



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

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COMPUTING

9691/12

Paper 1

May/June 2010

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.

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



* 1 1 0 1 4 6 5 1 6 0 *

- 1 (a) (i) State **two** differences between ROM and RAM. [1]
- (ii) State **one** piece of software which must be stored in a computer's ROM, justifying your answer. [4]
- (b) State **two** pieces of hardware, apart from the PCs, which would be needed in order to enable two computers to communicate. Justify your answers. [4]
- 2 Goods in a shop are labelled with barcodes. These barcodes are used when goods are sold at the checkout. The shop uses a computer system, attached to the checkout, to store a file of records relating to the goods on sale.
- (a) State appropriate peripheral hardware for this system, justifying your choices. [8]
- (b) Describe how the system can be used to maintain levels of stock in the shop. [6]
- 3 A computer system is used in a tourist souvenir shop.
- Customers can have their pictures taken. The picture is stored on the system. After the customer approves the image it is printed onto a T-shirt.
- Explain how this system works, by describing the hardware, software and data storage. [6]
- 4 (a) Define the term protocol. [2]
- (b) (i) Explain what is meant by the terms packet switching and circuit switching. [5]
- (ii) State **one** advantage and **one** disadvantage of using packet switching. [2]
- 5 (a) A medical centre has a computer system. State how each of the following types of software could be used at the medical centre.
- (i) Desktop publisher
- (ii) Presentation software
- (iii) Database software
- (iv) Communication software [4]
- (b) Identify an application area in the medical centre for which custom-written software is appropriate. Justify your answer. [2]
- (c) Describe how mail-merge can be used to contact all patients who have seen Dr Mun since 1 October in order to ask them to return to the centre for a new medicine. [5]

The remaining questions refer to the following information.

A mail order company employs telephone operators to take orders by phone and to answer queries from customers about their accounts. Customer details and their orders are stored in the CUSTOMER file. This file can be accessed by the warehouse staff in order to supply the goods which have been ordered.

- 6 (a) Explain why indexed sequential access to the data in the CUSTOMER file would be appropriate. [4]

- (b) Each customer has a unique 7 digit account number which is issued as the key field.

Describe, with the aid of a diagram, an indexing system which could be used to allow indexed sequential access to the CUSTOMER file. [4]

- 7 Backup files and archive files are taken from the CUSTOMER file.

Explain the difference between backing up a file and archiving a file, making reference to the requirements of this application. [5]

- 8 (a) When a customer telephones the company to place an order, the details are taken by the telephone operator and entered directly into the computer system.

- (i) Describe a suitable human-computer interface which the operator would use. [3]

- (ii) Information about customers which is stored on the CUSTOMER file is sensitive and needs to be protected.

State a sensitive piece of information which would be stored and describe steps which the company can take to protect such information. [5]

- (b) The company has a website where customers can find out about the products which it has on offer and also where orders can be made electronically.

- (i) Using this example, explain the difference between passive and interactive information systems. [4]

- (ii) The website has only recently been brought into operation.

Name and describe **three** different types of maintenance which will need to be carried out on it. [6]

- 9 **Candidates are advised to use either pseudocode or a flow chart to answer this question, although other forms of algorithmic representation will be credited.**

Individual statements are produced each month for customers.

- (a) A procedure is to be written which inputs data from a customer record, totals the amount outstanding on orders which have been dispatched but not yet paid for, and outputs details of these orders.

Produce an algorithm which will carry out the above task. The procedure is to be called INVOICE. [4]

- (b) The amount that the customer pays depends on the type of customer.

Each customer receives a gold, silver or bronze discount. This discount is recorded in the customer record.

A gold customer receives a 20% discount.

A silver customer receives a 10% discount.

A bronze customer receives a 5% discount.

The discounted amount should be output after the total calculated in INVOICE, with a suitable explanation.

Produce the final algorithm that will print out the customer statements. (You should use INVOICE in this final algorithm without reproducing the details from **part (a)**.) [7]