1. **Nesta Sila**
2. **AIIM/01873/2021**
3. **HCI CAT 2**
4. Describe any **FIVE** advantages of Graphical User Interface **GUI** over other forms of **HCI**. **(10 marks)**

a. Ease of Use – GUIs are user-friendly thus allowing users to interact with the system using visual elements like icons, buttons and menus. This makes it easier for beginners to operate computers without needing to memorize commands.

b. Visual Representation – GUI provides a visually appealing environment where users can see and interact with elements directly making tasks like file management and application navigation more efficient compared to text-based interfaces.

c. Multitasking Capabilities – GUIs allow users to run multiple programs simultaneously in separate windows. This enhances productivity by enabling users to switch between tasks efficiently without needing to close and reopen applications.

d. Accessibility – GUIs offer features like drag-and-drop functionality, touch-screen support and accessibility tools that make computing more accessible to a wider range of users including those with disabilities.

e. Reduced Learning Curve – GUIs enable users to interact with software through familiar graphical elements reducing the time and effort needed to learn how to use a system.

2. Describe any **TWO** emerging HCI styles. **(6 marks)**

a. Brain-Computer Interface (BCI)

BCI enables direct communication between the human brain and a computer without the need for physical input devices like keyboards or mice.

It uses brain signals to interpret user intentions and control digital systems.

b. Virtual Reality

VR creates a fully immersive digital experience, often using headsets and motion controllers for interaction example used in gaming and training.

3. Explain any **FOUR** Rules of user interface design. **(4 marks)**

a. Consistency

The interface should maintain uniform design elements such as colors, fonts, buttons and navigation structures across all screens.

Consistency helps users predict system behavior, reducing confusion and the learning curve.

b. Simplicity and Clarity

A UI should be simple and clear, avoiding unnecessary complexity.Easy-to-read text and intuitive navigation improve usability and prevent information overload.

c. Feedback and Responsiveness

The system should provide immediate feedback to user actions .Feedback reassures users that their actions have been recognized, improving user confidence and experience.

d. Error Prevention and Recovery

A well-designed UI should minimize the chances of user errors through clear instructions and error prevention techniques.If errors occur, the interface should provide informative error messages and easy recovery options such as undo functions.

4. Explain how you can achieve ‘usability’ in **HCI** design for any **FIVE** categories of users. **(10 marks)**

a. Beginners

Use a simple and guided interface with clear instructions and tooltips and Provide onboarding tutorials and interactive help features.Ensure an intuitive navigation structure to reduce confusion.

b. Expert Users

Include keyboard shortcuts and advanced options to speed up interactions and allow customization of the interface for efficiency.

c. Elderly Users

Use large readable fonts and high-contrast colors to improve visibility and keep interactions simple.

d. Users with Disabilities

Implement screen readers, text-to-speech and voice recognition for visually impaired users and also support keyboard navigation and alternative input methods for users with impairments.

e. Children

Use colorful, engaging and interactive elements to capture attention.Ensure simple and intuitive interactions with minimal text.