

UNIVERSITY OF EDINBURGH
FACULTY OF SCIENCE AND ENGINEERING
DIVISION OF INFORMATICS
SCHOOL OF COMPUTER SCIENCE

Computer Literacy 1h

Degree Examination

Date: Friday 1st June 2001
Time: 14:00 – 15:30 (1 and a half hours)
Place: Adam House
Room: Ground floor hall

Board of Examiners

Chair: Stuart Anderson
External Examiner: Muffy Calder

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 and the total for the exam is 70.

Part "A"

1. (a) Identify two distinguishing characteristics you would use when comparing A4 document scanners. [2 marks]
 - (b) A 1.7GHz processor chip is nearly 15% faster than a 1.5GHz chip yet 1.7GHz PC systems perform barely any faster than 1.5 GHz systems. Explain why this might be so. [2 marks]
 - (d) Describe the result of anti-aliasing a character or graphical object and why the technique would be used. [2 marks]
 - (e) What is data mining? [2 marks]
 - (e) Approximately how many full CDs could be copied onto a 75Gb hard disk - 1, 10, 100 or 1000? [2 marks]
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2. (a) High quality content is one feature you would look for in a good web site. Describe two others. [4 marks]
 - (b) 'flaming' is an intemperate outburst over e-mail or on a bulletin board, often leading to a storm of similar mail in response. Why is e-mail more susceptible to this kind of phenomenon than other means of communication between people? [3 marks]
 - (c) Widespread availability of good application software reduces tedious data handling and makes it possible to tackle large problems. What are some of the pitfalls of computerising a previously manual operation? [3 marks]
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3. (a) A spreadsheet is one of the class of *decision support systems*. Describe some of the functions of a spreadsheet and how a spreadsheet assists decision making. [4 marks]
 - (b) Outline some of the steps employed in taking a mathematical model of a cube and turning it into a real-world view of a child's building block in a living-room. [4 marks]
 - (d) What class of application would you choose
 - (i) To determine the value of properties at risk of flooding in Scotland?
 - (ii) To optimise passenger routes for an airline? [2 marks]

4. (a) Briefly describe the role played by a modem and a packet-switching network when you use your computer to transfer a file from the USA. [4 marks]
- (b) How do synchronous and asynchronous transmission differ? [3 marks]
- (c) Explain how 'sharing' can be viewed as the key to worldwide computer communication. [3 marks]
5. (a) Briefly explain the following steps in relation to programming: design; code; test; maintain. [4 marks]
- (b) Briefly describe three other steps in the complete process of creating a computer-based solution to a large problem. [3 marks]
- (c) Choose one programming language. Explain which generation it belongs to and why it is considered important. [3 marks]

Part "B"

- B1.** Outline the major steps and influences in the evolution of modern Information Technology and offer a prediction of what will be the next major development(s). Justify your assertions. [20 marks]
- B2.** Information Technology pervades most of business and society. Describe some of the considerations that will be in the minds of those developing e-businesses or influencing the evolution of an information-rich society. [20 marks]
- B3** (a) The following terms are sometimes loosely used as if they were interchangeable: “an internet”, “The Internet”, “The World Wide Web”. Explain their correct use. [8 marks]
- (b) Briefly describe six important advances in communication over the last 200 years. [12 marks]
- B4** (a) Explain how Quicksort is a poor choice of sorting algorithm if the data is nearly sorted at the start. [3 marks]
- (b) Describe the operation of a firewall in a computer network. [3 marks]
- (c) Briefly discuss the issue of computer security in relation to hardware, software and data from the viewpoint of both a personal computer user and a large organisation. [14 marks]