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Printed Page:-4 **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 (2025 - 2026)
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.*

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SECTION-A 20

1. Attempt all parts:-

1-a. "Help users recognize, diagnose, and recover from errors" means _____. (CO1, K1) 1

(a) Displaying clear error messages
(b) Hiding system logs
(c) Ignoring user mistakes
(d) Preventing feedback

1-b. Point out a suggestion commonly produced during heuristic assessment. (CO1, K1) 1

(a) Fault detection only
(b) Suggested improvements
(c) Cost estimation
(d) System backup

1-c. Name the approach applied to judge the usability of an interface. (CO2, K1) 1

(a) Debugging
(b) Usability Testing
(c) Coding
(d) Deployment

1-d. State the stage in a project where most visual elements are crafted. (CO2, K1) 1

(a) Discover
(b) Define
(c) Design
(d) Testing

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1-e. Give the expanded form of the abbreviation *UX*. (CO3, K1) 1

(a) User Exchange
(b) User Experience
(c) User Execution
(d) User Extension

1-f. Mention a technique that gathers rich, detailed user insights. (CO3, K2) 1

(a) User Interviews
(b) Animation design
(c) API call
(d) Vector editing

1-g. Indicate the process that arranges user tasks into a structured flow. (CO4, K2) 1

(a) System sketching
(b) Heuristic review
(c) Research summary
(d) Task flow detailing

1-h. Identify the phase that helps reveal the underlying causes of user difficulties. (CO4, K2) 1

(a) Discovery phase
(b) Functional prototyping
(c) Card sorting
(d) Typography scaling

1-i. Cite tools that enable creation of motion-based prototypes. (CO5, K1) 1

(a) Paper tools
(b) Electronic tools
(c) Prototyping tools
(d) Review tools

1-j. Specify the step in a design cycle used to exhibit the completed outcome. (CO5, K1) 1

(a) Iteration 2
(b) Final presentation
(c) Review
(d) Electronic tools

2. Attempt all parts:-

2.a. Recognize the principle of flexibility and efficiency of use. (CO1, K1) 2

2.b. Recall two metrics used to evaluate handoff performance. (CO2, K1) 2

2.c. Differentiate between quantitative and qualitative data in the context of UX research. (CO3, K2) 2

2.d. State one importance of discovery phase for project planning. (CO4, K2) 2

2.e. Describe the major limitations of paper prototyping. (CO5, K2) 2

SECTION-B 30

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3. Attempt all parts:-

3.a. Answer any one of the following:-

3.a.(i)	Demonstrate visibility of system status with real-life interface example. (CO1, K3)	6
3.a.(ii)	Analyze heuristic principle of aesthetic and minimalist design. (CO1, K4)	6

3.b. Answer any one of the following:-

3.b.(i)	Evaluate the role of wireframes in the Design phase for app or website redesign. (CO2, K5)	6
3.b.(ii)	Compare hard handoff and soft handoff techniques in mobile networks. (CO2, K4)	6

3.c. Answer any one of the following:-

3.c.(i)	Analyze the impact of aligning business goals with user goals in the context of UX design. (CO3, K4)	6
3.c.(ii)	Compare and contrast the advantages and disadvantages of using Contextual Inquiry and User Interviews as research techniques in UX design. (CO3, K4)	6

3.d. Answer any one of the following:-

3.d.(i)	Describe how Design Thinking can be utilized to address complex societal issues, such as climate change or healthcare access. Provide a step-by-step plan for applying Design Thinking to such problems. (CO4, K3)	6
3.d.(ii)	Demonstrate how a design sprint could be used to solve a specific design challenge within the Design Thinking framework. (CO4, K3)	6

3.e. Answer any one of the following:-

3.e.(i)	Describe the project closure activities that should be conducted after the final presentation of a project prototype. (CO5, K3)	6
3.e.(ii)	Analyze the cost-effectiveness of electronic prototyping tools compared to traditional paper prototyping methods over the entire project lifecycle. (CO5, K4)	6

SECTION-C 50

4. Answer any one of the following:-

4-a.	Examine Nielsen's 10 heuristic principles with appropriate real-world examples. (CO1, K4)	10
4-b.	Construct a heuristic evaluation framework for analyzing a mobile app in terms of usability. (CO1, K6)	10

5. Answer any one of the following:-

5-a.	Construct a design prototype for a mobile application considering user-centered principles. (CO2, K6)	10
5-b.	Develop a usability testing plan covering all lifecycle stages for a website redesign. (CO2, K6)	10

6. Answer any one of the following:-

6-a.	Analyze the influence of cultural context on UX design, providing examples of products that effectively consider cultural diversity in their user interfaces. (CO3, K4)	10
6-b.	Create a set of user scenarios for a virtual reality (VR) educational platform targeting students of different age groups. Discuss how these scenarios contribute to a tailored and engaging learning experience. (CO3, K6)	10

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

7-a.	Design Thinking places a strong emphasis on user feedback and iteration. Using a practical example, describe how these principles can be used to create a more user-cantered design solution and how it impacts the overall success of the project. (CO4, K3)	10
7-b.	Critically analyze the strengths and weaknesses of Design Thinking as an approach to solving complex problems. Discuss situations where it might be the most effective and situations where other methodologies might be more suitable. (CO4, K5)	10

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

8-a.	Explain the challenges and opportunities of integrating 3D printing and additive manufacturing into the prototyping process. (CO5, K3)	10
8-b.	Explain the role of Paper and Electronic Prototyping Tools in the design and development cycle, and compare their advantages, limitations, and areas of applicability. (CO5, K4)	10

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