Module I: FOUNDATIONS OF HCI

2 Marks Questions

1. **Human I/O Channels**: Human beings interact with computers using various input/output channels. Input channels include vision (eyes), hearing (ears), touch (skin), while output channels involve speech, facial expressions, and motor responses.
2. **Ergonomics**: Ergonomics in HCI refers to designing systems and environments that match human physical and cognitive abilities to enhance comfort, efficiency, and safety.

3/5 Marks Questions

1. **Types of Human Memory**:
    - *Sensory memory*: Briefly holds sensory information.
    - *Short-term memory*: Holds limited information for short durations.
    - *Long-term memory*: Stores vast information over longer periods.
2. **Interaction Styles**:
    - *Command-line interfaces*: User types commands.
    - *Menu-based interfaces*: User selects from predefined options.
    - *Direct manipulation*: Interacting via graphical elements.
3. **Interactivity Elements**: Key elements include responsiveness, feedback, consistency, user control, and adaptability.

10 Marks Questions

1. **Comparison between Human and Computer Capabilities**:
    - *Humans* excel in perception, parallel processing, and learning from experience.
    - *Computers* are better at speed, accuracy, and storage.
    - *Memory*: Human memory is associative and context-driven; computer memory is precise and address-based.
    - *Processing*: Humans process in parallel; computers usually process sequentially.
2. **Interaction Models and Paradigms**:
    - *Interaction Models*: Describe the structure of human-computer interaction (e.g., Norman's model).
    - *Frameworks*: Like Abowd and Beale's model, which identifies user, system, input, and output.
    - *Paradigms*: Include WIMP (Windows, Icons, Menus, Pointer), ubiquitous computing, and tangible interfaces.
    - *Case Study*: Use of touchscreens in smartphones showcases a shift from WIMP to post-WIMP interfaces.

Module II: DESIGN & SOFTWARE PROCESS

2 Marks Questions

1. **Iteration**: The process of repeating design and testing steps to refine the user interface.
2. **Design Rationale**: Documented reasoning behind design decisions to justify and communicate the design choices.

3/5 Marks Questions

1. **Basics of Interactive Design**: Focuses on user needs and usability; involves tasks such as goal identification, prototyping, and testing.
2. **Usability Engineering**: A structured approach to ensure the software is usable by evaluating user needs, testing designs, and refining interfaces.
3. **Design Rules**:
    - *Principles*: High-level goals (e.g., consistency).
    - *Standards*: Mandatory rules from authorities.
    - *Guidelines*: Suggested best practices.

10 Marks Questions

1. **Interactive Design Process and Prototyping**:
    - Steps: Understanding users, creating scenarios, prototyping, evaluation.
    - *Prototyping in practice*: Includes low-fidelity (paper) and high-fidelity (interactive) models.
2. **Evaluation Techniques and Universal Design**:
    - *Evaluation*: Includes usability testing, heuristic evaluation, cognitive walkthroughs.
    - *Universal Design*: Designing for all users regardless of ability; emphasizes accessibility and inclusiveness.

Module III: MODELS AND THEORIES

2 Marks Questions

1. **Cognitive Model**: Represents how users perceive, think, learn, and remember; helps in predicting user behavior.
2. **Hypertext**: A non-linear way of presenting information with clickable links connecting documents.

3/5 Marks Questions

1. **Stakeholder Requirements**: Understanding goals, tasks, and constraints of users and other stakeholders in the system.
2. **Communication vs. Collaboration Models**:
    - *Communication*: Information exchange.

- *Collaboration*: Joint activity with shared goals and coordination.

10 Marks Questions

1. **Cognitive Models in HCI**:
    - Examples: GOMS (Goals, Operators, Methods, Selection rules), KLM (Keystroke-Level Model).
    - Help in task analysis, predicting performance, and designing user-friendly systems.
2. **Hypertext, Multimedia, WWW**:
    - *Hypertext*: Enables non-linear navigation.
    - *Multimedia*: Integrates text, audio, images, video.
    - *WWW*: Combines both to create interactive, accessible user experiences.

Module IV: MOBILE HCI

2 Marks Questions

1. **Types of Mobile Applications**: Widgets (mini apps), full applications (feature-rich), games (interactive).
2. **Mobile 2.0**: Refers to the evolution of mobile web to include user-generated content, cloud apps, and social networking.

3/5 Marks Questions

1. **Mobile Information Architecture**: Organizing and structuring mobile content to support usability and navigation.
2. **Mobile Design Tools**: Figma, Adobe XD, Sketch – used for prototyping and interface design.

10 Marks Questions

1. **Elements of Mobile Design**:
    - Key elements: Simplicity, clarity, consistency, feedback, touch-targets.
    - Importance of responsive design, minimal UI, and gesture-based navigation.
2. **Mobile Ecosystem and App Types**:
    - *Ecosystem*: Includes platforms (Android, iOS), devices, and networks.
    - *Types of Apps*: Native, hybrid, web-based.
    - *Case Study*: WhatsApp – seamless messaging, end-to-end encryption, media sharing.

Module V: WEB INTERFACE DESIGN

2 Marks Questions

1. **Direct Selection**: User interacts with UI elements directly, like clicking an icon or tapping a button.

2. **Virtual Page**: A page rendered dynamically in a single-page application without reloading the full page.

3/5 Marks Questions

1. **Process Flow**: The logical sequence of user tasks; ensures smooth navigation and goal completion.
2. **Contextual Tools**: Appear based on user actions; for example, formatting options on selecting text.

10 Marks Questions

1. **Components of Web Interface Design**:
    - Features like drag-and-drop (moving elements), overlays (modals), inlays (tooltips), and virtual pages (SPA).
    - Focus on usability, responsiveness, and visual hierarchy.
2. **Web Design with Case Studies**:
    - Case: Trello uses drag-and-drop for task management, overlays for pop-ups, and contextual tools for editing. Another case is Google Docs, which uses contextual toolbars that appear when users select text, making editing intuitive and efficient.