



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education
Advanced Subsidiary Level and Advanced Level

COMPUTING

9691/11

Paper 1

October/November 2009

2 hours 30 minutes

Additional Materials: Answer Booklet/Paper

READ THESE INSTRUCTIONS FIRST

If you have been given an Answer Booklet, follow the instructions on the front cover of the Booklet.
Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
You may use a soft pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **all** questions.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [] at the end of each question or part question.

* 2 6 4 4 3 8 1 5 7 4 9 *

This document consists of 4 printed pages.



- 1 A garage sells and services cars. Word processing software is used for sending letters to customers of the garage.
- (a) State **three** other types of generic applications software which would be useful to help workers in the management of the garage. In each case say what it would be used for. [2]
- (b) Describe how the word processing software can be used to produce personalised letters to customers to inform them when a service is due on their car. [4]

- 2 A student decides to upgrade her computer system by buying a larger hard disk drive. She will use it to store large video files which she downloads from the internet.

For each of the following types of utility software, state their purpose and how the student would use them:

- (i) disk formatter, [2]
- (ii) hardware driver, [2]
- (iii) file compression, [2]
- (iv) virus checker. [2]
- 3 (a) State the meaning of the terms:
- (i) input device,
- (ii) storage device,
- (iii) output device. [3]
- (b) (i) Explain how the information held on a bar code can be read into a computer system. [3]
- (ii) A shop uses point of sale (POS) terminals. Bar codes are read from the item labels. The POS terminals produce a number of outputs in different formats.
- State **two** different output formats for the different information produced, explaining why each is necessary. [4]

- 4 (a) (i) Describe a command-line computer interface. [2]
- (ii) State an application for which a command-line interface would be suitable. Justify your choice. [2]
- (b) (i) Describe a form-based computer interface. [2]
- (ii) State an application for which a form-based interface would be suitable. Justify your choice. [2]

- 5 Data can be held in different ways in a computer system. This question is about different ways of access to data.

A company holds a file of workers' pay details. The company has a large number of workers. This file of pay details is used in the production of the weekly payroll for the workers.

(a) Explain why this file is accessed sequentially. [2]

(b) Workers can enquire about details in their record. They can go to the office and their enquiry will be dealt with immediately.

(i) Explain why sequential access to data is **not** suitable for this. [2]

(ii) State a more suitable type of access to the data, justifying your answer. [2]

(c) Details of when workers start and finish work are stored on a temporary file in the order in which they occur.

State the type of file access most suitable for the data in this file, justifying your answer. [2]

(d) (i) Identify a task from this application which will require batch processing, justifying your answer. [2]

(ii) Identify a task from this application which will require rapid response processing, justifying your answer. [2]

- 6 Describe the purpose of the following parts of a processor:

(i) control unit, [2]

(ii) memory unit, [2]

(iii) ALU. [2]

The remaining questions refer to the following information.

The offices of a government department deal with local taxes in a city.

- 7 It is decided to develop a new set of software for dealing with the calculation of tax bills. A systems analyst is employed to develop the software.

(a) Explain why care must be taken in defining the problem to be solved. [2]

(b) State **two** methods that the systems analyst can use to find out more information about the problem, giving an advantage of each. [4]

(c) Explain the importance of evaluating the system against the original specifications. [2]

- 8 (a) The machines in the tax office are networked.

State **two** differences between a local area network (LAN) and a wide area network.

- (b) The machines in the tax office are networked using a star topology.

(i) By drawing a diagram, or otherwise, describe a star topology. [3]

(ii) State **one** advantage and **one** disadvantage of using a star topology as opposed to a different type of topology. [2]

(c) (i) State why the process known as handshaking is necessary between a computer and the file server before use. [1]

(ii) Describe how buffers and interrupts are used during the transfer of data from the primary memory of the computer to the file server. [4]

- 9 (a) Workers are concerned about the amount of time that they spend using computers.

State **two** measures that can be taken with the hardware which will reduce the risk to the workers. Explain how each measure will improve the working environment. [4]

(b) Members of the public whose tax details are held on the computer system are concerned about the use of the information.

Explain why people may be concerned. [2]

- 10 Part of the processing of the data is to calculate the amount of tax which needs to be paid.

- The person's total income for the year is input to the system
- The first \$500 is not taxed
- The remainder is taxed at 10%
- Either the tax to be paid is output from the system OR a message is output to say there is no tax to pay

(a) Using I to stand for the total income and T to stand for the tax to be paid, produce an algorithm which will take I as its input and then calculate the tax. [5]

(b) Explain why I and T are unsuitable as variable names and say how they can be improved. [2]

(c) Describe how the algorithm can be used to calculate the tax for each person in the city without it having to be rerun. [3]