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Subject Code:- ACSBS0703

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA
(An Autonomous Institute Affiliated to AKTU, Lucknow)
B.Tech
SEM: VII - THEORY EXAMINATION (2024 - 2025)
Subject: Usability Design of Software Applications

Time: 3 Hours

Max. Marks: 100

General Instructions:

IMP: *Verify that you have received the question paper with the correct course, code, branch etc.*
1. This Question paper comprises of three Sections -A, B, & C. It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.
2. Maximum marks for each question are indicated on right -hand side of each question.
3. Illustrate your answers with neat sketches wherever necessary.
4. Assume suitable data if necessary.
5. Preferably, write the answers in sequential order.
6. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION-A

20

1. Attempt all parts:-

1-a.   Explain the importance of UCD in product development? (CO1, K2)   1

    (a)   It saves costs for the company

    (b)   It prioritizes the needs and preferences of end-users

    (c)   It speeds up the development process

    (d)   It focuses on aesthetic design

1-b.   Identify the number of usability heuristics defined by Nielsen and Molich in their widely adopted framework. (CO1, K1)   1

    (a)   5

    (b)   10

    (c)   15

    (d)   7

1-c.   Describe an activity that is typically performed during the Discovery phase. (CO2, K2)   1

    (a)   Coding the entire project

    (b)   Conducting market research

    (c)   Finalizing the project budget

    (d)   Creating a project timeline

1-d.   During the group assignment process, what is a common challenge that teams may face? (CO2, K2)   1

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     (a)   Lack of communication

     (b)   Strict adherence to individual ideas only

     (c)   Avoidance of constructive feedback

     (d)   Over-reliance on one team member

1-e.   Explain what the term 'affordance' means in the context of UX and provide an example (CO3, K2)   1

     (a)   Users' natural environment

     (b)   The perceived and actual properties of an object that suggest its functionality

     (c)   Competitive Analysis

     (d)   Creating fictional characters

1-f.   Explain the role of Scenarios in the UX design process. (CO3, K2)   1

     (a)   Understanding competitors' products

     (b)   Creating fictional characters

     (c)   Creating hypothetical situations to understand user interactions

     (d)   Analyzing market trends

1-g.   Explain why creating a guiding artifact during the 'Define' stage of design thinking is important for the design process. (CO4, K3)   1

     (a)   Detailed design specifications

     (b)   Low-fidelity prototypes

     (c)   User personas

     (d)   Problem statement

1-h.   In design thinking, what is the purpose of defining a problem statement? (CO4, K1)   1

     (a)   To eliminate the need for creativity

     (b)   To set clear goals and constraints for the project

     (c)   To finalize the product design

     (d)   To focus on implementation only

1-i.   In project prototyping, what is the primary goal of Iteration 2? (CO5, K1)   1

     (a)   Developing the final product

     (b)   Gathering initial user feedback

     (c)   Presenting the project to stakeholders

     (d)   Refining the design based on feedback

1-j.   Explain why user feedback from Iteration 1 is incorporated during a specific phase of the design process.   (CO5, K2)   1

     (a)   Project initiation

     (b)   Iteration 2

     (c)   Final presentation

     (d)   Detailed project planning

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2. Attempt all parts:-

2.a.	Explain the concept of "Iterative Design" in the context of UCD. (CO1, K2)	2
2.b.	What is the significance of Usability Testing ? (CO2, K1)	2
2.c.	Discuss how personas can be derived from data collected through competitive analysis. (CO3, K4)	2
2.d.	Explain an example of a successful product or service that was designed using the principles of Design Thinking. (CO4 , K2)	2
2.e.	Explain the concept of an iterative approach to the project prototyping process. (CO5, K2)	2

SECTION-B   30

3. Answer any <u>five</u> of the following:-

3-a.	Discuss Heuristic Evaluation with suitable examples. (CO1, K4)	6
3-b.	Illustrate how UCD principles can be applied to develop a product that caters to diverse user groups. (CO1, K3)	6
3-c.	Discuss the role of technology tools in facilitating virtual collaboration for group projects. (CO2, K4)	6
3-d.	Elaborate on the role of feedback in improving group project performance. (CO2, K4)	6
3.e.	Discuss the ethical considerations involved in competitive analysis, user interviews, and persona creation, providing recommendations on how designers can ensure a responsible and user-centric approach throughout the research process. (CO3, K4)	6
3.f.	Explain the best practices used for sprint review meeting. challenge within the Design Thinking framework. (CO4, K3)	6
3.g.	Analyze the impact of the final presentation on stakeholder engagement and project success. (CO5, K4)	6

SECTION-C   50

4. Answer any <u>one</u> of the following:-

4-a.	Demonstrate how a design sprint could be used to solve a specific design challenge within the Design Thinking framework. (CO1, K3)	10
4-b.	Analyze the effectiveness of heuristic evaluation in detecting usability issues compared to other usability testing methods. (CO1, K4)	10

5. Answer any <u>one</u> of the following:-

5-a.	Explain the process of selecting participants for usability testing and why diversity is important in the participant pool.(CO2, K2)	10
5-b.	Analyze the importance of each step in the usability testing process for ensuring the effectiveness of a mobile application. (CO2, K4)	10

6. Answer any <u>one</u> of the following:-

6-a.	Discuss the significance of creating user personas in UX design. How do personas	10

help in empathizing with users and making design decisions that align with user needs?   (CO3, K4)

| 6-b. | Analyze the differences between user-centered design and other design approaches, such as system-centered design, and discuss the impact on product usability. (CO3,K4) | 10 |

7. Answer any <u>one</u> of the following:-

| 7-a. | Discuss various user research methods that can be used in the Discovery phase. (CO4, K4) | 10 |
| 7-b. | Apply the Design Thinking process to develop a plan for a neighborhood coffee shop, focusing on enhancing customer experience and operations. (CO4, K3) | 10 |

8. Answer any <u>one</u> of the following:-

| 8-a. | Develop a detailed case study that showcases a multidisciplinary team's involvement in the creation of a project prototype, highlighting each team member's role and contributions at different stages of the project lifecycle. (CO5, K6) | 10 |
| 8-b. | Explain the challenges and opportunities of integrating 3D printing and additive manufacturing into the prototyping process. (CO5, K2) | 10 |