

## 1. What is usability? What are the features of the useable system?

**Usability** is one of the key concepts in HCI. It is concerned with making systems easy to learn and use.

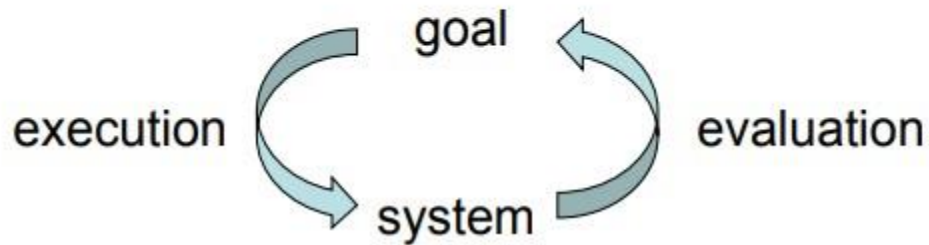
**A usable system is:**

- a. easy to learn
- b. easy to remember how to use
- c. effective to use
- d. efficient to use
- e. safe to use
- f. enjoyable to use

## 2. What are the seven stages of Donald Norman's model?

- user establishes the goal
- formulates intention
- specifies actions at interface
- executes action
- perceives system state
- interprets system state
- evaluates system state with respect to goal

# execution/evaluation loop



## 3. What is the difference between slips and mistakes?

### Slips :

- understand system and goal
- correct formulation of action
- incorrect action

### Mistake :

- may not even have right goal!

Fixing things?

- Slip – better interface design
- Mistake – better understanding of system

#### **4. Define Ergonomics and clarify your definition by examples?**

Study of the physical characteristics of interaction(working environment )

##### **Examples :**

- arrangement of controls and displays
- surrounding environment
- health issues
- use of colour

#### **5. Give the differences between virtual reality(VR) and augmented reality(AR)?**

- AR uses a real-world setting while VR is completely virtual
- AR users can control their presence in the real world while VR users are controlled by the system

#### **6. Give four Common interaction styles?**

- command line interface
- menus
- natural language
- question/answer and query dialogue

7. Define the terms 'deductive reasoning'; 'inductive reasoning'; and 'abductive reasoning' and provide an example of each related to HCI?

**deductive reasoning :**

- Deduction:
  - derive logically necessary conclusion from given premises.

e.g. If it is Friday then she will go to work

It is Friday

Therefore she will go to work.

- Logical conclusion not necessarily true
- When truth and logical validity clash
- People bring world knowledge to bear

**inductive reasoning :**

- Induction:
  - generalize from cases seen to cases unseen

e.g.all elephants we have seen have trunks

therefore all elephants have trunks.
- Unreliable:
  - can only prove false not true ...

but useful!

- Humans not good at using negative evidence

e.g. Wason's cards.

### **abductive reasoning :**

- reasoning from event to cause

e.g. Sam drives fast when drunk.

If I see Sam driving fast, assume drunk.

- Unreliable:

– can lead to false explanations

## **8. Give differences between speech synthesis and speech recognition?**

**Speech Recognition:** This allows the user to operate the device using methods of dictating orders to the device via input devices such as microphones. This feature basically involves the computer or device interpreting what the user has said...

**Speech Synthesis:** This feature allows the device to dictate or read out aloud text or information from the device...output devices such as speakers are required for this. The end result is that the computer talks to the user to save the user having to read some text on the screen.

## **Sheet #1**

### **9. What is the definition of HCI?**

(human-computer interaction) is the study of how people interact with computers .

### **10. What is the basic goal of HCI?**

A basic goal of HCI is to improve the interactions between users and computers by making computers more usable and receptive to the user's needs.

A long term goal of HCI is to design systems that minimize the barrier between the human's cognitive model of what they want to accomplish and the computer's understanding of the user's task.

### **11. What are the methods and techniques which HCI concerned with?**

HCI is concerned with:

- methodologies and processes for designing interfaces (i.e., given a task and a class of users, design the best possible

interface within given constraints, optimizing for a desired property such as learning ability or efficiency of use)

- methods for implementing interfaces (e.g. software toolkits and libraries; efficient algorithms)
- techniques for evaluating and comparing interfaces
- developing new interfaces and interaction techniques
- developing descriptive and predictive models and theories of interaction

## **12. What is the difference between the professional practitioners and the researchers in HCI?**

Professional practitioners in HCI are usually designers concerned with the practical application of design methodologies to real-world problems. Their work often revolves around designing graphical user interfaces and web interfaces.

