HCI Unit 3 - Exam Preparation Guide

Based on Previous Question Paper Patterns

Expected Question Patterns & Important Topics

2-Mark Questions (Short Answers)

- **Task Analysis Definition**: Systematic study of user tasks, goals, and workflows
- **Contextual Design Principles**: Customer-centered design using field data
- **Grounded Theory Goal**: Building theories inductively from data
- **CSCW Definition**: Computer Supported Cooperative Work - collaborative technology systems
- **Ethnographic Approach**: Studying users in natural environments
- **User Persona**: Detailed user profile representing target audience

5-Mark Questions (Medium Answers)

- **Compare Contextual Design vs Traditional Methods**
- **Explain Task Analysis Types with Examples**
- **Grounded Theory Applications in HCI/CSCW**
- **Benefits of Ethnographic Approach**
- **User Experience Requirements (5 qualities)**

8-10 Mark Questions (Long Answers)

- **Complete Task Analysis for System Design**
- **Contextual Design Process Implementation**
- **Grounded Theory Research Plan**
- **CSCW Solution Design for Collaborative Work**
- **Ethnographic Study vs Lab Testing Comparison**

Unit 3 Topics with Expected Questions & Answers

1. User Experience Requirements

Expected Question: *"List and explain the five key qualities of user experience in e-commerce design."*

Answer: The five qualities of total website UX are:

1. **Utility**: Whether the system provides functions users need
2. **Functional Integrity**: System works correctly and reliably
3. **Usability**: Easy to learn and use effectively
4. **Persuasiveness**: Guides users toward desired actions/decisions
5. **Graphic Design**: Visual appeal and professional appearance

Memory Tip: "U-F-U-P-G" (Utility, Functional integrity, Usability, Persuasiveness, Graphic design)

2. Usability Engineering Lifecycle Analysis

Expected Question: *"Explain the three phases of Mayhew's Usability Engineering Lifecycle."*

Answer:
Phase 1: Requirements Analysis

- User profile (characteristics, experience level)
- Platform capabilities/constraints
- Task analysis (current workflows)
- Usability goals (qualitative & quantitative)

Phase 2: Design/Testing/Development

- Level 1: Conceptual model design, work reengineering
- Level 2: Screen design standards, prototyping
- Level 3: Detailed UI design, iterative evaluation

Phase 3: Installation

- Real-world deployment
- User feedback collection
- Enhancement cycles until goals met

3. Task Analysis

Expected Question: *"Compare the three types of task analysis with examples."*

Answer:

Type	Focus	Example Application
Hierarchical Task Analysis (HTA)	Breaking tasks into goals, operations, plans	Flight booking: Search → Select → Pay
Cognitive Task Analysis (CTA)	Mental processes, decision-making	Medical diagnosis reasoning
Contextual Task Analysis	Environmental, social, organizational factors	Workplace collaboration patterns

Key Principle: Task analysis triangulates Users + Tasks + Environment for successful design

4. Contextual Design

Expected Question: *"Describe the contextual design process with its key steps."*

Answer:
Process Steps:

1. **Contextual Inquiry**: Observe/interview users in real work environment
2. **Interpretation Sessions**: Team discusses and captures key issues
3. **Work Models & Affinity Diagramming**: Consolidate patterns across customers
4. **Visioning**: Redesign work practices with new technology ideas
5. **Storyboarding**: Detail specific tasks and user journeys
6. **User Environment Design**: System supporting actual work context
7. **Paper Mock-ups**: Test interface concepts with users
8. **Interaction & Visual Design**: Final look, feel, and user experience

Key Difference: Contextual Design = Task-focused, structured → direct product design

5. Grounded Theory Method in HCI & CSCW

Expected Question: *"Explain grounded theory method and its advantages in HCI research."*

Answer:
Definition: Qualitative research building theories inductively from data through systematic coding, categorization, and comparison.

