WJEC CBAC

GCSE

178/04

INFORMATION AND COMMUNICATION TECHNOLOGY

PAPER 2

Higher Tier

P.M. THURSDAY, 16 June 2011

$1\frac{1}{2}$ hours

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen. Do not use pencil or gel pen. Do not use correction fluid.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** questions.

Write your answers in the spaces provided in this booklet.

If you run out of space in the question-and-answer booklet you may use continuation sheets. Number the questions clearly and put your sheets in this question-and-answer booklet.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets at the end of each question or part-question.

Answer **all** *questions.*

1. Different types of storage devices are used with computers.

(a) Name **two** different types of *magnetic* storage device. [2]

(i) ....

(ii) ....

(b) Name **two** different types of *optical* storage device. [2]

(i) ....

(ii) ....

(c) Computer memory is measured in bytes.

(i) Write **one** label, A, B or C in each box to place the following in order of size. (smallest first) [1]

A MEGABYTE
B KILOBYTE
C GIGABYTE.

1	2	3

(ii) Place a **tick** (✓) in the correct box to show whether each of the following sentences are TRUE or FALSE. [4]

	TRUE	**FALSE**
ROM stands for Random Only Memory.	1	5
ROM is permanent memory.	2	6
RAM stores data temporarily.	3	7
Adding more RAM to a computer will increase its processing power.	4	8

(iii) Define the term *disk cache.* [1]

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2. Data is captured using many different methods.

(a) Name an application for each of the following methods of automatic data capture. [4]

(i) OMR ....

(ii) OCR ....

(iii) MICR ....

(iv) Bar Code ....

(b) *'Life support systems make use of sensors to monitor patients in hospitals.'*

(i) One reading which can be measured by sensors is the *breathing rate*. Describe **three** *other* types of readings which could be measured by sensors. [3]

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(ii) Give **three** advantages and **one** disadvantage of using life support systems to monitor patients. [4]

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3. *(a)* Two different types of computer network are a LAN and a WAN.

(i) Write down what LAN stands for. [1]

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(ii) Give an example of a use of a LAN. [1]

....

(iii) Write down what WAN stands for. [1]

....

(iv) Give an example of a use of a WAN. [1]

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(b) Give **three** advantages of networks over standalone computers. [3]

(i) ....

(ii) ....

(iii) ....

(c) In the space below, draw and label a diagram of a star network. Show the position of the **fileserver**, **workstations** and **printer** on your diagram. [4]

Examiner only

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4. The Data Protection Act (DPA) deals with personal data held on computer.

   (a) State **three** principles of the DPA. [3]

     (i) ....

     (ii) ....

     (iii) ....

   (b) State **two** types of organisation who are **not** required to register with the DPA. [2]

     (i) ....

     (ii) ....

   (c) Give **two** rights individuals have regarding data held about them on computer. [2]

     (i) ....

     (ii) ....

5. All computers have an user interface.

   (a) Explain why an user interface is essential. [1]

   ....

   (b) One type of user interface is a GUI (Graphical User Interface).

   List **four** features of a GUI. [4]

     (i) ....

     (ii) ....

     (iii) ....

     (iv) ....

   (c) Give **two** *other* types of user interface and state **one** *different* use or advantage for each. [4]

     (i) User Interface ....

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     (ii) User Interface ....

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6. Computer Assisted Learning (CAL) software is used to help pupils in schools.

(a) Name **three** features of CAL software. [3]

(i) ....

(ii) ....

(iii) ....

(b) Give **two** advantages of using CAL. [2]

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(c) Give **two** disadvantages of using CAL. [2]

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7. A school uses a computer system for school administration. Information about each pupil is held on a computer database. Part of the database is shown below.

Pupil id	Name	Form	Date of birth	Gender
1131	Smith D	8A	12/12/98	M
1133	Jones M	8B	02/03/99	F
1217	Khan S	A8	17/09/98	M
1284	Barrington K	8C	23/04/99	M

(a) Other than address and telephone numbers, give **three** *other* items of data you would expect to be kept on this database. [3]

(i) ....

(ii) ....

(iii) ....

(b)   Give a data type for the *'Pupil id'* field.   [1]

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(c)   Describe a suitable data validation technique for the *'Date of birth'* field.   [2]

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(d)   When entering the data into the database an error was made. Identify the error and give a data verification technique which could be used to detect this type of error.   [2]

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(e)   The school also uses its computer system for creating the timetable. Name **two** *other* administration tasks the school could carry out using the computer system.   [2]

    (i)   ....

    (ii)   ....

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Turn over.

8. Describe **each** of the following stages involved in system analysis.

(a) Analysis of the current system [2]

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(b) Design of the new system [2]

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(c) Changeover strategies [2]

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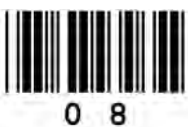
9. *(a)* List **three** of the main functions of an operating system. [3]

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(b) Different types of operating systems are used for various applications. Complete the table below by suggesting a suitable application for **each** of the operating systems. [3]

Operating System	Application
Batch processing	
Real Time (process control)	
Real Time (transaction processing)	

(c) Name the most appropriate type of operating system for **each** of the following.

(i) More than one program is held in RAM at the same time. [1]

....

(ii) One program is run at a time. [1]

....

(iii) The processor divides its time between programs, a time-slice is allocated to each process. [1]

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Turn over.

10. Describe how a computerised billing system operates. Include in your answer details of the *data*, how it is *captured, files, processing* and the *output produced*. [6]

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11. Computer Aided Design (CAD) software can help when designing a house. Give **four** features of CAD software which could be used by the designer. [4]

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12. *'Use of the Internet has led to an increase in criminal activities using computer networks.'*

Identify **four** criminal activities and in each case describe a different way to prevent the crime occurring. [10]

Credit will be given for detailed answers about each crime.

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Turn over.

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