

CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Advanced Subsidiary Level

COMPUTING
PAPER 1

9691/1

MAY/JUNE SESSION 2002

2 hours

Additional materials:
Answer paper

TIME 2 hours

INSTRUCTIONS TO CANDIDATES

Write your name, Centre number and candidate number in the spaces provided on the answer paper.

Answer **all** questions.

Write your answers on the separate answer paper provided.

If you use more than one sheet of paper, fasten the sheets together.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets [] at the end of each question or part question.

You are reminded of the need for good English and clear presentation in your answers.

This question paper consists of 3 printed pages and 1 blank page.



Answer **all** questions.

- 1 (a) Using diagrams, or otherwise, describe the following network topologies.
- (i) bus network [1]
 - (ii) ring network [1]
 - (iii) star network [1]
- (b) State an advantage of each of the networks in (a). [3]
- 2 Describe how an EPOS (electronic point of sale) system operates in a large store with many EPOS terminals.
- Your answer should include reference to
- the input of any necessary data,
 - the output to the customer,
 - the stock control and ordering.
- [8]
- 3 An algorithm has been produced which inputs two numerical values and outputs the larger one. Select **three** pairs of numbers that could be used as test data. Explain what each pair of numbers is intended to test. [6]
- 4 (a) Describe **one** difference between read-only memory (ROM) and random access memory (RAM) in the memory of a computer. [2]
- (b) State **one** use for each of ROM and RAM in the primary memory of a computer. Make clear why the type of memory is appropriate for that use. [4]
- 5 An information system is to be installed in a bus station. There will be a number of terminals for use by passengers who will be able to make enquiries about times of buses and the stops that they will make on the journey. The terminals will be in the open air. The terminals will be networked with a server in the main office.
- (a) State a peripheral hardware configuration for this system, giving reasons for your answers. [8]
- (b) It is decided to use a menu-based software interface.
- (i) Explain what is meant by a *menu-based software interface*. [2]
 - (ii) State **two** reasons why this is a sensible choice of interface. [2]
- 6 A file of different types of musical instruments sold in a music shop is to be stored on a computer system. The file is to be stored as a linked list in alphabetical order of the name of the instrument.
- (a) Using a diagram, show how such a list would store the instruments
lute, fiddle, guitar, zither. [4]
- (b) Describe an algorithm to find the details of a lute. [4]

- 7 State **four** factors that should be considered as part of a feasibility study, explaining the importance of each. [8]
- 8 Communications across a network can be done by using circuit switching or packet switching.
- (a) Explain the difference between circuit switching and packet switching. [2]
- (b) Give **one** advantage of using
- (i) circuit switching
- (ii) packet switching
- when sending data across a network. [2]

The remaining questions refer to the following information.

A telephone company stores details of its customer accounts on a computer file. The file is used to allow the company to calculate and send out bills to its customers at regular times of the year. The file is also used to allow an immediate response to a customer who calls in to make an enquiry about their account.

- 9 Explain why indexed sequential access to the data would be sensible in this example. [4]
- 10 Customer records are stored using an 8 digit customer number as key.
Describe an indexing system which could be used to produce such indexed sequential access to the file. [3]
- 11 Backups and archives are taken from the customer file.
By describing systems that could be implemented by the company for taking backup files and archive files, explain the differences between them. [4]
- 12 When a customer makes a payment, the file is amended by entering the account number and the amount that has been paid in.
- (a) Describe **two** validation tests that can be carried out on the amount of money paid in. [4]
- (b) State what is meant by a *check digit*, and explain how it could be used to validate the account number. [4]
- 13 The operators who enter the data into the files sit at keyboards to do their work.
Discuss
- (i) the potential health hazards of this type of work,
- (ii) the ways that management can help to overcome the effects of the health hazards. [7]
- 14 A Management Information System (MIS) is used by the company. With reference to possible reports produced from the data in the customer accounts file, distinguish between the two types of report which the MIS will produce. [6]

