CAT 1

Course: Computer Human Interactions (HCI)

Admission Number: AIIM/00477/2021

Name: Lewis Kariuki

Questions:

1. Discuss the importance of usability in HCI design.

2. Briefly explain the history of computer interactions.

3. Using examples discuss the factors to consider in HCI design.

Each question 10marks

**Question 1:- Discuss the importance of usability in HCI design.**

Usability in Human Computer Interaction (HCI) refers to the ease, efficiency, and pleasure of people using a system. Now, imagine using a website, an app, or an ATM: if it is straightforward and works the way you expect, you barely think about it. On the other hand, if it is frustrating or confusing, it really stands out-and not in a good way. That is why usability is important.

1. Helps You Get Stuff Done Faster:- Good usability makes tasks simple and smooth. For example, filling out an online form: if everything is clear, fields are labeled properly, dropdowns make sense, and error messages tell you exactly what's wrong, you can breeze through it. But with poor usability, you might get stuck trying to figure out why the "Submit" button isn't working. A usable system respects your time and makes you more productive.

2. Avoids Frustrating Mistakes:- We all make mistakes, but a well-designed system helps avoid them or at least makes fixing them easy. For example, an online shopping application like Jumia warns you before you accidentally delete your entire cart. If you forgot to fill in some very important field, it just colored what needs fixing instead of making you guess. In this way, everything works and frustrations remain at their lowest.

3. Includes Everyone:- Good usability means designing for all users, including those with disabilities. Think of tools like voice commands, screen readers, or high contrast modes. These features don’t just help people with specific needs they can make life easier for everyone. For example, hands free controls are great whether you’re visually impaired or just driving a car.

4. Keeps People Happy:- Working with any system shouldn't be a chore but should leave you with a feeling of satisfaction. Consider booking an online flight. A good interface shows you your options, updates prices in real time, and guides you through checkout. That leaves the user feeling confident and in control. And if people actually enjoy using something, they are much more likely to come back for more and tell others about it.

5. Cuts Down on Training and Support:- If a system is intuitive, you don't need a manual or a week of training to figure it out. Think of how most people can pick up a new smartphone and start using it right away. That saves time for both users and companies-less training, fewer customer support calls, and more focus on what really matters.

6. Keeps You Engaged:- Consistency is key. If buttons, menus, or shortcuts work the same way across the system, you don't have to stop and think about what to do next. And little things like progress bars or confirmation messages keep you informed and in the loop. All of this adds up to a smoother, more engaging experience.

7. Stands Out from the Crowd:- In today's world, people have choices. If one app or website is clunky, they switch to a competitor that gets the job done. Think about how much people love apps like Spotify or Instagram because they're so easy to navigate. Usability isn't nice to have-it's competitive advantage.

**Question 2:- Briefly explain the history of computer interactions.**

### 1. The Era of Batch Processing (1940s–1950s):- Computers like the ENIAC and UNIVAC were huge machines that took up entire rooms and there wasn’t much direct interaction. People used punch cards or paper tape to give the computer instructions. Now imagine writing out a list of tasks, handing it over, and waiting hours or days to get the results.

### 2. Command-Line Interfaces (1960s–1970s): -Things began to become more interactive as people were able to directly type into a terminal, Command-Line Interfaces. Early systems, such as UNIX, allowed users to "talk" to computers through specific typed instructions.

While this was a big improvement, it wasn’t exactly user-friendly. You had to know a lot of technical commands to get anything done. It was powerful but limited to experts and tech enthusiasts.

3. Graphical User Interfaces (1980s–1990s): Systems such as Xerox PARC's Alto, and later the Apple Macintosh and Microsoft Windows, integrated graphical user interfaces. In place of typing in commands, you could click on icons, pull down open windows, and move through menus using a mouse. This made the computer accessible for almost anyone other than the computer professional. 4. Internet and Web-Based Interactions (1990s–2000s): The internet completely changed how we interacted with computers. Browsers such as Netscape allowed users to click on links, explore websites, and even watch videos. But the computers were no longer stand-alone machines; they were windows to a whole connected world. Interactions became more dynamic; forms, animations, and online shopping became part of everyday life. Web technologies like JavaScript and Flash enhanced user interactions, enabling dynamic content like forms, games, and animations.

