



Yashoda Shikshan Prasarak Mandal's
YASHODA TECHNICAL CAMPUS, SATARA
An Autonomous Institute

FACULTY OF ENGINEERING

Department of Artificial Intelligence and Data Science Engineering

UNIT – I: HCI Foundations

A. MCQs

1. A user must remember a 10-digit code while typing it into another screen. Which memory is mainly used?
A) Long-term
B) Short-term/working
C) Sensory only
D) Procedural

Answer: [B]

2. Which design best applies chunking to a phone number field?
A) 9876543210
B) 98765-43210
C) Random digits
D) Spoken digits only

Answer: [B]

3. A user recognises an icon faster than recalling a command name. This shows that:
A) Recall is easier than recognition
B) Recognition is easier than recall
C) Both are equal
D) Neither uses memory

Answer: [B]

4. Which input device is best suited for drawing freehand sketches?
A) Keyboard
B) Stylus with tablet
C) Joystick
D) Barcode scanner

Answer: [B]

5. Fitts' law is used to predict:
A) Typing errors
B) Time taken to point at a target
C) Memory capacity
D) Screen resolution

Answer: [B]

Vision:

Developing AI & DS applications that addresses regional challenges and empowering innovation and challenges, to become a leading rural AI & DS hub.

Mission:

M1: Emphasizing responsible AI development that considers social and environmental factors specific to the region.

M2: Educating the public about the potential benefits and responsible use of AI & DS technologies.

M3: Facilitating internships and research projects with AI & DS companies to bridge the gap between theory and practice.



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6. A user wrongly assumes a "Save" icon will also close the file. Which type of human process is involved?

- A) Reasoning (mental model)
- B) Sensory perception only
- C) Motor action
- D) Emotion only

Answer: [A]

7. Which device is most appropriate for 3D interaction in virtual reality?

- A) Data glove
- B) Mouse pad
- C) Numeric keypad
- D) Flatbed scanner

Answer: [A]

8. Which display technology generally consumes the least power and suits e-readers?

- A) CRT
- B) E-ink
- C) Plasma
- D) Projector

Answer: [B]

B. Short Answer

1. List the human input and output channels used in interaction.
2. Differentiate between short-term and long-term memory.

C. Long Answer

1. Illustrate, with a simple example, how an interface can be designed to reduce the load on human memory.
2. Explain the structure of human memory (sensory, short-term, long-term) and its implications for interface design.

UNIT 2: Designing Interactive Systems and User-Centered Design

A. MCQs

1. Which element should let a user choose exactly one of three themes?
 - A) Check boxes
 - B) Radio buttons
 - C) Scroll bar

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D) Title bar

Answer: [B]

2. Which is an advantage of WIMP for novice users?

A) Menus reduce command recall

B) Needs less screen space

C) Always faster for experts

D) Needs no pointing device

Answer: [A]

3. A novice user is unfamiliar with commands. Which interface would you recommend?

A) Command-line

B) WIMP

C) Both

D) Neither

Answer: [B]

4. Which interface is better for human interaction?

A) Simple menus with clear feedback

B) Complex menus

C) Both equally

D) Neither

Answer: [A]

5. Which component of Norman's execution–evaluation model measures the gap between the user's goal and the system's state?

A) Gulf of execution

B) Gulf of evaluation

C) Both gulfs

D) Presentation

Answer: [C]

6. Which interaction style best suits collecting a user's address and contact details?

A) Command language

B) Form fill-in

C) Natural language

D) Direct manipulation

Answer: [B]

7. Which design activity describes how users move between screens?

A) Navigation design

B) Prototyping

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- C) Evaluation
- D) Requirements gathering

Answer: [A]

8. Personas and scenarios are mainly used to:

- A) Increase processing speed
- B) Understand users and their tasks
- C) Test code
- D) Select hardware

Answer: [B]

B. Long Answer

1. Differentiate between the command-line and WIMP interaction styles on the basis of any three points.
2. Justify the importance of any four principles that support usability, with a suitable example of each.
3. Compare the menu selection and form fill-in interaction styles on the basis of any three points.

Unit 3: HCI in the Software Process

A. MCQs

1. Which approach best fits a project with changing user requirements?

- A) Waterfall
- B) Iterative design with prototyping
- C) No testing
- D) Single final release

Answer: [B]

2. A paper sketch of a screen is an example of:

- A) High-fidelity prototype
- B) Low-fidelity prototype
- C) Final product
- D) Source code

Answer: [B]

3. A key benefit of prototyping is that it:

- A) Eliminates all testing
- B) Lets users give early feedback
- C) Avoids requirements
- D) Increases coding time

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Answer: [B]

4. Which is a limitation of the waterfall model for HCI?

- A) Usability is evaluated late
- B) Documentation is detailed
- C) Phases are clear
- D) It is easy to manage

Answer: [A]

5. Which activity is repeated in each iteration of iterative design?

- A) Design, prototype, evaluate
- B) Only coding
- C) Only documentation
- D) Only deployment

Answer: [A]

B. Long Answer

1. Justify the importance of any four principles to support usability with a suitable example of each.
2. Explain the software life cycle (waterfall model) and show where HCI fits in each phase.
3. Justify the need for iterative design and prototyping in the software process.
4. Describe the techniques of prototyping with examples.

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