HCI Examination 25.08.04, 8.45-12.45
Please answer in Swedish or English

Max points per question is indicated after each question, total max is 60.

PLEASE HAND IN FIRST PAGE OF EXAMINATION SHEET (TEST) IF YOU ANSWER MULITPLE CHOICE HERE

PART I: Max 42 points, 25 points NECESSARY FOR PASS (GODKÄNT)

1. Multiple choice – chose one of the three boxes (or write a,b, or c):
   An augmented reality system fulfils the following three criteria (max 4 points):

a	- Combines real and virtual - Is interactive at most times - Is registered in three dimensions
b	- Combines real and virtual - Is interactive in real time - Is registered in three dimensions
c	- Combines digital and virtual - Is interactive in real time - Is registered in three dimensions

2. Multiple choice – choose one of the three boxes (or write a,b, or c):
   According to Scheidermann, direct manipulation is (max 4 points):

a	- Visibility of the objects of interest - Incremental action at the interface with slow motion feedback on all actions - Reversibility of all actions, so that users are encouraged to explore without severe penalties - Syntactic correctness of all actions, so that every user action is a legal operation - Replacement of complex command languages with actions to manipulate directly the visible objects
b	- Visibility of the objects of interest - Incremental action at the interface with rapid feedback on all actions - Reversibility of all actions, so that users are encouraged to explore without severe penalties - Syntactic correctness of all actions, so that every user action is a legal operation - Replacement of complex command languages with actions to manipulate directly the visible objects
c	- Visibility of the objects of interest - Incremental action at the interface with rapid feedback on all actions - Reversibility of all actions, so that users are encouraged to explore without severe penalties - Syntactic correctness of all actions, so that every user action is a legal operation - Reversibility of complex command languages with actions to manipulate directly the visible objects

3. Multiple choice – choose one of the three boxes (or write a, b, or c):
   What does a WIMP interface mean (max 4 points)?

a	A WIMP interface means window, item, menus, and pointers, the graphical user interface style popularized by the Xerox Start and the Apple Macintosh in the 1980s
b	A WIMP interface means window, icons, markers, and pointers, the graphical user interface style popularized by the Xerox Start and the Apple Macintosh in the 1980s
c	A WIMP interface means window, icons, menus, and pointers, the graphical user interface style popularized by the Xerox Start and the Apple Macintosh in the 1980s

4. Give three examples of interactive systems in public transportation environments (e.g. tramway, bus, train, ship, or airplane) and tell why they are interactive. For one of these three systems, suggest test procedure to find out how ergonomic aspects (e.g. colors, touch operation, feedback) can be improved (max 3 points).

5. Give 3 of Shneidermann's golden rules. (Please give a one-phrased definition for each rule.) (max 6 points).

6. How do heuristics help interface designers take account of cognitive psychology? Illustrate your answer with two examples (max 6 points).

7. What input and output devices would you use for the following systems? Chose 3 of the 5 systems and for each, compare and contrast alternatives, and if appropriate indicate why the conventional keyboard, mouse and normal (CRT) screen may be less suitable (max 6 points).

   a) portable translation system
   b) bus information system
   d) ship traffic control system for the port of Gothenburg
   e) worldwide wine auctioning system
   f) digital water quality information system

8. Distinguish between principles, guidelines and standards. For each three – principles, guidelines and standards – describe a practical application. (max 6 points).

9. Write a manual page for making pancakes. Assume your user (i.e., that person who will make the pancakes) has no experience but will recognize a mixer, a stove, a tin, etc. (max 3 points). The photo below shows a mixer and a stove.

PART II: Max 18 points.
This part is only corrected if 25 points or more were obtained in part I.

10. What knowledge is needed to build an adaptive help system? Which do you think is most difficult to provide and why? (Hint: Think about knowledge of the domain and knowledge of the user, maybe also of knowledge of teaching strategies and tasks) (max 6 points).

11. Data visualization techniques have often increased our comprehension of phenomena. For example, think of the effect that 3D graphics has had on looking at complex models such as those of the atmosphere or the ocean, or in understanding the structure of molecules. In view of this example, please answer this question: What do you consider to be the areas that may benefit most from virtual reality visualization techniques? (max 6 points)

12. Choose an appropriate evaluation method for 3 of the following 5 situations (situation a-e). For each of the chosen situations, identify (max 6 points)

(i) The participants.
(ii) The technique used.
(iii) Representative tasks to be examined.
(iv) Measurements that would be appropriate.
(v) An outline plan for carrying out the evaluation.

Situation a-e, please chose only 3 of these 5 situations:

(a) You are at an early stage in the design of a *spreadsheet package* and you wish to test what type of icons will be easiest to learn.

(b) You have a prototype for an *airline ticket booking system* to be used by potential theatre-goers to reduce queues at the box office.

(c) You have designed and implemented a *new game system* and want to evaluate it before release.

(d) You have developed a *computer aided design* system for an architect's office.

(e) You have been asked to develop a system to store and *manage* student *exam results* and would like to test two different designs prior to implementation or prototyping.

Please give your answer in the following form:

Spreadsheet package:

(i) Subjects	Typical users: secretaries, academics, xxx, xxx, xxx
(ii) Technique	xxx evaluation
(iii) Representative tasks	Sorting data, printing spreadsheet, xxxx
(iv) Measurements	Speed of xxx, accuracy of xxx, user-perceived xxx
(v) Outline plan	Test the subjects with examples of each xxx in various styles, noting responses.

Etc.