Researchers in HCI are interested in developing new design methodologies, experimenting with new hardware devices, prototyping new software systems, exploring new paradigms for interaction, and developing models and theories of interaction.

### 13. What are the factors which should be considered in the analysis and design of a system using HCI principles?

The main factors are:

- **Organization Factors:** Training, job design, politics, roles, work organization
- **Environmental Factors:** Noise, heating, lighting, ventilation, Health and Safety Factors
- **The User:** Cognitive processes and capabilities, Motivation, enjoyment, satisfaction, personality, experience
- **Comfort Factors:** Seating, equipment, layout.
- **User Interface:** Input devices, output devices, dialogue structures, use of color, icons, commands, navigation, graphics, natural language, user support, multimedia,
- **Task Factors:** Easy, complex, novel, task allocation, monitoring, skills
- **Constraints** Cost, timescales, budgets, staff, equipment, buildings
- **System Functionality** Hardware, software, application
- **Productivity Factors** Increase output, increase quality, decrease costs, decrease errors, increase innovation



**14. What are the main disciplines which have contributed to HCI?**

Some of the main disciplines which have contributed to HCI are:

- a. Computer Science
- b. Cognitive Psychology
- c. Social Psychology
- d. Ergonomics/Human Factors
- e. Linguistics
- f. Artificial Intelligence
- g. Philosophy, Sociology & Anthropology
- h. Engineering & Design

<b>1. Prototyping is done to:</b> A) Demonstrate the visual design, B) Test the usability of a design, C) Finalize the technical specifications, D) Impress clients	<b>B</b>
<b>2. Scenarios describe:</b> A) The technical details of a system, B) A day in the life of a user persona, C) How to operate a particular feature, D) Reasons for choosing a particular design	<b>B</b>
<b>3. What is the purpose of a user story?</b> A) To provide a detailed description of the user's needs and preferences, B) To provide a detailed description of the user's behavior and habits, C) To provide a detailed description of the user's goals and objectives, D) To provide a detailed description of the user's journey and experience	<b>D</b>
<b>4. Which of the following activities represents contextual inquiry?</b> A) Observational research conducted in the users' environment, B) Testing prototypes with users, C) Testing the final product with users, D) Interviews done in a lab setting	<b>A</b>
<b>5. Which of the following aims to capture, structure and organize user requirements?</b> A) Scenarios, B) Personas, C) Prototyping, D) Heuristics	<b>A</b>
<b>6. Which of the following best describes personas?</b> A) Actual users, B) Composite user representations, C) User groups, D) Typical users	<b>B</b>
<b>7. Which of the following best describes scenarios?</b> A) Representative users, B) Narratives of how users complete tasks with a product, C) Components of a design, D) Product requirements	<b>B</b>
<b>8. Which of the following design techniques involves creating approximations or simulations of the user interface?</b> A) Storyboarding, B) Prototyping, C) Scenarios, D) Brainstorming	<b>B</b>
<b>9. What is the primary goal of establishing requirements in UCD?</b> A) To identify user needs and requirements., B) To create user interfaces., C) To conduct usability testing., D) To evaluate the effectiveness of the design.	<b>A</b>
<b>10. What is a use case in UCD?</b> A) A description of a typical user's interaction with a system., B) A prototype of a user interface., C) A report of the results of usability testing., D) A list of design heuristics to follow.	<b>A</b>
<b>11. What is the purpose of creating personas in UCD?</b> A) To create user interfaces., B) To identify user needs and requirements., C) To conduct usability testing., D) To evaluate the effectiveness of the design.	<b>B</b>
<b>12. What is the primary advantage of creating scenarios in UCD?</b> A) They provide a detailed understanding of user needs., B) They are quick and easy to develop., C) They are highly flexible and adaptable., D) They allow for direct observation of user behavior.	<b>A</b>
<b>13. What is the purpose of creating task analysis in UCD?</b> A) To create user interfaces., B) To identify user needs and requirements., C) To conduct usability testing., D) To evaluate the effectiveness of the design.	<b>B</b>
<b>14. What is high-fidelity prototyping?</b> A) A prototype that closely resembles the final product., B) A prototype that is quickly and easily created using low-cost materials., C) A prototype that focuses on the functionality of the design., D) A prototype that is developed in a vertical manner.	<b>A</b>
<b>15. What is vertical prototyping?</b>	<b>D</b>

