UNIVERSITY OF EDINBURGH

FACULTY OF SCIENCE AND ENGINEERING

M.Sc./DIPLOMA IN ARTIFICIAL INTELLIGENCE
M.Sc./DIPLOMA IN COGNITIVE SCIENCE
M.Sc./DIPLOMA IN COMPUTER SCIENCE
M.Sc./DIPLOMA IN INFORMATICS

HUMAN-COMPUTER INTERACTION

Wednesday 17 April 2002

09:30 to 11:00

Examiners:
N. Chater (External)
N. Jennings (External)
E. Hancock (External)
K. Hawick (External)
R.N. Ibbett (Convener)
J. Oberlander (Co-Convener)

INSTRUCTIONS TO CANDIDATES

Answer any TWO questions.

All questions carry equal weight.

1. (a) In user modelling, there are two basic types of models: *performance* and *competence*. For each type:

    i. Define its meaning.

    ii. Name a corresponding user modelling technique and illustrate its use with a simple worked example. [*10 marks*]

   (b) Assess the value of the two user modelling techniques you identified above for evaluating whether a user interface satisfies the following usability design principles, justifying your answer in each case:

    i. *learnability*

    ii. *task conformance*

    iii. *consistency and compatibility*

    [*9 marks*]

   (c) Comment on the overall value of user modelling techniques for interface design, illustrating your answer with an example of a usability issue which you *would not* consider suitable for investigation using these techniques. [*6 marks*]

2. (a) Give two basic guidelines for each of the following interface design issues.

   i. Visual layout
   ii. Lexical input
   iii. Responsiveness

   [6 marks]

   (b) A system is to be built for arranging meetings among a subset of a known group of people working in a distributed computing environment. The user specifies the people involved, a range of dates and meeting duration. The system attempts to find one or more matches for these criteria by examining the online diaries of the participants and a room booking database. The system returns information about the matches it has found, i.e., date(s), start time(s) and room(s) available.

   Sketch an interface design for this system, labelling the distinct parts of the interface. Your answer should document the major steps in the interaction, showing how user input and system output are handled. It should also address what happens when the system cannot find a match for the criteria the user has specified and the system cannot complete the task due to information being unavailable. *[15 marks]*

   (c) Suggest and briefly justify two additional features that the system could incorporate to support the task of arranging meetings. *[4 marks]*

3. (a) It is widely observed that the predicted appearance of the so-called 'paperless office' has failed to happen. Discuss the reasons why this might be, with particular reference to collaborative work practices. Support your answer with evidence from two case studies discussed in lectures. [*14 marks*]

   (b) Define what is meant by the term *ethnography* and explain its relevance to understanding the kinds of issues raised by the non-appearance of the 'paperless office'. Briefly explain the nature of one practical problem with the use of ethnography for systems design. [*11 marks*]