

Candidate Name	Centre Number	Candidate Number

WELSH JOINT EDUCATION COMMITTEE
General Certificate of Secondary Education



CYD-BWYLLGOR ADDYSG CYMRU
Tystysgrif Gyffredinol Addysg Uwchradd

178/04

INFORMATION AND COMMUNICATION TECHNOLOGY

PAPER 2

(Higher Tier – Grades D to A*)

A.M. WEDNESDAY, 7 June 2006

(1½ Hours)

Examiner's Use Only	
Total Mark	

INSTRUCTIONS TO CANDIDATES

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. Where the space is not sufficient for your answer, continue the answer at the back of the book, taking care to number the continuation correctly.

INFORMATION FOR CANDIDATES

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

No certificate will be awarded to a candidate detected in any unfair practice during the examination.

1. An advertisement for a computer includes the following:

256 Mb RAM
400 Gb Hard Disc
CD/DVD Drive
1.44 Mb Floppy Disc

(a) Give **two** *magnetic* backing storage devices used by this computer. [2]

(i)

(ii)

(b) Name **one** *optical* device which this computer uses. [1]

.....

(c) Name the backing storage device in the above advertisement which has the *fastest* access to data. [1]

.....

(d) (i) RAM stands for R A M [1]

(ii) What is RAM used for? [2]

.....

.....

(iii) The RAM in this computer can be upgraded to 512 Mb.
Give **one** advantage of upgrading RAM to 512 Mb. [1]

.....

2. All computers have a *user interface*.

Name **three** different types of user interface. [3]

(i)

(ii)

(iii)

3. (a) Tick (✓) the correct column to show whether **each** of the following statements about an operating system is True or False. [3]

	<i>True</i>	<i>False</i>
An operating system is an example of hardware.		
An operating system is software that controls the computer.		
A computer will not work unless the operating system is present.		

- (b) For **each** of the following, state a suitable operating system:

(i) controlling a nuclear reactor; [1]

.....

(ii) booking cinema seats; [1]

.....

(iii) payroll. [1]

.....

4. A variety of physical and software methods are used to prevent loss of data from a computer system.

(a) Name **two** different physical methods of securing data. [2]

(i)

(ii)

(b) The use of passwords is one software method of securing data. Name **two other** methods. [2]

(i)

(ii)

5. The *Data Protection Act* (DPA) was introduced to protect personal data being stored on computers. It has eight principles.

(a) Write down **three** of these principles. [3]

(i)

(ii)

(iii)

(b) Give **two** exemptions from the DPA. [2]

(i)

(ii)

6. Describe **three** crimes that could be dealt with by the Computer Misuse Act. $3 \times [2]$

Crime 1:

.....

Crime 2:

.....

Crime 3:

.....

.....

7. A library has computerised its loans section.

(a) Other than systems using a keyboard or mouse, give **one** suitable data input method used in a computerised library system. [1]

.....

(b) Other than the *loans file*, name **two** files which form part of the loans system in the library. [2]

(i)

(ii)

(c) Suggest **three** items of data that need to be recorded in the loans file. [3]

(i)

(ii)

(iii)

(d) Describe the benefits of a computerised library system. [4]

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8. Computer systems are networked when they are linked together.

- (a) (i) One type of network is a LAN.
Write down what LAN stands for:

L A N [1]

- (ii) Give **one** example of a LAN. [1]

.....

- (b) (i) Another type of network is a WAN.
Write down what WAN stands for:

W A N [1]

- (ii) Give **one** example of a WAN. [1]

.....

- (c) A computer network can be arranged as a *bus network*.
In the space below, draw and label a diagram of a *bus network*. Show the position of the
fileserver, workstations and printer on your diagram. [4]

- (d) Other than a bus network, name **two** other types of computer network topology. [2]

(i) (ii)

(e) Give **three** ways data can be transmitted across a network. [3]

(i)

(ii)

(iii)

(f) Suggest **three** guidelines which should be given to network users in order to safeguard their passwords. [3]

(i)

(ii)

(iii)

9. Powerful mainframe computers are used for weather forecasting.

(a) Give **one** reason why powerful mainframes rather than personal computers are used for weather forecasting. [1]

.....
.....

(b) Name **two** different types of sensors used to collect data for weather forecasting. [2]

(i)

(ii)

(c) The data collected can be input into a computer model.
Discuss the advantages and disadvantages of using a computer model rather than using manual methods for weather forecasting. [3]

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10. A systems analyst has been employed to design a new computerised payroll system.

- (a) The four main stages of systems analysis are: analysis; design; implementation; maintenance.

Describe **two** activities you would expect to be carried out under **each** of these stages.

4 × [2]

Analysis

(i)

(ii)

Design

(i)

(ii)

Implementation

(i)

(ii)

Maintenance

(i)

(ii)

- (b) The new system includes a *master file* and a *transaction file*. Define these terms and explain the role of **each** in a payroll system. 2 × [2]

Master file

.....

.....

Transaction file

.....

.....

- (c) Which item of data would appear in both the *transaction file* and the *master file*. [1]

.....

- (d) Other than *name*, *address* and the *keyfield*, list **three** fields which could be included in an employee's **payroll** record. [3]

(i)

(ii)

(iii)

11. A school uses a computerised student database.

Part of a student record file is shown below.

Pupil Id	Name	Date of Birth	Gender	Maths %	Welsh %
1134	Williams P	12/02/91	M	44	60
7679	Jones H	22/12/90	F	63	55
5532	Smith A	09/05/91	M	26	79
7823	Begum B	02/04/91	F	75	64
1298	Thomas A	25/09/90	M	88	73

(a) (i) State the number of records shown above. [1]

.....

(ii) State the number of fields shown above. [1]

.....

(b) Define the term *file*. [1]

.....

(c) *Validation* and *verification* are carried out on the data in the file.

(i) Explain the term *validation*. [1]

.....

.....

(ii) Suggest a suitable method of data *validation* for the *Maths %* field. [1]

.....

(iii) Explain the term *verification*. [1]

.....

.....

(d) A variety of data types are found in the above file.

(i) Give the data type for *Pupil Id*: [1]

(ii) Give the data type for *Gender*: [1]

(e) Describe the benefits to the office staff and teachers of keeping student data on a computerised database. [4]

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