UNIVERSITY OF EDINBURGH

COLLEGE OF SCIENCE AND ENGINEERING

SCHOOL OF INFORMATICS

Computer Literacy 1

Degree Examination

Date: 16 December 2004
Time: 2:30 – 4:00 (one and a half hours)
Place: McEwan Hall

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 in part 'A' is worth
ELEVEN marks and the total for the exam is 75.

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) List four key stages in the evolution of the modern computer system.

[2 marks]

(b) i) Describe two significant differences between the GIF and JPG image file formats. [1 mark]

ii) Images stored in TIFF tend to be bulky and do not display on Web browsers. Why then might you store images in TIFF ? [1 mark]

(c) List four features of a good application. [2 marks]

(d) Failure of computer hardware affects the machine till the part can be replaced. The replacement part may behave differently from the original and once replaced some work may be necessary to get the computer going again. From a list of:
a) little or no work required.
b) some reconfiguration.
c) major reconfiguration and probable re-installation of operating system.
d) re-installation of operating system and recovery of data from backup.

categorise the likely effects of
i) a mother board failure.
ii) a head crash.
iii) a RAM failure.
iv) a graphics card failure. [3 marks]

(e) What information needs to be supplied in an effective *fault report*? [2 marks]

2 **(a)** Why is Java a popular language for writing Web applications? [2 marks]

(b) The HTML statement specifying a web page background colour in hexadecimal is `<body bgcolor="#3f6f9f">` .

    i How many bits are represented by this number? [1 mark]
    ii What hexadecimal number represents the colour with one more unit of blue than this? [1 mark]

(c) What products and services are likely to arise out of research into Natural Language Processing? [3 marks]

(d) Approximately how long would it take to download a 1 Megabyte file from
    i) a typical modem connected to the phone network.
    ii) a typical office Ethernet.
Show your assumptions and working. [2 marks]

(e) What do you understand by the term "a peer to peer network" ? Give an example. [2 marks]

3 **(a)** **i.** Describe three ways in which two relations (tables) may be combined within a database. [3 marks]
    ii List four functions of a DBMS. [2 marks]

(b) Describe three key requirements for reliable communication between two computers over a single network. [6 marks]

4 **(a)** What are the advantages of a vector representation of a line drawing over the bitmap representation? [2 marks]

(b) When is animation appropriate (or not appropriate) in the execution of a web site or presentation? [2 marks]

(c) Describe four different ways in which intrusive code such as viruses or worms can adversely affect a computer system. [2 marks]

(d) Why is it important to understand HTML even when software packages such as Word and Frontpage can generate Web pages that exactly match the visual appearance of a document on the screen? [2 marks]

(e) Why do many large IT projects run late or over budget or have major problems when launched? [3 marks]

5 **(a)** Why might a customer prefer to use a payment scheme such as Paypal as opposed to using a credit card over the telephone? Why might he/she prefer not to? [2 marks]

(b) What roles do
a) Sound
b) Vision
c) Text
play in effective social conversation via desktop video / chat services?
[3 marks]

(c) What is the purpose of an internet browser cache and where will you find it?
[2 marks]

(d) Describe the functions each node in a *mesh* network can perform. [4 marks]

Part "B"

Answer ONE question only from this section

B1. Properly used, the Internet is an enormously powerful tool. It does have its dangers however. In what ways can exposure to Internet services be dangerous and what routine precautions should be taken to ensure trouble-free use?

[20 marks]

B2. Many communications technologies do not use fixed communications links. Describe how different non-wired technologies might feature in the process of delivering a parcel from collection to delivery and monitoring its status and associated business processes. [20 marks]

B3. What issues does the chief Web architect of a multinational corporation have to consider in designing and maintaining the corporation's web sites [20 marks]

B4. What are the principal Grid technologies? In what ways will they support the development of e-science and e-business? [20 marks]