

OXFORD CAMBRIDGE AND RSA EXAMINATIONS

Advanced Subsidiary GCE

COMPUTING



2506

Introductory Computer Systems, Communications
and Software

Thursday

8 JUNE 2006

Afternoon

1 hour 30 minutes

Candidate
Name

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Centre
Number

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Candidate
Number

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TIME 1 hour 30 minutes

INSTRUCTIONS TO CANDIDATES

- Write your name in the space above.
- Write your Centre number and candidate number in the boxes above.
- Answer **all** the questions.
- Read each question carefully and make sure you know what you have to do before starting your answer.
- If you run out of space for an answer, continue on the spare pages at the back of the booklet.
- If you use these spare pages, you must write the question number next to your answer. You can also use the spare pages for rough work.
- Do not write in the bar code. Do not write in the grey area between the pages.
- **DO NOT WRITE IN THE AREA OUTSIDE THE BOX BORDERING EACH PAGE. ANY WRITING IN THIS AREA WILL NOT BE MARKED.**

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 90 (86 + 4 for the quality of written communication).
- You will be awarded marks for the quality of written communication where an answer requires a piece of extended writing.
- No marks will be awarded for using brand names of software packages or hardware.

FOR EXAMINER'S USE		
Question no.	Max. mark	Mark
1	6	
2	9	
3	10	
4	6	
5	10	
6	11	
7	9	
8	10	
9	10	
10	5	
WC	4	
TOTAL	90	

This question paper consists of 11 printed pages, 3 lined pages and 2 blank pages.

Answer **all** questions.

1 (a) State what is meant by the following terms:

(i) hardware
.....[1]

(ii) software
.....[1]

(b) (i) State what is meant by the term *systems software*, and give an example of **one** function that systems software is designed to carry out.

Systems software
.....[1]

Function
.....[1]

(ii) Explain what is meant by an *integrated applications package*.
.....
.....
.....
.....[2]

2 Three different types of human computer interface (HCI) are used to access a school's computer system.

- Visitors can use a menu-based interface to find information about the school.
- The students use a GUI (Graphical User Interface)
- The technician uses a command line interface.

Describe these types of interface and explain why each is a suitable choice.

Menu-based for use by visitors
.....
.....
.....
.....
.....
.....[3]

GUI for use by students
.....
.....
.....
.....
.....
.....[3]

Command line for use by the technician
.....
.....
.....
.....
.....
.....[3]

3 An estate agency stores details of houses in a computer system.

(a) Define the following data types and state a piece of information about each house which would be stored using that data type.

(i) Character
.....[1]

Information
.....[1]

(ii) Integer
.....[1]

Information
.....[1]

(iii) Boolean
.....[1]

Information
.....[1]

(b) By referring to the information held by the estate agent, explain what is meant by a

(i) record
.....
.....
.....[2]

(ii) field
.....
.....
.....[2]

4 Describe **three** methods or tools that can be used to identify programming errors.

1
.....
.....
.....[2]

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

3
.....
.....
.....[2]

5 (a) (i) State **two** differences between random access memory (RAM) and read only memory (ROM).

1

.....

2

.....[2]

(ii) State **one** item that would be stored in RAM, giving a reason.

Item

.....

Reason

.....[2]

(iii) State **one** item that would be stored in ROM, giving a reason.

Item

.....

Reason

.....[2]

(b) Name **two** parts of the processor, other than the memory unit, giving a use for each.

1

.....

Use

.....[2]

2

.....

Use

.....[2]

6 (a) Define the following types of data transmission.

(i) serial
.....[1]

(ii) parallel
.....[1]

(iii) simplex
.....[1]

(iv) duplex
.....[1]

(b) Explain what is meant by the term *bit rate* and give an example of a data file that would need to be transmitted at a high bit rate.

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

(c) A computer is to be connected to a network.
State **two** items of hardware needed to connect it to a

(i) local area network (LAN)

1.
2.[2]

(ii) wide area network (WAN)

1.
2.[2]

- 7 MICR, OCR and OMR are all methods of data input.
For each method, give an example of an application where the method is used.
For each example, state how the data is input and give a reason why the method is suitable.

MICR

Application

.....

Means of input

.....

Reason

.....[3]

OCR

Application

.....

Means of input

.....

Reason

.....[3]

OMR

Application

.....

Means of input

.....

Reason

.....[3]

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

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

(b) Write down the decimal number 75 as:

(i) an 8 bit binary number

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

(ii) a number in binary coded decimal

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

(iii) a number in hexadecimal

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

(c) By referring to your answers in part (b), explain the relationship between a number in its binary form and in its hexadecimal form.

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

9 (a) State **three** different types of repetition (loop) construct. In each case state how its use differs from the other two.

Type 1
.....
.....
.....[2]

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

Type 3
.....
.....
.....[2]

```
(b) INPUT A,B  
    PRINT A,B  
      IF B = 0      THEN C = A  
                  ELSE C = A DIV B  
    ENDIF  
    PRINT C  
    END  
(Note: DIV means "divided by")
```

Write down the outputs produced by the algorithm if

(i) A = 8, B = 2
.....
.....[2]

(ii) A = 6, B = 0
.....
.....[2]

10 A protocol is a set of rules that allows communication between two pieces of hardware.

(a) One rule in a protocol will be the method of error detection.
State what is meant by *error detection*.

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

(b) Describe **two** other rules that would be part of a protocol.

Rule 1
.....
.....
.....[2]

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

If you use these lined pages to complete the answer to any question, the question number **must** be clearly shown.

A series of horizontal dotted lines for writing an answer.

A series of horizontal dotted lines for writing, spaced evenly down the page.

15
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