

HCI Past Papers

①

2022

Q:1

Human Computer interaction is a discipline concerned with the design, evaluation & implementation of interactive computing systems for human use & with the study of major phenomena surrounding them. Discuss.

Ans: HCI is a multidisciplinary field that focuses on designing & evaluating interactive computing systems that are intuitive, efficient, & enjoyable for users.

HCI is concerned with understanding how people interact with technology & how technology can be designed to better support human needs & activities.

The discipline of HCI combines elements of Computer Science, Psychology, design & engineering, among others, to create & evaluate interactive systems. The design process involves understanding user needs, gathering requirements, creating prototypes, & testing & refining the system until it meets the needs of the intended users.

Evaluation methods can include usability testing, user surveys, & other forms of feedback gathering to measure user satisfaction & system effectiveness.

HCI is the study of major phenomena surrounding interactive computing systems. This includes how people perceive, learn, & remember information presented through technology, as well as how they interact with interfaces & interpret feedback.



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Implementation of interactive Computing Systems involve the integration of hardware, software, & user interfaces to create a seamless & effective user experience.

Q. 2 ^{Ques} List & define all the steps of usability engineering lifecycle?

Ans: Description of the usability engineering lifecycle, which consists of the following steps:

1. Requirement Analysis: This step involves identifying the needs & requirements of users & stakeholders for the system being developed.
2. Design: In this step, designers create a conceptual design for the system based on the requirements analysis.
3. Prototyping: A Prototype is created to test & refine the design.
4. Evaluation: The Prototype is evaluated to identify any usability issues or problems that need to be addressed.
5. Implementation: The final design is implemented in software or hardware.
6. Deployment: The system is deployed in its intended environment.
7. Maintenance: Ongoing maintenance & support are provided to ensure that the system continues to meet user needs & remains usable over time.

Q:3

Write short notes on any two?

(i) Icon Design.

(Icon design is an important aspect of user interface design. Icons are graphical representations of objects, actions, or concepts that users interact with in software applications. Good icon design should be simple, clear, & easily recognizable to users). Naturalistic icons based on familiar objects or metaphors can be easier for users to remember than abstract icons. Evaluating icon designs through user participation can help designers determine which style of icon is more effective for a particular application.)

(ii) Recall of the Interface.

(The term "Recall of the interface" refers to ability of a user to remember how to use an interface or system after a period of non-use. In other words, it measures how quickly & easily a user can recall how to perform with tasks & within a system without having to relearn the process.)

The recall of interface is an important factor in the usability of a system. To improve the recall of an interface achieved through the use of clear & concise labels, logical grouping of functions, & the use of familiar design patterns & conventions.

Regular use of a system can also improve the recall of the interface.)

(1)

(iii) Visual design & Typography.

Visual design & typography are two key elements in creating effective & engaging designs for various media, including websites, print materials, & mobile apps.

Imagery (Visual design involves the use of color, imagery, layout & other visual elements to communicate a message or enhance a user's experience.)

Typography is the art & technique of arranging type to make written language legible, readable, & appealing when displayed. Typography plays an important role in visual design, as it can enhance the readability of a design & convey important information in a visually appealing way.)

When it comes to visual design & typography, it is important to consider factors such as hierarchy, contrast, balance & consistency.

(iv) Efficiency of the website.

Efficiency of a website refers to how quickly & easily users can achieve their goals & complete tasks on the site. An efficient website is one that is designed to optimize the user experience & minimize the time & effort required to complete tasks. Several factors can contribute to the efficiency of a website, including the layout & organization of content, the speed & responsiveness of the site, the ease of navigation, & the clarity of information provided. To improve the efficiency of a website,

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Designers should focus on creating a user-centric design that prioritizes user needs & preferences.

Regular testing & analysis of user behavior can help identify areas where the website can be further optimized for efficiency.

Q. 4 Ergonomics deals with the study of people efficiency in their working environment. Compare & provide any two examples of the workplace at your own department where people can make their workplace ergonomics? → imp. (3)

Ans. Ergonomics involves designing & arranging the work environment to optimize productivity, comfort, & safety, in my department, two examples of how people can make their workplace ergonomics are:

1. Adjusting the chair & desk height: Sitting for long periods in a chair that is too high or low can lead to discomfort & strain on the back & neck. Adjusting the chair & desk height to ensure that the workers feet are flat on the floor & their eyes are level with the computer screen can help prevent discomfort & fatigue.

2. Using Proper Posture: Poor posture can cause neck & back pain, as well as eye strain. Encouraging employees to sit up straight, with their shoulders relaxed & their arms & wrists in neutral position can help prevent these issues.

(ii)

Q:5

"Interaction between human & mobile devices mainly depends upon the user's age & know-how about the technology". Explain the above statement classifying what different factors are necessary to know about the user?

Ans: Age can be a critical factor in determining how comfortable someone is with mobile devices. Younger generations have grown up with technology & are typically more familiar & proficient in using it. Older individuals may be less comfortable with technology & may require more guidance & support when it comes to using mobile.

Technology expertise is another crucial factor in determining how people interact with mobile devices. Those with more experience & knowledge about mobile devices likely be more comfortable using them & be able to take advantage of more advanced features.

