



ADVANCED SUBSIDIARY GCE
COMPUTING
 Computer Fundamentals

F451

Candidates answer on the question paper

OCR Supplied Materials:
None

Other Materials Required:
None

Monday 12 January 2009
Afternoon

Duration: 1 hour 30 minutes



Candidate Forename		Candidate Surname	
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Centre Number						Candidate Number				
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INSTRUCTIONS TO CANDIDATES

- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Answer **all** the questions.
- Do **not** write in the bar codes.
- Write your answer to each question in the space provided, however additional paper may be used if necessary.

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [] at the end of each question or part question.
- The total number of marks for this paper is **100**.
- This document consists of **12** pages. Any blank pages are indicated.

1 (a) (i) Define what is meant by a secondary storage device.

.....
..... [1]

(ii) A sixth form student has a stand-alone desktop PC at home and also uses the computers at school.
Name **three** different types of secondary storage device which she might have and give a use for each.

Device 1
Use
.....
Device 2
Use
.....
Device 3
Use
..... [6]

(b) Describe the use of interrupts and buffers when data is transferred from primary memory to a storage device.

.....
.....
.....
.....
.....
.....
.....
..... [4]

2 A system for keeping track of goods in a warehouse uses barcode readers to input data about goods going in and out of the warehouse.

(a) (i) Describe how a barcode can be used to store data.

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.....
.....
.....
.....
..... [3]

(ii) Describe how the data can be input to the system from the barcodes.

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.....
.....
.....
..... [3]

(b) Describe how the data collected is used to update the information stored about the stock in the warehouse.

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.....
.....
..... [4]

3 (a) Describe each of the following types of primary memory and state a type of software which would be stored in it. In each case give a reason why the type of memory is appropriate for your choice of software.

(i) ROM (Read Only Memory)
.....
Type of software
.....
Reason
..... [3]

(ii) RAM (Random Access Memory)
.....
Type of software
.....
Reason
..... [3]

(b) Two of the registers used in the functioning of the processor are the MAR (Memory Address Register) and the PC (Program Counter).

(i) Describe the contents of the MAR.
.....
.....
.....
..... [2]

(ii) Explain how the PC is used in the functioning of the processor.
.....
.....
.....
..... [2]

4 The operating system of a stand-alone personal computer can usually be described as a single-user, multi-tasking operating system.

(a) Describe what is meant by an operating system.

.....
.....
.....
..... [2]

(b) Describe a single-user operating system.

.....
.....
.....
.....
.....
.....
..... [3]

(c) Describe a multi-tasking operating system.

.....
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.....
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.....
.....
..... [3]

5 A dairy company collects milk from farms and processes it before supplying dairy products to shops. It is taking over another business which will increase its size significantly. The decision is made to employ a systems analyst to produce a new computer system to help run the business.

(a) (i) Explain why the problem must be defined accurately before the analyst starts work.

.....
.....
.....
.....
.....
..... [3]

(ii) State why it is important to the client and to the analyst to evaluate the finished system.

client [1]
.....

analyst [1]
.....

(iii) Identify **three** types of maintenance which will be necessary after the system is running, giving an example of why each is necessary.

Type 1
.....

Example
.....

Type 2
.....

Example
.....

Type 3
.....

Example
..... [6]

(b) Part of the system will involve a database containing information about the farms.

The data stored will include

- the name of the farmer
- the type of herd (a single letter between A–H, to describe the breed of cattle, followed by a 3 digit number to show the size of herd)
- the last payment (in pounds and pence) made to the farmer
- the total volume of milk collected for the last three collections.

(i) The first two items of data will be entered into the database by a keyboard operator. Name **two** different validation tests which would be carried out on the data entered and describe how they would be carried out.

Validation test 1
 [1]

Description
 [1]

Validation test 2
 [1]

Description
 [1]

(ii) The information about payments is imported to the database from another type of software. State the type of software which would be used to calculate the payments.

..... [1]

(iii) The final piece of data is the result of adding up the volumes from the last three collections. These values are stored as 12 bit binary numbers. Do the following addition of three days of collections. Show your working.

```

010010010010
001110000010
011000110001

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..... [3]

6 (a) State what is meant by a protocol.

.....
.....
.....
..... [2]

(b) Explain how communication links are established between devices.

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.....
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.....
..... [3]

(c) Protocols consist of both physical and logical parts.

(i) Describe the physical parts of a protocol.

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.....
.....
.....
.....
..... [3]

(ii) Describe the logical parts of a protocol.

.....
.....
.....
.....
.....
..... [3]

7 (a) A small business has a number of stand-alone computers in an office.

(i) State **two** items of software and **two** items of hardware which may be used to network them.

Software 1

.....

Software 2

.....

Hardware 1

.....

Hardware 2

..... [4]

(ii) State how the medium used for communication will alter if the computers are to be linked to the internet.

.....

.....

.....

..... [2]

(b) Some of the files used in the office are simple text files used by people who deal with customer orders. The reception area has a computer screen where customers can enquire about the company and watch videos which are streamed direct from a storage device on the network.

(i) Explain why text files and streamed video may use different bit rates.

.....

.....

.....

.....

.....

..... [3]

- (ii) Visitors use a menu based interface in the reception area. Describe a menu based interface.

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.....

..... [3]

- (iii) Explain why this interface is offered to visitors, rather than a GUI.

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..... [3]

Turn over for last question

8 (a) Explain what is meant by the character set of a computer.

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.....
.....
..... [2]

(b) By referring to two examples of applications that need character sets of different sizes, explain how codes are used to represent character sets.

(i) Example application 1
..... [1]

(ii) Example application 2
..... [1]

(iii) Explanation of use of codes
.....
.....
.....
.....
.....
.....
.....
.....
..... [4]



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