

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

COMPUTING

9691/01

Paper 1

October/November 2004

2 hours

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 in dark blue or black pen on both sides of the paper.
You may use a soft pencil for any diagrams, graphs, music 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.

This document consists of **4** printed pages.

- 1 (a) Define the terms
- (i) input device;
 - (ii) output device.
- (b) A supermarket has a number of point of sale (POS) terminals. State **two** input devices and **one** output device that would be found at each POS terminal, describing what they are used for. [6]
- 2 (a) A bank's computer system uses batch processing to produce customers' bank statements. Give **three** reasons why batch processing is suitable in this application, justifying each of your answers. [6]
- (b) In addition to using batch processing of the customer file, the bank employs staff to answer customer queries about their account over the telephone. State a suitable file organisation for the customer file. Justify your choice with reference to the two uses for the file in this application. [3]
- 3 Explain **three** methods that can be used by a programmer, when writing a program, to make the code more easily understood by another programmer. [6]
- 4 (a) State the meaning of the terms
- (i) serial file; [1]
 - (ii) sequential file. [1]
- (b) (i) Explain how records in a random access file can be accessed using a hashing algorithm. [3]
- (ii) Clashing is a problem that can arise when a new record is saved to the random access file. It arises when the hash key of the new record is the same as that of an existing record. Describe **two** methods for dealing with the problem of clashing. [4]
- 5 (a) State what is meant by a protocol. [2]
- (b) Describe **two** features of a protocol necessary for the successful transmission of data between two devices. [4]

- 6 A garage uses a diagnostic knowledge based system when servicing cars.
- (a) (i) Explain what is meant by a knowledge based system.
- (ii) Describe how the system could be used in the garage.
- (b) Explain how the introduction of the system might affect a mechanic who works at the garage. [2]

The following questions refer to this information.

A building firm has undergone rapid expansion in a short period of time. Computers are used to store customer records and details of stock.

- 7 A systems analyst is employed to design a new system that will cope with the needs of the expanding business.

State **three** ways that the analyst can find out information about the requirements of the system. Give an advantage and a disadvantage of each method. [9]

- 8 (a) The systems analyst must decide between a solution that uses custom-written software and one that uses off-the-shelf software.

Explain what is meant by these terms and give advantages of each in this application. [5]

- (b) It is decided to purchase an integrated applications package.

(i) State **four** distinct types of software that would be included in the package and give a use that each should be put to by the company. [8]

(ii) Explain why it is important to the company that the software packages are integrated. [2]

- 9 Customers are identified by a 6 digit code. The first three digits are between 000 and 100 for organisations and between 300 and 600 for individuals. It is important that the 6 digit customer code is correctly entered to the system.

Describe how

(i) verification

(ii) validation

can help to ensure that as few errors as possible occur. [6]

- 10 The data entry operators use a form based human computer interface (HCI). By describing the features of a form based HCI, explain why it is appropriate for this use. [4]

11 The data stored on the system is both backed up and archived at regular intervals.

(a) Explain the difference between backing up and archiving data.

(b) Give reasons why it is necessary for the company to archive the customer files and the stock files. [3]

(c) Describe a suitable back-up procedure for the stock file. [4]