# PRESIDENCY UNIVERSITY

## BENGALURU

### End - Term Examinations – December 2025

**Date:** 09- 12-2025                                           **Time:** 01:00pm – 04:00pm

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|---|---|
| **School:** SOCSE | **Program:** B.Tech [CSE] |
| **Course Code :** IST3406 | **Course Name:** Human Computer Interaction |
| **Semester**: VII | **Max Marks**: 100  **Weightage**: 50% |

| CO - Levels | CO1 | CO2 | CO3 | CO4 | CO5 |
|---|---|---|---|---|---|
| Marks | 22 | 22 | 26 | 26 | NA |

**Instructions:**

*(i)  Read all questions carefully and answer accordingly.*

*(ii) Do not write anything on the question paper other than roll number.*

### Part A

**Answer ALL the Questions. Each question carries 2marks.**                  **10Q x 2M=20M**

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|---|---|---|---|---|
| **1.** | State the relationship between Psychology and the design of interactive systems. | **2 Marks** | **L1** | **CO1** |
| **2.** | Identify two common Cognitive Frameworks used in HCI. | **2 Marks** | **L1** | **CO1** |
| **3.** | Outline two steps in The Process of Design for a new user interface. | **2 Marks** | **L1** | **CO2** |
| **4.** | Define Interaction Design. | **2 Marks** | **L1** | **CO2** |
| **5.** | State the difference between quantitative and qualitative evaluation data. | **2 Marks** | **L1** | **CO3** |
| **6.** | Identify one advantage of Controlled Psychologically Oriented Experiments over Usability Testing. | **2 Marks** | **L1** | **CO3** |
| **7.** | What are Survey Instruments primarily used to measure in interface evaluation? | **2 Marks** | **L1** | **CO3** |
| **8.** | List two interaction characteristics of Face-to-Face interfaces. | **2 Marks** | **L1** | **CO4** |
| **9.** | What is the primary function of Information Visualization? | **2 Marks** | **L1** | **CO4** |
| **10.** | Identify two benefits of Design for Diversity. | **2 Marks** | **L1** | **CO4** |

## Part B

**Answer the Questions.**                    **Total Marks 80M**

| 11. | a. | Explain the concept of Models of Interaction and discuss the key elements of the User-System interaction cycle. | 10 Marks | L1 | CO1 |
|---|---|---|---|---|---|
|  | b. | Explain how the characteristics of Human Perception, such as bandwidth, latency, and resolution, constrain or define the design requirements for human Input-Output (I/O) channels in interactive systems. | 10 Marks | L2 | CO1 |
| | | **Or** | | | |
| 12. | a. | Summarize the concept of Universal Usability and explain the role of Ergonomics principles in helping designers achieve this goal of creating interfaces accessible to the widest possible range of users. | 10 Marks | L2 | CO1 |
|  | b. | Differentiate between Reasoning and Problem Solving in human cognition and illustrate how these apply to a user interacting with a complex interface. | 10 Marks | L1 | CO1 |

| 13. | a. | Illustrate the difference between Good and Bad Design using an interface example (e.g., a form or menu structure) and suggest improvements based on Principles of design. | 10 Marks | L3 | CO2 |
|---|---|---|---|---|---|
|  | b. | Apply Development Methodologies (e.g., user-centered design) to the design of a specialized healthcare software system. Explain why early Prototyping is critical in this context. | 10 Marks | L3 | CO2 |
| | | **Or** | | | |
| 14. | a. | Discuss the role of Theories in interface design (e.g., GOMS, Fitt's Law). Apply a relevant theory to optimize the placement of an action button on a screen. | 10 Marks | L3 | CO2 |
|  | b. | Analyze the ethical and practical necessity of a Social Impact Statement for early design review. Explain its relevance in a project utilizing Participatory Design. | 10 Marks | L3 | CO2 |

| 15. | a. | Explain the procedures and advantages of using Expert Reviews (e.g., Cognitive Walkthrough or Heuristic Evaluation) to identify usability flaws. | 10 Marks | L2 | CO3 |
|---|---|---|---|---|---|
|  | b. | Explain the primary methods (logging and user feedback forms) used for Evaluating a system during Active Use, and summarize the types of metrics derived from each method that help assess real-world usability. | 10 Marks | L3 | CO3 |
| | | **Or** | | | |
| 16. | a. | Identify and explain the core challenges encountered when conducting Usability Testing on interfaces that rely on Natural | 10 Marks | L3 | CO3 |

| | | | | | |
|---|---|---|---|---|---|
| | | Language in Computing (e.g., voice assistants), focusing on issues related to command variability and error handling. | | | |
| | **b.** | Explain why Acceptance Tests are considered the final stage of evaluation and describe the role of user criteria in determining success. | **10 Marks** | L2 | CO3 |

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|---|---|---|---|---|---|
| **17.** | **a.** | Describe the design considerations for Graphical User Interfaces specifically when adapting them for different screen sizes on Mobile Devices. | **10 Marks** | L2 | CO4 |
| | **b.** | Explain the core principles of Multi-modal Interaction, and describe how combining modalities, specifically Speech and Auditory Interfaces, helps to enhance accessibility for diverse user groups. | **10 Marks** | L3 | CO4 |
| **Or** | | | | | |
| **18.** | **a.** | Summarize the Goals of Collaboration and Participation and explain how the distinct characteristics of Asynchronous Distributed Interfaces (e.g., email, forums) and Synchronous Distributed Interfaces (e.g., video conferencing) each support these goals. | **10 Marks** | L3 | CO4 |
| | **b.** | Elaborate on the purpose and application of Data type by task taxonomy in selecting appropriate visualization techniques for displaying complex data on the Web. | **10 Marks** | L2 | CO4 |