5. Mobile and Touch-Based Interfaces (2000s–2010s):- Then came smartphones, with the likes of the iPhone, released in 2007, and again everything changed. Touchscreens let us swipe, tap, and pinch to interact with devices in a way that felt intuitive and natural. You didn't need a mouse or keyboard anymore-just your fingers. Apps made things even simpler, turning complex tasks into a few taps. Computing became something you could do anywhere, anytime.

6. Natural User Interfaces and AI (2010s-Present): We now have almost human-like interfaces. Systems like Siri and Alexa are capable of listening to your voice and getting back to you, and AR/VR enabled devices let you interact in 3D with virtual environments. AI learns your preferences, predicts what you might need, and personalizes.

****Question 3:- Using examples discuss the factors to consider in HCI design.****

**1. Put the User First: User-Centered Design**

**Good designs begin with an understanding of who the users will be and what they require. A system would not respond to the expectations of the user if one does not design for the user.**

**• Example: Consider the training application MyFitnessPal. It first asks what your health goals are-to lose weight, gain muscles, or simply to track your food intake. It then tailors its features to these preferences with meal plans, calorie goals, and progress charts. This kind of personalization helps retain users because it feels like the app was made just for them.**

**2. Ease of Use: Usability**

**A usable system is one that you can figure how to use without referring to a manual. The best designs are simple and intuitive.**

**• Example: Ever notice how easy it is to search on Google? It’s just one search bar. There are no distractions, and it works exactly as you’d expect. Even advanced features like voice search feel natural because they’re integrated seamlessly.**

**3. Include Everyone: Accessibility**

**Good design works for all users regardless of ability. It's about creating systems that are inclusive and adaptive.**

**• Example: Microsoft's Immersive Reader is a lifesaver for students with dyslexia. It changes text spacing, reads content aloud, and highlights words as they're spoken. This doesn't just help people with disabilities; it benefits anyone who might struggle with reading in noisy or distracting environments.**

**4. Be Consistent: Consistency**

**Consistency helps users feel confident because they know what to expect. Repeated patterns and familiar layouts make navigating a system easier.**

**• Example: Imagine using Microsoft Word one day and Excel the next. They look and feel similar because they share the same ribbon interface. This consistency reduces the time you spend figuring out where things are and lets you focus on the task at hand.**

**5. Talk to the User: Feedback**

**Users need to know that their actions are having an effect. Good feedback provides reassurance or guidance.**

**• Example: When a user uploads a file to Google Drive, the progress bar represents how much of that upload is complete. Without this, you'd be left wondering if it's working or worse, re-uploading and wasting time.**

**6. Make It Easy to Learn: Learnability**

**New users should feel at ease immediately, even if they have never seen the system before.**

**• Example: Upon first opening Instagram, it takes you through in a gentle way-how to post a photo or how to find your friends. These short, clear tutorials make it really quick to get started without feeling frustrated.**

**7. Save Time: Efficiency**

**Efficiency means enabling users to do their job in the shortest time with least effort.**

**• Example: Uber nails efficiency. Open the app, and your location is already pinned. You type in where you want to go, and the app calculates the route, shows driver options, and provides an estimated arrival all within seconds.**

**8. Prevent and Fix Mistakes: Error Management**

**People make mistakes, and a good system helps them avoid errors or recover from them easily. Example: G mail does a great job of catching errors. If you typed "I've attached the file" and forgot to attach a file, G mail will catch you before you send it. It's like having a thoughtful assistant watching your back.**

**9. Make It Fun: Emotional Design**

**Technology doesn't have to be boring; it can be fun, engaging, and even delightful.**

**• Example: Duolingo makes learning a new language a game. With rewards, streaks, and friendly animations, it feels more like playing than studying. This emotional connection brings users back again and again.**

**10. Respect Culture and Context: Cultural Sensitivity Designs should be adapted to the user's cultural background and context of use.**

**• Example: Amazon designs for different countries' experiences. In India, it also extended its support to regional languages and cash-on-delivery payments since they're a common preference. This cultural understanding opens the platform up to an even wider audience.**