A) A prototype that focuses on the functionality of the design., B) A prototype that is developed in a vertical manner., C) A prototype that is quickly and easily created using low-cost materials., D) A prototype that includes multiple features of the final product.	
<b>16. The main goal of user-centered design is to:</b> A) Produce usable and useful systems, B) Focus on technology, C) Focus on aesthetics, D) Maximize profit	<b>A</b>
<b>17. What is the purpose of user personas?</b> A) To provide a detailed description of the user's needs and preferences, B) To provide a detailed description of the user's behavior and habits, C) To provide a detailed description of the user's goals and objectives, D) To provide a detailed description of the user's demographics and psychographics	<b>A</b>
<b>18. Which of the following is a key benefit of using user-centered design in HCI?</b> A) It reduces the cost of development, B) It ensures that the system meets the needs of its users, C) It makes the system more visually appealing, D) It reduces the amount of time needed for testing	<b>B</b>
<b>19. What is the primary goal of data gathering in User-Centered Design?</b> A) To understand user needs and requirements., B) To create user interfaces. C) To conduct usability testing., D) To evaluate the effectiveness of the design.	<b>A</b>
<b>20. Which of the following is NOT a common data gathering technique in UCD?</b> A) Surveys., B) Interviews., C) Focus groups., D) Building prototypes.	<b>D</b>

1. What is an important advantage of command-line interfaces over graphical user interfaces?

- ☐ A. The mental load for the user is low (recall over recognition).
- ☐ B. The user is not distracted by an abundance of menus, icons, toolbars, etc.
- ☒ C. They work well for repetitive jobs like payroll processing or billing.
- ☐ D. Complex operations can be performed more efficiently, e.g. through command languages.

Answer: They work well for repetitive jobs like payroll processing or billing. (C)

2. Why should modal dialog boxes be used with care?

- ☒ A. They are very disruptive and prevent users from continuing their task.
- ☐ B. They have high resource requirements on the computer system.
- ☐ C. They frequently lead to application or system crashes.
- ☐ D. They are difficult to program because they have to work across applications.

Answer: They are very disruptive and prevent users from continuing their task. (A)

3. Under which circumstances is the use of CAPITAL LETTERS appropriate in screen layout and design?

- ☐ A. Never, because text in capital letters is more difficult to read.
- ☒ B. To better distinguish text from the numbers when text and numbers are mixed.
- ☐ C. To emphasize important items like field names, titles, or main categories.
- ☐ D. It should be used as often as possible because it reduces the number of bits required for the representation of characters.

Answer: To better distinguish text from the numbers when text and numbers are mixed. (B)

4. Although humans often rely on spoken natural language to communicate with each other, spoken language is not used very heavily in human-computer interfaces. What is an important reason for that?

- ☐ A. The bandwidth of the auditory channel is more limited than that of the visual channel.
- ☒ B. Computers would have to understand many different languages and dialects.
- ☐ C. It requires speech recognition by computers, which as of now is too error-prone and consumes too many resources.
- ☐ D. Speech output by computers sounds rather unnatural.

Answer: Computers would have to understand many different languages and dialects. (B)

5. Why have menus become a practically indispensable part of current user interfaces?

- ☐ A. They allow an efficient formulation of complex input commands.
- ☐ B. They minimize cursor movements, thus making input actions more efficient.
- ☒ C. They provide quick access to frequently used commands (recognition over recall).
- ☐ D. They can be adapted easily to the specific preferences of individual users.

