

UNIVERSITY OF EDINBURGH
COLLEGE OF SCIENCE AND ENGINEERING
SCHOOL OF INFORMATICS

Computer Literacy 1

Resit Examination

Date: 25 August 2006
Time: 2:30 – 4:00 pm (one and a half hours)
Place: David Hume Tower, Faculty Room South

Board of Examiners
Chair: M.R. Jerrum
External Examiner: Robert Irving

Instructions to Candidates

Attempt **ALL** questions in part 'A' and **ONE** question from part 'B'.

Marks for questions are indicated in brackets after each question. Each question is worth 20 marks and the total for the exam is 100.

Candidates in the third or later year of study for the degrees of MA(General), BA(Relig Stud), BD, BCom, BSc(Social Science), BSc(Science) and BEng should put a cross (×) in the box on the front cover of the script book.

Part "A"

Answer ALL questions from this section

1. (a) i. What is the function of a *cookie*? [2 marks]
ii. How can cookies affect your privacy? [1 mark]
- (b) i. What is the difference between a program that is fault *free* and one that is fault *tolerant*? How are programs made fault tolerant? [2 marks]
ii. Give an example of where you might expect to find a fault tolerant program. [1 mark]
- (c) What are the following and what features would you expect to find in a mobile phone that could make use of them?
i. GPS [2 marks]
ii. GPRS ? [2 marks]
- (d) What are the functions of a *scheduler*? [2 marks]
- (e) Explain two of the ways in which animation can aid understanding. [4 marks]
- (f) What are the functions of:
i. HTML [1 mark]
ii. a URL [1 mark]
iii. XML [1 mark]
iv. HTTP ? [1 mark]
- 2 (a) What is *metadata* ? [2 marks]
- (b) Infra-Red, WiFi, Bluetooth and GPRS are all wireless communication technologies. Choose any two of these and compare and contrast them in terms of the technology and how it is used. [4 marks]
- (c) Explain how errors are detected and corrected when two computers communicate. [2 marks]
- (d) What is identity theft? Describe one possible mechanism and the likely consequences for the victim. [3 marks]
- (f) Compare and contrast the risks and protection offered through purchasing an item over the internet via a credit card versus a debit card, EFTPOS or electronic money system such as PayPal. [4 marks]
- (g) Describe how you would ensure that a web site you were creating attracted visitors, was easy to use, easy to maintain and was effective. [5 marks]

- 3** (a) Describe the nature and function of a *mainframe* computer. [2 marks]
- (b) Describe the notion of an embedded computer and give an example. What is the relevance of 'firmware' in this context? [3 marks]
- (c) Windows filing systems delete files by returning the blocks to a free list and removing the file name entry from the table of contents. What does *not* happen, and what is a consequence of this? [2 marks]
- (d) One function of a DBMS is to maintain data integrity. What problems would you expect when using a database that did not have this property? [2 marks]
- (e) What is the general notion of an effective procedure? [3 marks]
- (f) Recall the stone age model of computation: *viz.* a caveman with a pile of stones and a potentially unlimited supply of numbered boxes. The caveman can follow only two instructions: (i) add a stone to box number n , (ii) remove a stone from box number m , if it's not empty. In principle, is there anything that a modern supercomputer can compute that the caveman can't – why or why not? [4 marks]
- (g) What is hexadecimal notation, and why is it useful when talking about bytes? Be specific. [4 marks]
- 4** (a) Describe three different kinds of computer-mediated communication and some benefits and drawbacks of each. [3 marks]
- (b) Explain how the interaction of computer networking and database technology can lead to privacy problems. [3 marks]
- (c) What is the computational paradigm in AI? What is the mind/program analogy and why is it important? [4 marks]
- (d) Describe the Eliza program and the design strategy behind it. [3 marks]
- (e) What is meant by each of the following three properties of human language? Which is most likely to present problems for automatic translation systems and why?
- i. Displacement
 - ii. Openness
 - iii. Prevarication [4 marks]
- (f) Anonymity is a distinctive feature of internet communication. Describe two positive and one negative aspect of internet anonymity. [3 marks]

Part "B"

Answer ONE question only from this section

- B1.** Choose an example of a company that could not remain in business without modern communications and IT. Explain how Information Technology underpins the business and what economies might be possible as a result. [20 marks]
- B2.** Describe some normal and some undesirable forms of social or commercial relationships that occur between people over the Internet. In what ways do these relationships differ from the equivalent relationships in the 'real world'? [20 marks]
- B3.** John Searle's Chinese Room argument is designed to undermine the claim that the Turing Test provides an adequate criterion for machine intelligence. Write an essay discussing the Turing Test and Searle's objection. Do you think Searle is right – why or why not? [20 marks]
- B4.** We now live in an 'Information Age' and many aspects of human culture are undergoing radical change. As with most changes, there are both benefits and drawbacks. Write an essay discussing what you take to be the most important spheres of impact of information technology, and the primary positive and negative effects. What factors and considerations help reduce the negative aspects of change, and help us to make an informed choice about the way we live and the direction in which society is going? [20 marks]