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THANJAVUR | KUMBAKONAM | CHENNAI

School of Computing
Third CIA Exam – Nov 2025
Course Code: CSE332
Course Name: Usability Design of Software Applications
Duration: 90 minutes Max Mark: 50

PART A **5x4=20**

Answer Key

1. **Simplified design process:**
- catch mistakes or missing features early, before investing time and money in a final design.
- feedback leads to design changes that better fit patient requirements.
- low-fidelity prototypes are quick and cheap to build and change.
- easily experiment with layout, buttons, and pictograms, refining the ideas before moving to costly high-tech models.

2. **Vehicle navigation system**
- positive scenarios highlight features (intuitive buttons, fast voice prompts) and conceptual design (clear route display, reliable memory functions).
- negative scenarios (delayed responses and data loss may require hardware or software upgrades
- can modify screen layout, processing speed, or data update mechanisms to fix issues.
- to identify user frustrations and expectations directly tied to actual use

3. **PICTIVE (Plastic Interface for Collaborative Technology Initiatives through Video Exploration):**
- Uses simple, non-technical materials (paper, sticky notes, plastic elements) to enable user participation.
- Empowers non-technical users to actively collaborate in design sessions.
- Focuses on early, iterative design involving users as first-class contributors.

CARD (Collaborative Analysis of Requirements and Design):
- Employs playing cards or visual tokens representing system components or tasks.
- Focuses on detailed aspects of system design and workflow through macroscopic task flow visualization.
- Video records user actions during design workshops to capture interaction and decision-making.
- Provides a detailed, task-oriented approach to design analysis.

4. **user-centered principles**
- Early and continuous involvement
- Empathy towards users' experiences and contexts
- data-driven decision-making based on user behavior
- focusing on solving the right problem
- Maintaining user ownership and managing expectations

5. **Analysis:**
- Offer Customizable Notification Settings
- Segment Users by Preferences
- Implement Smart Alerts
- Continuous Feedback Loops

PART B **2x10=20**

6. Designing a wearable device
- Utilize real user scenarios to identify the medication management
- Low-fidelity prototypes (cardboard/screens) allow rapid iteration on button size, icon clarity
- Conceptual design can be refined with simpler navigation, larger fonts.
- Physical design challenges involve reliable reminder scheduling, battery life, and seamless syncing with caregivers.
- clear instructions to improve adoption and sustained use.

7. Participatory design and a method for iterative interface improvement in the context of a city-wide bike rental system:
- Reveal Contextual Pain Point
- Capture Diverse User Perspective
- Enable Rapid Prototyping with Scenario Walkthroughs
- Support Iterative Refinement Based on Real Use Cases
- Build Shared Understanding and Design Ownership

8. Combining ethnographic observation, contextual design, and participatory workshops (PICTIVE and CARD) supports user-centred system development:
- Understand Real Workflows
- Ethnographic observation helps designers see how employees actually work,
- Capture User Needs in Context
  - Co-Design with Visual Tools
  - Reduce Resistance to Change
- Build Flexible, User-Approved Solutions

Part C **1x10=10 marks**

i. Conducting Evaluation with DECIDE
- Define goals
- Explore questions
- Choose evaluation methods

- Identify practical issues: Time, access to users, and device compatibility.
- Decide how to deal with ethical issues
- Evaluate, interpret, and present

ii. Setting Goals and Stakeholder Questions

- Goals: Ensure intuitive navigation, reduce submission errors, and improve feedback visibility.
- Stakeholder questions:
  - Can students find and submit assignments easily?
  - Do faculty feel the feedback tools are efficient and clear?

iii. Practical and Ethical Issues

- Practical: Scheduling sessions, device diversity, and prototype stability.
- Ethical: Protect user data, avoid bias, and ensure voluntary participation.

iv. Data Collection and Interpretation

- Collect&Interpret: Identify patterns, usability bottlenecks, and user preferences. Present: Share findings with visuals (charts, heatmaps) and user quotes to guide design decisions.

v. Examples of User Involvement Benefits

- Students testing early versions, Faculty feedback