Process Steps:

- Systematic coding of data

- Categorization of findings
- Constant comparison analysis
- Theory building from patterns

Advantages in HCI:

- **Authentic**: Built from actual data, not assumptions
- **Flexible**: Adapts as insights emerge during research
- **In-depth**: Provides deep understanding of human behavior
- **Theory-building**: Explains how/why phenomena occur

CSCW Applications:

- Team coordination across time zones
- Social norms in online communities
- Distributed collaboration patterns

6. Ethnographic Approach to Design

Expected Question: *"Compare ethnographic design approach with traditional usability testing."*

Answer:

Aspect	Ethnographic Design	Traditional Usability Testing
Purpose	Understand real-world context, culture, behavior	Test task performance on product/prototype
Setting	User's natural environment	Controlled lab/testing room
Focus	Deep insights into habits, motivations, social factors	Performance metrics (time, errors)
Method	Observation, interviews, participation	Structured tasks, think-aloud protocols
Outcome	Design grounded in real-life needs	Interface refinements for efficiency
Example	Week with farmers designing agricultural app	Lab testing app navigation with farmers

Key Advantage: Ethnography reveals cultural/social contexts that lab testing misses

Sample Long Questions & Answer Structure

Question: *"Design a complete contextual design approach for developing a hospital patient monitoring system."*

Answer Structure:

1. **Contextual Inquiry Planning**
   - Interview ICU doctors, nurses, technicians during actual shifts
   - Observe patient monitoring workflows in real hospital environment
   - Focus on critical decision-making moments and information needs
2. **Interpretation & Work Modeling**
   - Team sessions to discuss findings from different hospital units
   - Create affinity diagrams showing common pain points
   - Model current workflows and communication patterns
3. **Visioning New System**
   - Redesign monitoring workflows with new technology
   - Story scenarios showing improved patient care processes
   - Evaluate ideas for clinical value and technical feasibility
4. **Prototyping & Testing**
   - Paper mockups of dashboard interfaces
   - Test with medical staff in simulated emergency scenarios
   - Iterative design based on clinical feedback
5. **Implementation Considerations**
   - Integration with existing hospital systems
   - Training requirements for medical staff
   - Compliance with medical device regulations

Question: *"Using grounded theory, propose a research plan to study remote team collaboration challenges."*

Answer Structure:

1. **Initial Data Collection**
   - Open-ended interviews with remote team members
   - Observation of virtual meetings and collaboration tools
   - Document analysis of team communication patterns
2. **Coding & Analysis Cycles**
   - Code interview transcripts for collaboration patterns
   - Identify categories: communication breakdowns, time zone issues, trust building

    - Constant comparison across different team types and industries
3. **Theoretical Sampling**
    - Based on initial findings, interview managers vs individual contributors
    - Study successful vs struggling remote teams
    - Include different cultural backgrounds and time zones
4. **Theory Development**
    - Build theory explaining what makes remote collaboration effective
    - Identify key factors: communication frequency, shared artifacts, social presence
    - Develop model predicting collaboration success
5. **Validation**
    - Test emerging theory with new data
    - Continue until theoretical saturation reached
    - Present findings as actionable framework for remote team design

Quick Revision Checklist

Definitions to Memorize:

- UX = User interaction perceptions, emotions, responses
- Task Analysis = Systematic study of user tasks/goals
- Contextual Design = Customer-centered field data process
- Grounded Theory = Inductive theory building from data
- Ethnography = Natural environment user observation
- CSCW = Collaborative work with technology support

Process Mnemonics:

- Usability Lifecycle: **RDI** (Requirements, Design/Testing, Installation)
- Task Analysis: **HCC** (Hierarchical, Cognitive, Contextual)
- Contextual Design: **CIVS-PUIV** (Contextual inquiry, Interpretation, Visioning, Storyboarding, Prototyping, User environment, Interaction, Visual)
- Grounded Theory: **SCCT** (Systematic coding, Categorization, Comparison, Theory)

Comparison Tables: Practice drawing quick tables comparing:

- Ethnographic vs Traditional testing
- Task analysis types
- Contextual vs Grounded theory approaches

Final Exam Tips

1. **For 2-mark questions**: Give precise definitions with key components
2. **For 5-mark questions**: Structure with examples and brief comparisons
3. **For 8-10 mark questions**: Use structured approach with real-world examples
4. **Always include**: Process steps, advantages/disadvantages, practical applications
5. **Draw diagrams**: For task hierarchies, contextual design flow, affinity diagrams
6. **Use examples**: Hospital systems, banking apps, collaborative tools, e-commerce

Time Management: 2-marks (2 min), 5-marks (8 min), 8-10 marks (15-20 min)