

UNIVERSITY OF LONDON
FOR EXTERNAL STUDENTS (West)
B. Sc. Examination 2006

291 0315W

COMPUTING AND INFORMATION SYSTEMS
CIS 315 HUMAN-COMPUTER INTERACTION

Duration: 2 hours and 15 minutes

Date and time: Friday 19 May 2006: 2.30 - 4.45pm

Do not attempt more than THREE questions. All questions carry equal marks and full marks can be obtained for complete answers to THREE questions.

Electronic calculators may be used. The make and model should be specified on the script. The calculator must not be programmed prior to the examination. Calculators which display graphics, text or algebraic equations are not allowed.

**THIS EXAMINATION PAPER MUST NOT BE
REMOVED FROM THE EXAMINATION ROOM.**

Question 1

Psychology (25 marks)

- a. What are the different characteristics associated with **short term, sensory and long term** memory? What are the implications for system design?
15 marks
- b. Distinguish between **recall** and **recognition**.
2 marks
- c. Discuss how supporting users' recognition processes - as opposed to memory recall - might contribute to improvements in system usability.
3 marks
- d. How would you design an interactive system to minimise **perceptual confusion** and **memory load**?
5 marks

Question 2

Design support & prototyping (25 marks)

- a. Why is prototyping regarded as such an important part of user centred iterative design? *2 marks*
- b. Describe the role of **each** of the following in the task of gathering user and task requirements in the context of user-centred design?.
 - (i) cognitive task analysis *4 marks*
 - (ii) requirements analysis *4 marks*
 - (iii) design notations *4 marks*
- c. Draw up a table showing the advantages **and** disadvantages of **each of the above** tools or techniques. *9 marks*
- d. Describe the problems that designers may face when using **the above** tools and techniques. *2 marks*

Question 3

Design & Interaction (25 marks)

a. Describe **each** of the following design tools and techniques:

- (i) software prototypes 5 marks
- (ii) usability metrics 5 marks
- (iii) sketching and storyboarding 5 marks
- (iv) Wizard of Oz simulations 5 marks

b. You have been commissioned to design a multimedia drawing tool to support cartoon animators. Describe how you would use **one** of the four techniques above at early design stages to assess whether your proposed system is more enjoyable to use, **and** improves task performance. 5 marks

Question 4

Design & modelling (25 marks)

a. Detail **all** of the following terms. Illustrate with examples, where possible:

- (i) mental model 5 marks
- (ii) user's model 5 marks
- (iii) designer's model 5 marks

b. Describe how a user develops his or her user's model of a computer system.

3 marks

c. How would you utilise mental models to develop a new interface metaphor for an online catalogue.

7 marks

Question 5

Evaluation & Modelling (25 marks)

a. Detail, in full, the discount usability techniques of **heuristic evaluation** and **cognitive walkthrough**.

10 marks

b. Describe the advantages and disadvantages of **both the above** techniques.

6 marks

c. Identify the practical problems encountered when HCI designers use the **Cognitive Walkthrough** technique. What would you do to overcome these problems? 6 marks

d. How can models of users help in the design and evaluation of interactive systems? 3 marks

END OF EXAMINATION