**MURIGI VICTOR NJUGUNA**

**AIIM/00751/2022**

**THE TECHNICAL UNIVERSITY OF KENYA**

**BACHELOR OF SCIENCE IN INFORMATION SCHOOL SCIENCE**

**AIIQ 3123: HUMAN COMPUTER INTERACTION(HCI)**

**HCI CAT 2**

:**1. FIVE advantages of Graphical User Interface (GUI) over other forms of HCI** (10 marks)

1. **User-Friendly and Intuitive** – GUI provides visual elements like icons, buttons, and menus, making it easier for users to interact with the system.
2. **Easier Navigation** – Users can navigate applications with point-and-click actions using a mouse, keyboard, or touchscreen.
3. **Enhanced Productivity** – With visual representations, users can perform tasks faster without memorizing commands as in Command Line Interfaces (CLI).
4. **Better Accessibility** – GUIs include accessibility features such as screen readers, magnifiers, and voice assistants for users with disabilities.
5. **Multi-tasking Support** – Users can work on multiple applications simultaneously using windows, tabs, and taskbars.

### **2. TWO Emerging HCI Styles** (6 marks)

1. **Voice User Interfaces (VUI)** – This style allows users to interact with computers using voice commands, seen in virtual assistants like Siri, Alexa, and Google Assistant.
2. **Augmented Reality (AR) and Virtual Reality (VR)** – AR overlays digital content onto the real world (e.g., Google Lens), while VR immerses users in a fully digital environment (e.g., Oculus Rift).

### **3. FOUR Rules of User Interface Design** (4 marks)

1. **Consistency** – The interface should maintain uniform design elements (colors, buttons, fonts) across all pages for better usability.
2. **Feedback and Response Time** – The system should provide immediate feedback (e.g., loading indicators, error messages) to inform users of their actions.
3. **Error Prevention and Recovery** – The UI should prevent errors by validating inputs and offer solutions like undo or error messages.
4. **Simplicity and Clarity** – The design should avoid unnecessary complexity, ensuring easy navigation and clear instructions.

### **4. Achieving Usability in HCI Design for FIVE Categories of Users** (10 marks)

1. **Novice Users** – Provide tutorials, tooltips, and guided workflows to help new users understand the interface easily.
2. **Expert Users** – Enable shortcuts, command-line options, and customizable interfaces to enhance efficiency for experienced users.
3. **Users with Disabilities** – Include accessibility features like screen readers, voice commands, high-contrast themes, and keyboard navigation.
4. **Elderly Users** – Use large fonts, simple layouts, and minimal distractions to improve readability and ease of use.
5. **Children and Young Users** – Design interactive, colorful, and engaging interfaces with animations and simple navigation to enhance usability.