Answer: They provide quick access to frequently used commands (recognition over recall). (C)

6. Which of the following fields is not an influence on HCI?



- ☐ A. Ergonomics
- ☐ B. Cognitive psychology
- ☐ C. Computer science
- ☒ D. All of the above are an influence on HCI

Answer: All of the above are an influence on HCI (D)

7. In ..... several keys must be pressed at once in order to enter a single character.

- ☐ A. QWERTY Keyboard
- ☐ B. Dvorak Keyboard
- ☐ C. Alphabetical keyboard
- ☒ D. Chord keyboards

Answer: Chord keyboards (D)

8. On my personal computer, I am listening a song with head phone. At same time, I am entering data in MS word It means my system is:

- ☐ A. Uni-model
- ☒ B. Multi-model
- ☐ C. Mini-model
- ☐ D. Large-model

Answer: Multi-model (B)

9. There is usually a ..... attached to the top of a window identifying it to the user.

- ☐ A. Icon
- ☒ B. Title bar
- ☐ C. Menu
- ☐ D. Button

Answer: Title bar (B)

10. Input in human is mainly through the ..... and output through the ..... of the effectors.

- ☐ A. Senses, Rods
- ☐ B. Motor control, Senses
- ☒ C. Senses, Motor Control
- ☐ D. Motor Control, Rods

Answer: Senses, Motor Control (C)

11. There are various types of errors. Norman has categorized them into two main types.

- ☐ A. Mistakes, Error
- ☐ B. Self Blaming , Mistakes
- ☐ C. Error , Slips
- ☒ D. Mistakes, Slips

Answer: Mistakes, Slips (D)

12. Which of the following is proportional to the amplitude of the sound where the frequency remains constant?

- ☐ A. Pitch
- ☒ B. Loudness
- ☐ C. Timber
- ☐ D. Rhythm

Answer: Loudness (B)

13. The eye is a mechanism for receiving light and transforming it into ..... energy.

- ☒ A. Electrical
- ☐ B. Heat
- ☐ C. Potential
- ☐ D. Kinetic

Answer: Electrical (A)

14. WYSIWYG stands for .....

- ☐ A. What you say is what you talk
- ☒ B. What you see is what you get
- ☐ C. What you sing is what you think
- ☐ D. What you sow is what you ripe

Answer: What you see is what you get (B)

15. Which of the following is haptic perception?

- ☒ A. Touch
- ☐ B. Smell
- ☐ C. Taste
- ☐ D. Hear

Answer: Touch (A)

16. .... are individual and isolated regions within display that can be selected by the user to invoke specific operations.

- ☒ A. Buttons
- ☐ B. Edition
- ☐ C. Cursors
- ☐ D. Windows

Answer: Buttons (A)

17. The human eye has approximately .....rods and .....cones per eye.

- ☒ A. 120 million , 6 million
- ☐ B. 190 million , 3 billion
- ☐ C. 150 billion , 6 million
- ☐ D. None of the given

Answer: 120 million , 6 million (A)

18. What are the three types of reasoning?



- ☐ A. Deductive, Productive and Inductive
- ☒ B. Abdicative, Inductive and Deductive
- ☐ C. Inductive, Abdicative and Reproductive
- ☐ D. Productive, Reproductive and Deductive

Answer: Abdicative, Inductive and Deductive (B)

19. Which of the following is not true regarding "cones"?

- ☐ A. A type of receptor in eye
- ☒ B. More sensitive to light
- ☐ C. Different types of cones are sensitive to different wavelengths of light
- ☐ D. Eye has approximately 6 million cones

Answer: More sensitive to light (B)

20. Which interface system is based on the question / answer dialogue?

- ☐ A. Command Line Interfaces
- ☒ B. Query interfaces
- ☐ C. Menus
- ☐ D. Natural Language Interfaces

Answer: Query interfaces (B)

21. Choice of operations and services are offered on the screen through .....

- ☐ A. Pointers
- ☐ B. Toolbars
- ☒ C. Menus
- ☐ D. None of the given

Answer: Menus (C)

22. What will be the gulf of execution if the user is able to formulate and perform the actions easily;

- ☒ A. Smaller
- ☐ B. Greater
- ☐ C. Balanced
- ☐ D. None of the Given

Answer: Smaller (A)

23. Form-filling interfaces are used for

- ☒ A. Data entry
- ☐ B. Data integration
- ☐ C. Data manipulation
- ☐ D. Data definition

Answer: Data entry (A)

24. Which of the following is used to toggle between two states?

- ☐ A. Check boxes
- ☒ B. Radio buttons
- ☐ C. Toolbars



- ☐ D. Menus

Answer: Radio buttons (B)

25. Which of the following is a text entry device?

- ☒ A. Keyboard
- ☐ B. Mouse
- ☐ C. Monitor
- ☐ D. Touch pad

Answer: Keyboard (A)

26. Mistakes" and "Slips" are two forms of

- ☒ A. Errors
- ☐ B. Goals
- ☐ C. Evaluation
- ☐ D. Objectives

Answer: Errors (A)

27. .... model is famous for risk analysis.

