

CS3480

THE UNIVERSITY OF WARWICK

BSc Summer Examinations: Summer 2016

Social Informatics

Time allowed: 2 hours.

Answer ANY four questions.

Read carefully the instructions on the answer book and make sure that the particulars required are entered on each answer book.

Calculators are not allowed.

1. (a) Briefly describe the main features of the *GOMS* model of human performance, focusing on its representation of a simple task at the keystroke level, such as the closure of a desktop window.

[9]

- (b) Specify *Hick's Law*, the time to decide between n equally probably alternatives and *Fitt's Law*, the time to acquire a target of size s that is a distance d away.

[4]

- (c) Use *Hicks'* and *Fitt's Laws* to derive an expression for the time for a user to select an item in a menu where b is the branching factor, the number of alternatives at each level, and n is the total number of options in the full menu. Assume the distance to move and target size are independent of b . What does your expression predict would be the optimal choice for b in order to minimise the overall selection time?

[8]

- (d) Explain why, in practice, your prediction may not be the optimal solution.

[4]

Continued

2. (a) Briefly describe the *cooperative evaluation methodology*, including any common variations, what data you would collect and how you would analyse it.

[8]

- (b) You have been asked to perform a usability evaluation of designs for a set of icons for a word processing package. Identify the two usability objectives you feel are most appropriate for this evaluation task, justifying your selection.

[4]

- (c) Using these two usability objectives, outline how you would experimentally compare the usability of two prototype sets of icon designs for the word processing package. You should describe:

- i. The experimental hypotheses and experimental design, including the metrics you would choose to represent each of the usability objectives you defined in part (b).

[5]

- ii. How you would collect, analyse and interpret the data. Your answer should include reference to independent and dependent variables, statistical analysis, confounding factors, ecological validity.

[8]

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3. (a) *Robustness* is an example of a general usability principle. Define it and describe two more specific usability principles relevant to *robustness*, giving a brief illustration of its application in user interface design.

[4]

- (b) Explain what is meant by the term *affordance* in user interface design and justify their use.

[6]

- (c) You have been asked to design the user interface for an air travel planning and ticket purchasing App on a tablet device. Sketch your design, clearly labeling the main components. Justify your design decisions by reference to:

- i. usability principles
ii. any assumptions about user requirements you feel are appropriate in this application.

[15]

4. (a) Briefly summarise two arguments for the use of *participatory design* in organisational IT projects. [6]
- (b) Briefly outline four challenges to the successful involvement of users in interactive IT systems design. [10]
- (c) Outline how as a designer you would tackle three of the problems you outlined in (b). [9]
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5. (a) i. Explain what you understand by the phrase the “*turn to the social*” in ICT systems design and development, giving at least one example of its relevance from case studies discussed in lectures. [6]
- ii. Briefly discuss its implications for ICT systems design practices. [6]
- (b) Describe in detail how you would plan observation of the work within a call centre, including preparations, methodology and data collection. [13]
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6. (a) Summarise the positions adopted by *technological determinism* and *social determinism* on the relationships between technological and social change and give one criticism of each. [10]
- (b) Outline the main findings from a case study discussed in lectures of a project to introduce a new technology within an organisation and discuss the applicability of *technological determinism* and *social determinism* as ways of explaining the project outcomes. [15]
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