

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
Cambridge International Diploma in Computing  
Advanced Level

**DIPLOMA IN COMPUTING**

**5216**

Module 1

May/June 2005

**2 hours**

Additional Materials: Answer Booklet/Paper

**READ THESE INSTRUCTIONS FIRST**

Write your Centre number, candidate number and name on all the work you hand in.  
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.

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UNIVERSITY of CAMBRIDGE  
International Examinations

**[Turn over**

- 1 (a) State what is meant by
- (i) generic applications software,
  - (ii) operating system software. [2]
- (b) Describe **three** features which an operating system would be expected to provide in a single user computer system. [6]
- 2 (a) State **two** differences between random access memory (RAM) and read only memory (ROM). [2]
- (b) Describe what is stored on
- (i) RAM,
  - (ii) ROM
- explaining why that type of memory is appropriate. [4]
- 3 (a) With the aid of a diagram show how the names  
SIHA      DIPO      GHIA      AMOR  
can be stored in a linked list in alphabetic order. [4]
- (b) The linked list increases in size because of new entries being made. Explain, in whatever form you find appropriate, how the linked list can be searched for the name THEO. [4]
- 4 (a) Explain the meaning of the terms
- (i) input device,
  - (ii) output device. [2]
- (b) Cashcard machines (ATMs) provide keyboards to allow users to input data. Computers are often supplied with QWERTY keyboards to allow users to input data. Discuss the differences between these different types of keyboard, explaining why the differences are necessary. [6]
- (c) The ATM computer system uses both batch processing and rapid response (real time) processing. Give examples of ATM processing which require each of these modes of use, justifying your choices. [4]

- 5 (a) State the meaning of the terms
- (i) object code,
  - (ii) source code. [2]
- (b) Explain how the translator program prepares the programmer's code into a program that the machine can run. [2]
- (c) (i) Explain what is meant by a procedure. [2]
- (ii) Describe how procedures and the programming construct "selection" can be used to code a simple menu system for a user. [3]
- 6 (a) Draw simple sketches to illustrate
- (i) bus,
  - (ii) star
- network topologies. [2]
- (b) A school computer room is to be equipped with a network of machines. Give **three** advantages and **one** disadvantage of installing a network compared to stand alone machines. [4]
- 7 Describe the stages of the process of transferring data from memory to backing store. Your answer should include references to buffers and interrupts. [6]

**The following questions refer to this information.**

A company makes and sells office furniture. Records of sales and customers are stored on a computer system.

- 8 The company has a word processing software package which is used in the office. The production line is controlled by a process control package.
- (a) State what is meant by
- (i) custom-written software,
  - (ii) off-the-shelf software. [2]
- (b) (i) Give **three** advantages and **one** disadvantage of using off-the-shelf software for the word processing. [4]
- (ii) Explain why the process control software would be custom written. [2]

- 9 When the company completes a contract, the customer is asked to fill in a data capture form that asks about their satisfaction with aspects of the job.

The intention is that the data on the forms should be input using optical mark reading (OMR) techniques.

(a) State the hardware necessary and describe the input method used if the system is off-line. [4]

(b) Explain how the form and its contents are likely to be affected by the need to use OMR. [3]

- 10 The customer data contains some personal information.

(a) Explain why legislation exists to protect this kind of data. [2]

(b) Describe **three** measures that are likely to be included in this legislation. [6]

- 11 The company have employed a systems analyst to upgrade the record keeping in the office. The software has been produced and it is now ready to be installed.

State **three** methods of implementing the new system, giving an advantage of each. [6]

- 12 (a) State the meaning of

(i) serial,

(ii) parallel,

(iii) simplex,

(iv) half duplex

modes of data transmission. [4]

(b) One of the company's computers is connected to a printer. Explain why the data transmission is half-duplex. [2]