

THIS PAPER IS NOT TO BE REMOVED FROM THE EXAMINATION HALLS

UNIVERSITY OF LONDON

291 0315 ZB

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.

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Question 1

Psychology

- a. Detail the characteristics of **both**:
 - (i) human short term memory *5 marks*
 - (ii) human long term memory *5 marks*
- b. Describe **two** different models of long-term memory. *10 marks*
- c. Define **each** of the terms below: *3 marks*
 - (i) chunking
 - (ii) closure
 - (iii) interference
- d. How have features of the above been used to improve the design of screen-based interfaces? *2 marks*

Question 2

Design & Modelling

- a. What is the difference between the term *user interface* and that of *human-computer interaction*? *4 marks*
- b. Why is it important to understand the user's mental model when designing interfaces? *6 marks*
- c. What are the advantages **and** disadvantages of interface metaphors? *3 marks*
- d. Give examples of existing and potential metaphors for:
 - (i) Internet browsing tools *4 marks*
 - and** (ii) e-shopping *4 marks*
 - and** (iii) an electronic catalogue *4 marks*

Question 3

Prototyping

- a. Why is prototyping so important in HCI design? *3 marks*
- b. Describe **each** of the following design tools and techniques:
 - (i) requirements analysis *3 marks*
 - (ii) design notations *3 marks*
 - (iii) cognitive task analysis *3 marks*
- c. What problems do designers face when using such techniques? *3 marks*
- d. A new type of animation and drawing application for younger school pupils is being specified. Create a pencil and paper prototype of this application showing two levels of the interface design. *10 marks*

Question 4

Design support

- a. What is meant by **each** of the terms below?
- (i) UIMS (User Interface Management System) *1 mark*
 - (ii) UI (User Interface) Toolkit *1 mark*
 - (iii) Horizontal prototype *1 mark*
 - (iv) Vertical prototype *1 mark*
- b. Describe the following, giving examples of **each**. Use diagrams and drawings to illustrate your answer.
- (i) Storyboards and design scenarios *4 marks*
 - (ii) Wizard of Oz *4 marks*
 - (iii) Rapid prototyping *4 marks*
- c. When, and in which situations, might **each** of the above techniques be used? Use examples to support your answers. *9 marks*

Question 5

Design support

- a. Describe, in full, the discount usability techniques of *Heuristic Evaluation* **and** *Cognitive Walkthrough*. *14 marks*
- b. Detail the advantages and disadvantages of **both** techniques. *6 marks*
- c. Identify the practical problems encountered in the use of *Cognitive Walkthrough*. How could you overcome such problems? *5 marks*

END OF EXAMINATION