Q:6

list & define the three worst & three best design things that you have observed in the interface design of the popular search engines (e.g. Google, Yahoo, Bing etc.) according to the company's objectives?

Ans: Worst design things:

(i) Cluttered Interface: This design approach makes it difficult for users to find what they are looking for & can

(1) be overwhelming.

- (ii) Poor Navigation: If users are unable to navigate easily through the search results, they will quickly become frustrated & abandon the search.
- (iii) Lack of Personalization: Personalization features allow users to tailor their search results to their preferences & interests.

Best Design Things:

- (i) Minimalist Design: The design approach makes it easy for users to navigate & find what they are looking for.
- (ii) Responsive Design: This design approach ensures that the search engine works seamlessly across different devices, including smartphones, tablets, & desktop computers.
- (iii) Advanced Search Options: They allow users to filter search results by specific criteria, such as date, location, & content type.

The best design things align with the company objectives of providing a simple & fast search experience, making its products accessible to as many people as possible, & providing a personalized search experience that caters to individual user needs & preferences.

Past Papers

(5)

Q.1 What are basics Heuristics Evaluation Principles? If we chunk the heuristics further, for example, "Handle errors" heuristics then what are those basics heuristics that you will categorize in it?

Ans: Heuristic evaluation is a usability inspection method that involves a small group of evaluators examining an interface & judging its compliance with recognized usability principles or "heuristics". The basics to Principles of heuristics evaluation are as follows: (i) Visibility of system status. (ii) Match b/w System & the real world. (iii) User control & freedom.

The "Handling errors" is one of the ten heuristics proposed by Nielsen. The three basic heuristics that can be categorized under this are:

1. Prevention: The system should prevent from occurring in the first place.
2. Recognition: If an error does occur, the system should recognize it & provide clear feedback to the user.
3. Recovery: The system should help users recover from errors quickly & easily.

Q: 2

Describe the terms of the following?
Shock Hole?

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(7)

① Web Navigation:

Web Navigation refers to the process of moving around a website or web application. It involves using menus, links, buttons, & other interface elements to access different pages or sections of the site. Effective web navigation is essential for providing a good user experience & helping users find the information they need quickly & easily.

These are several best practices for web navigation including:

- ① Consistency
- ② Simplicity
- ③ Accessibility
- ④ Searchability

② Gestalt Principles:

The Gestalt Principles are a set of psychological principles that describe how humans perceive & organize visual information. These principles were developed by German psychologists in the early 20th century & have since been applied to various fields, including graphics design, user interface design, & web design.

The Gestalt Principles include:

- ① Proximity
- ② Similarity
- ③ Continuity
- ④ Closure

③ Personas

Personas are fictional characters that represent the different types of users who might interact with a product or service. They are created based on research & data about real users, & are used to help designers & developers understand the needs, goals & behaviors of their target audience.

Personas typically include information such as age, gender, occupation, education, level, interests & goals. They may also include details about the user's experience with similar products or services, as well as their pain points & frustration.

To create personas, designers typically conduct user research through methods such as surveys, interviews or observations. Personas may be given names & photos to make them feel more real to the design team.

④ Principle of universal design:

The principle of universal design is a set of guidelines for designing products, environments, & systems that are accessible & usable by people of all ages, abilities, & backgrounds. The goal of universal design is to create products that are inclusive & can be used by the widest possible range of people, without the need for adaptation or specialized design.

The seven principles of universal design are:

Q: 3

Describe importance of affordance &

list the affordances of text-box?

Ans: Affordance is an important concept in HCI that refers to the perceived & actual properties of an object that determine how it can be used. In other words, affordances are the visual & physical cues that suggest how an object should be interacted with.)

Text-boxes have several affordances, including:

1. Input: Text-boxes are primarily used for inputting text or data into a system.
2. Selection: Text-boxes allow users to select & edit text within them.
3. Navigation: Text-boxes can also be used for navigation, such as entering a URL in a web browser's address bar.
4. Feedback: Text-boxes can provide feedback to users, such as displaying error messages when incorrect information is entered.
5. Contextual information: Text-boxes can also provide contextual information, such as displaying hints or suggestions for what type of information should be entered.

The affordances of text-boxes make them a versatile & useful tool in HCI design.

Q: 4

Discuss, what specific questions would you ask to confirm that IT Professionals knows, how to do "User-centered design". and what would you expect the right answers to be?

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Ans: To Confirm that IT Professionals know how to do user-centered design, You could ask them specific Questions related to the Process & Principles of User-centered design. Some example Questions could include?

- ① What is the goal of user-centered design?
- ② What are some common methods used in user research?
- ③ How do you Prioritize user needs & requirements?
- ④ How do you create Personas & scenarios?
- ⑤ What is the important of Usability testing?

The right answers to these Questions would demonstrate a deep understanding of the Principles & Practices of User-centered design, including a focus on understanding user's needs, preferences, & behaviors; Using research methods such as interviews, surveys & observation; ~~Using research methods~~ Prioritizing features based on user feedback; Creating Personas & Scenarios to guide design decisions; & Conducting Usability testing to evaluate the effectiveness of designs.