- ☐ A. Waterfall
- ☒ B. Spiral
- ☐ C. RAD
- ☐ D. Incremental

Answer: Spiral (B)

28. Building things from user's perspective is called

- ☐ A. Functionality
- ☒ B. Usability
- ☐ C. Portability
- ☐ D. None of the given

Answer: Usability (B)

29. Certain factors that help us to interact with graphical based systems

- ☐ A. Indirect manipulation
- ☒ B. Direct manipulation
- ☐ C. Both
- ☐ D. None of the given

Answer: Direct manipulation (B)

30. Which of the following is a long-term individual difference?

- ☐ A. Age
- ☒ B. Sex
- ☐ C. Fatigue
- ☐ D. Color

Answer: Sex (B)



31. ....refers to how good a system at doing What it is supposed to do?

- ☐ A. Safety
- ☐ B. Usability
- ☐ C. Efficiency
- ☒ D. Effectiveness

Answer: Effectiveness (D)

32. What is a semantic network?

- ☒ A. A model of long-term memory
- ☐ B. A record of our memory of events
- ☐ C. The part of the brain which allows us to remember things
- ☐ D. A mechanism for improving memory

Answer: A model of long-term memory (A)

33. The difference between the intentions and allowable actions is the:

- ☒ A. Gulf of Execution
- ☐ B. Gulf of Evaluation
- ☐ C. Both of the above options
- ☐ D. None of these

Answer: Gulf of Execution (A)

34. The goals of HCI are:

- ☐ A. Learn ability and Comfort
- ☐ B. Tasks and Goals
- ☒ C. Usability and User Experience
- ☐ D. All of the above options

Answer: Usability and User Experience (C)

35. Which of the following is the comparison of what happened in the world with what we wanted to happen?

- ☐ A. Action
- ☒ B. Evaluation
- ☐ C. Execution
- ☐ D. Implementation

Answer: Evaluation (B)

36. .... Research can tell you about what, how, many and why in rich, multivariate detail.

- ☐ A. Quantitative
- ☒ B. Qualitative
- ☐ C. SME
- ☐ D. None of these

Answer: Qualitative (B)



37. .... Cognitive process involves encoding and recalling knowledge and acting appropriately

- ☐ A. Attention
- ☐ B. Reduction
- ☒ C. Memory
- ☐ D. Encoding

Answer: Memory (C)

38. HCI deals with .....

- ☐ A. Design of interactive system only
- ☐ B. Evaluation of interactive system only
- ☐ C. Implementation of interactive system only
- ☒ D. All of the given choices

Answer: All of the given choices (D)

39. .... are dragged down from the title at the top of the screen.

- ☐ A. Main Menus
- ☒ B. Pull Down Menus
- ☐ C. Icons
- ☐ D. Buttons

Answer: Pull Down Menus (B)

40. Human eye is very sensitive to .....

- ☐ A. Air
- ☐ B. Smoke
- ☒ C. Light
- ☐ D. Sand

Answer: Light (C)

41. Top of the web page contain the .....

- ☐ A. Menu
- ☐ B. Home icon
- ☐ C. Back button
- ☒ D. Title bar

Answer: Title bar (D)

42. .... are unintentional while .... occur through conscious deliberation (respectively).

- ☐ A. Errors, slips
- ☐ B. Mistakes, slips
- ☒ C. Slips, mistakes
- ☐ D. Mistakes, errors

Answer: Slips, mistakes (C)

43. Over a short period of time, we find it easier to remember the string of numbers "404 894 6743" because:

- ☐ A. Numbers are easier to remember than arbitrary characters.
- ☐ B. Ten numbers is not that many to have to remember from working memory
- ☐ C. The grouping of the numbers is significant
- ☐ D. None of these

Answer: The grouping of the numbers is significant (C)

44. Which of the following requires less cognitive effort than others?

- ☒ A. Listening
- ☐ B. Speaking
- ☐ C. Hearing
- ☐ D. None of the given

Answer: Listening (A)

45. The command line interface is used because:

- ☐ A. It is easy to understand
- ☐ B. It is demanded by DOS
- ☐ C. It is offered by UNIX systems
- ☒ D. It is powerful and flexible

Answer: It is powerful and flexible (D)

46. Which of the following is concerned primarily with understanding human behavior and the mental processes that underlie it?

