

THIS PAPER IS NOT TO BE REMOVED FROM THE EXAMINATION HALLS

UNIVERSITY OF LONDON

291 0315 ZA

BSc Examination
for External Students

**COMPUTING AND INFORMATION SYSTEMS AND
CREATIVE COMPUTING**

Human Computer Interaction

Dateline: Wednesday 6 May 2009 : 2.30 – 5.30 pm

Duration: 2 hours 15 minutes

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

A hand held calculator may be used when answering questions on this paper but it must not be pre-programmed or able to display graphics, texts or algebraic equations. The make and type of machine must be stated clearly on the front cover of the answer book.

Question 1

Psychology

- a. (i) What are the different characteristics associated with human **short term, sensory and long term memory**? *12 marks*
 - (ii) Discuss the implications for interactive systems design. *4 marks*
- b. Distinguish between **recall and recognition**. *2 marks*
- c. Discuss how supporting users' **recognition processes** – not those of memory recall - might improve the usability of an application. *2 marks*
- d. How would you design an interactive system to minimise perceptual confusion and memory load? *5 marks*

Question 2

Design & modelling

- a. Detail **all** of the following terms. Illustrate with examples, where possible:
 - (i) mental model *4 marks*
 - (ii) user's model *4 marks*
 - (iii) designer's model *4 marks*
- b. Describe how a user develops a model of a computer system. *3 marks*
- c. Use metaphors to develop a new interface for a social networking site. Illustrate your answer with diagrams to show typical screen designs. *10 marks*

Question 3

Evaluation and usability

- a. Describe in detail **each** of these techniques for HCI evaluation and testing:
 - (i) Cognitive Walkthrough *5 marks*
 - (ii) Heuristic Evaluation *5 marks*
 - (iii) Empirical, or Experimental, Evaluation *5 marks*
- b. Dix et al. identify three categories of usability principles within HCI.
 - (i) Fully describe each category. *6 marks*
 - (ii) Explain what you understand by the principle of "flexibility". *4 marks*

Question 4

Design support

- 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 obtaining 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 designers face when using these techniques. *2 marks*

Question 5

Evaluation

- a. Discuss the advantages **and** disadvantages of **each** of the following HCI evaluation methods:
 - (i) video recording *5 marks*
 - (ii) different types of interview *5 marks*
 - (iii) different types of questionnaire *5 marks*
- b. Describe how and when you would use **each** of the above in the usability evaluation of an online personal banking application. *9 marks*
- c. Which **one** of these techniques do you think would be most suitable for such an evaluation? Justify your answer. *1 mark*

END OF EXAMINATION