



**ADVANCED SUBSIDIARY GCE**  
**COMPUTING**  
 Computer Fundamentals

**F451**

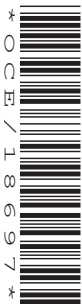
Candidates answer on the Question Paper

**OCR Supplied Materials:**  
None

**Other Materials Required:**  
None

**Thursday 14 January 2010**  
**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 **16** pages. Any blank pages are indicated.

1 (a) (i) Define the term hardware.

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

(ii) Some hardware items are called peripherals.

Explain what is meant by a peripheral.

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

(b) (i) Define the term software.

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

(ii) Explain the difference between system software and applications software.

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

(c) (i) State an application of a computer system which requires a real-time operating system, justifying your choice.

Application .....

.....

Justification .....

..... [2]

- (ii) Workers in a factory each have a swipe card which contains their identification number. This card is swiped through a reader when they arrive at work in the morning and again when they leave at night. The workers are paid on Friday each week.

Explain why a batch operating system is used to produce the payroll.

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..... [5]

2 (a) When data is transmitted between machines on a network, the data can be sent using either packet switching or circuit switching.

(i) Describe what is meant by packet switching.

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

(ii) Describe what is meant by circuit switching.

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

(iii) Give **one** advantage and **one** disadvantage of using packet switching rather than circuit switching.

Advantage .....

.....  
.....

Disadvantage .....

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



3 A firm of solicitors has been using a computer system which keeps records of its clients and other information necessary for the running of the business. It has been decided to replace the system with a more up-to-date one. A systems analyst has been appointed to supervise the replacement.

(a) The systems analyst will need to carry out a feasibility study.

Describe the function **and** purpose of a feasibility study.

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[5]

(b) The analyst produces user and technical documentation for the new system.

(i) State **three** items which would be contained in the user documentation.

1 .....

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2 .....

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3 .....

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[3]

(ii) Describe **two** kinds of diagram which may be in the technical documentation.

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

(c) The client file requires pictures to be stored to identify the clients.

Describe **two** methods of capturing the pictures for the system.

Method 1 .....

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.....  
.....

Method 2 .....

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

(d) Explain the need for legislation to govern the use of computers for storing personal data.

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

4 (a) Describe what each of the following parts of a computer does.

(i) Control unit

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

(ii) Memory unit

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

(iii) ALU

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



(b) When data is being transmitted around a computer, buses are used.

Name and describe the functions of **two** different types of bus.

Type 1 .....

.....

.....

.....

Type 2 .....

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.....

..... [4]

5 A library directs all members to an area where they can have their loans input into the computer system.

The membership number is read from the member's card.

(a) Describe **two** ways that the membership number can be input to the computer system.

1 .....

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.....

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2 .....

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..... [4]

(b) Describe **two** forms of output which could be produced by the system following the input of the membership number.

1 .....

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2 .....

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..... [4]

**(c)** Until recently the loans system had been a manual one.

Explain the changes to the staff's work expectations following the introduction of the computerised system.

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..... [5]

6 An author works from home using a computer system. She uses a number of pieces of utility software. State the purpose of each of these types of utility and describe how the author would use them in her work.

(i) Compression software

Purpose .....

.....

Use .....

.....

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..... [3]

(ii) File handlers

Purpose .....

.....

Use .....

.....

.....

..... [3]

(iii) Hardware drivers

Purpose .....

.....

Use .....

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..... [3]

(iv) Back up utility

Purpose .....

.....

Use .....

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..... [3]

7 (a) (i) Describe what is meant by the bit rate of data transmission.

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

(ii) State a type of data transmission which would require a high bit rate, giving reasons for your choice.

Data transmission .....  
.....  
Reasons .....  
.....  
..... [3]

(b) Explain why a handshake signal is necessary.

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

8 (i) Express the denary number 107 as an 8 bit binary number.

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

(ii) Express the denary number 107 as a hexadecimal number.

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

(iii) Use your previous answers to show the relationship between binary and hexadecimal notations.

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

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