- ☒ A. Psychology
- ☐ B. Sociology
- ☐ C. Statistics
- ☐ D. Computer Science

Answer: Psychology (A)

47. .... plays a role to bridge up the gape between the interfaces of machines and human understanding.

- ☐ A. Human
- ☐ B. Computer
- ☒ C. Human Computer Interaction
- ☐ D. None of these

Answer: Human Computer Interaction (C)

48. A ..... is usually a collection of icons those are reminiscent of the purpose of the various modes.

- ☐ A. Button
- ☐ B. Pointer
- ☒ C. Palette
- ☐ D. Title bar

Answer: Palette (C)

49. The Star lifecycle was proposed by .....



- ☐ A. Deborah Mayhew
- ☐ B. Webster
- ☐ C. Barry Boehm
- ☒ D. Hartson

Answer: Hartson (D)

50. What do you enjoy most about your job (or lifestyle) is an example of .....

- ☐ A. Avoidance
- ☒ B. Motivation
- ☐ C. Exceptions
- ☐ D. Attitude-oriented questions

Answer: Motivation (B)

51. .... represents the Early-phase of ethnographic interviews.

- ☐ A. Clarify user roles and behaviors
- ☐ B. Confirm patterns of use
- ☐ C. Clarifying questions
- ☒ D. Focused on domain knowledge

Answer: Focused on domain knowledge (D)

52. Which of the following device can not be useful for a visually impaired person?

- ☐ A. a typical keyboard
- ☒ B. a typical monitor
- ☐ C. a typical speaker
- ☐ D. a typical processor

Answer: a typical monitor (B)

53. The gulf of execution refers to .....

- ☐ A. The user's difficulty in understanding the feedback from the system
- ☐ B. The system's difficulty in presenting information in the output language
- ☐ C. The system's difficulty in converting an input expression into the correct system state transition
- ☒ D. The user's difficulty in formulating and articulating an intention to the system

Answer: The user's difficulty in formulating and articulating an intention to the system (D)

54. Human beings interact with outside world, using their

- ☐ A. Input channels
- ☐ B. Output channels
- ☐ C. Sense of sight
- ☒ D. All of the given

Answer: All of the given (D)

A person's interaction with the outside world occurs through information being received and sent: input and output. Sight may be used primarily in receiving information from the computer, but it can also be used to provide information to the computer, for example by fixating on a particular screen point when using a gaze system.

55. .... refers to the relationship between controls and their effects in the world.

- ☐ A. Visibility
- ☐ B. Affordance
- ☒ C. Mapping
- ☐ D. None of the given

Answer: Mapping (C)

56. .... is what goes on in our heads when we carry out our everyday activities?

- ☒ A. Cognition
- ☐ B. Learnability
- ☐ C. Memorability
- ☐ D. None of the given

Answer: Cognition (A)

57. .... is the process by which we use the knowledge we have to draw conclusions or infer something new about the domain of interest.

- ☐ A. Decision Making
- ☒ B. Reasoning
- ☐ C. Problem Solving
- ☐ D. None of the given

Answer: Reasoning (B)

58. Models are used in design to:

- ☐ A. Generate the design
- ☐ B. Evaluate the design
- ☒ C. Generate and evaluate the design
- ☐ D. None of the given

Answer: Generate and evaluate the design (C)

59. Which are the most significant senses for the average person when it comes to interacting with a computer?

- ☐ A. Sight and hearing
- ☐ B. Hearing, touch and smell
- ☐ C. Hearing and touch
- ☒ D. Sight, hearing and touch

Answer: Sight, hearing and touch (D)

60. Ethnography is a method that comes originally from anthropology and literally means

- ☐ A. Ethics
- ☐ B. Ethical issues
- ☐ C. Social issues
- ☒ D. Writing the culture

Answer: Writing the culture (D)



