

**Thursday 17 January 2013 – Morning**

**AS GCE COMPUTING**

**F451/01** Computer Fundamentals

Candidates answer on the Question Paper.

**OCR supplied materials:**

None

**Other materials required:**

None

**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, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Answer **all** the questions.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
- Do **not** write in the bar codes.

**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**, of which marks are allocated to the assessment of the quality of written communication where an answer requires a piece of extended writing.
- This document consists of **16** pages. Any blank pages are indicated.

1 (a) Define the term storage device.

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

A journalist works from home most days of the week. When stories are ready, she sends them electronically to the newspaper that she works for. Sometimes she needs to travel in to the newspaper offices in order to have meetings with the editor and to bring in stories which should not be sent via her email.

(b) State **two** different types of secondary storage that the journalist would use making it clear what she would use them for.

1 .....

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2 .....

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[4]

(c) The journalist used to go into the offices of the newspaper every day and work there.

State the advantages and the disadvantages to the journalist of being able to work from home.

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..... [5]

2 (a) A processor contains a number of registers.

Describe the contents of the following registers.

Program Counter (PC)

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Memory Address Register (MAR)

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Memory Data Register (MDR)

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[6]

(b) Signals are sent around the registers of the processor using buses.

Name and describe **three** different buses used in the processor and state what they carry.

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[6]

3 A systems analyst is employed by a company to improve the ways that it uses computers in its business.

(a) One way of collecting information would be to ask each of the workers to fill in a questionnaire about the current system.

State **two other** methods that the analyst could use to collect information, giving an advantage of each.

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2 .....

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[4]

(b) The information which is collected must be analysed.

Explain the analysis stage of the systems life cycle including any diagrams that the analyst will be expected to use during the analysis.

(The quality of written communication will be assessed in your answer to this question)

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**Question continues over page**

[8]

4 Computers use systems software and applications packages.

(a) Describe what is meant by applications packages.

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..... [2]

(b) One purpose of an operating system is to provide the user with a suitable human computer interface (HCI).

(i) Describe the characteristics of a command line interface and state an example of where it would be used.

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..... [3]



(ii) Describe **three** other purposes of an operating system.

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[6]

(c) (i) A stand-alone computer runs a single-user, multi-tasking operating system.  
Describe this type of operating system.

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[2]

(ii) Explain the main difference between a multi-user operating system and a network system.

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[2]

5 (a) Two methods of automatic data input to a computer are Optical Mark Recognition (OMR) and Optical Character Recognition (OCR).

(i) Describe OMR and state an example of its use justifying your choice.

Description .....

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Example .....

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Justification .....

..... [4]

(ii) Describe OCR and state an example of its use justifying your choice.

Description .....

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Example .....

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Justification .....

..... [4]

(b) A fast food takeaway has a menu that is restricted to a small number of options. Customers give their orders at a counter and pay for their food before receiving their order.

Name **two** input devices and **two** output devices that will be used in the takeaway. For each device justify the use.

Input 1 .....

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Input 2 .....

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Output 1 .....

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Output 2 .....

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[8]

(c) When data is input to a computer system it should be validated.

(i) Explain what is meant by data validation.

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..... [2]

(ii) A barcode is read by a barcode reader at a supermarket checkout.

Describe **two** methods of validation that can be carried out on the data collected.

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..... [4]

6 (a) Describe how circuit switching is used to transmit data from one computer to another on a network.

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(b) Explain **three** differences between circuit switching and packet switching when transmitting data on a network.

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[6]

7 (a) Describe what is meant by a protocol.

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..... [2]

(b) One part of a protocol is to establish what error checking routine should be used.

Describe **four** other parts of a protocol.

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4 .....  
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..... [8]

8 (a) Change the denary number 75 into:

(i) a binary number stored as an 8 bit byte

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..... [2]

(ii) binary coded decimal

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

(iii) octal

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

(iv) hexadecimal

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..... [2]

(b) Explain how the binary value of a number can be used to produce the octal value.

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..... [3]

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