptance testing. One of the key features is fund transfer between accounts. How would you design a test plan specification for this feature considering different user scenarios, security aspects and ensuring a positive user experience?	4	6	5	5

M : Marks; L: Bloom's Taxonomy Level; CO; Course Outcome; PO: Programme Outcome

i)	Blooms Taxonomy Level – 1	20%
ii)	Blooms Taxonomy Level – 2	40%
iii)	Blooms Taxonomy Level – 3 & 4	40%
