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UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education
Advanced Subsidiary Level and Advanced Level

CANDIDATE NAME

CENTRE NUMBER | | | | | |

CANDIDATE NUMBER | | | | |

9656298849

COMPUTING **9691/12**

Paper 1 **October/November 2012**

1 hour 30 minutes

Candidates answer on the Question Paper.

No additional materials are required.

No calculators allowed.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
You may use a soft pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.
No marks will be awarded for using brand names for software packages or hardware.

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.

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For
iner's

1 **(a)** **(i)** Define what is meant by hardware.

.....

..... [1]

(ii) Define an input device and state why it is needed.

.....

.....

.....

.....

.....

..... [3]

A student is studying biology.

(b) The student's current project is to research the different types of creature found on a beach at different times of the year.

State how the following software can be used by the student to help them with the production of their project:

(i) word processor

.....

..... [1]

(ii) database

.....

..... [1]

(iii) desktop publisher (DTP)

.....

..... [1]

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(c) The student will also take a multiple choice examination paper as part assessment for the course. The exam papers will be input to a computer system u optical mark recognition (OMR) and then will be marked automatically.

Explain how the student's exam paper can be read using OMR and then marked automatically.

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[6]

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For iner's

2 An expert system contains an inference engine.

Name **three** other parts of an expert system and state what each is used for.

Part 1 .....

.....

.....

.....

Part 2 .....

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.....

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Part 3 .....

.....

.....

..... [6]

3 Two output formats are graphs and hard copy reports.

For each format state an application where it would be appropriate. Justify your choice in each case.

(i) Graphs

Application .....

.....

Justification .....

..... [2]

(ii) Hard copy reports

Application .....

.....

Justification .....

..... [2]

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For
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4 A student has a stand-alone computer at home.

Describe the following examples of utility software and state how they would be used by th student.

(i) Disk formatter

Description .....

.....

.....

..... [2]

Use .....

..... [1]

(ii) File compression

Description .....

.....

.....

..... [2]

Use .....

..... [1]

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5 A new piece of software has been produced to control a drilling machine on a pro line.

State **five** sections that will be in the technical documentation required for maintaining the software.

1 .....

.....

2 .....

.....

3 .....

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4 .....

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5 .....

..... [5]

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For
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6 **(a)** Describe the functions of the ALU in the processor during the execution of instru

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..... [3]

(b) State what is meant by:

(i) a buffer

.....

..... [1]

(ii) an interrupt

.....

..... [1]

(c) Describe how buffers and interrupts are used to control the transfer of data from primary memory to a printer on a stand-alone computer system.

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..... [4]

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For
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7 **(a)** Explain the difference between serial and sequential organisation of files.

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.....

..... [2]

(b) **(i)** The student file in a school administration system is implemented as a serial file.

If a new student begins at the school during the school year, state where their record will be added to the student file.

.....

..... [1]

(ii) The student file in a school administration system is implemented as a sequential file.

If a new student begins at the school during the school year, describe how their record can be added to the student file.

.....

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.....

.....

.....

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.....

..... [4]

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For
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8 A pocket sized game system is based around a microprocessor.

(a) (i) State an input device which would be suitable for use in this application. Justify your choice.

Device .....

Justification .....

.....

..... [2]

(ii) State an output device which would be suitable for use in this application. Justify your choice.

Device .....

Justification .....

.....

..... [2]

(b) Discuss the human computer interface (HCI), with reference to:

(i) the colours

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(ii) the way that the content is laid out

.....

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..... [5]

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9 **(a)** Describe what is meant by the following types of data transmission:

(i) serial, half duplex transmission

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.....

..... [2]

(ii) parallel, simplex transmission

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.....

..... [2]

(b) Define the term protocol.

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..... [2]

(c) When data is transmitted between devices it can be corrupted. One method to detect corruption is the use of echoing.

Explain how echoing can be used to detect the presence and correction of errors in a transmission.

.....

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.....

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..... [4]

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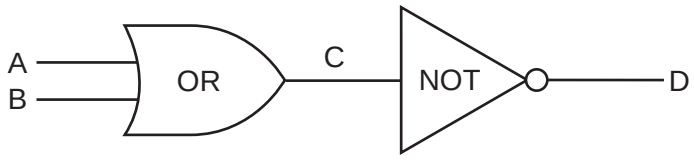
10 (a) (i) Complete the truth table for this logic circuit.



A	B	C	D
0	0		
0	1		
1	0		
1	1		

[1]

(ii) State a single logic gate which would have the same final outcome as this pair of logic gates.

..... [1]

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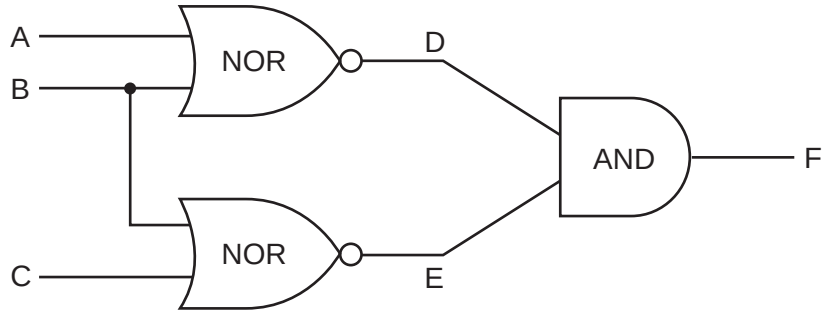
(b) Complete the truth table for this logic circuit.



A	B	C	D	E	F
0	0	0			
0	0	1			
0	1	0			
0	1	1			

[4]

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