Candidate Name	Centre Number	Candidate Number

WELSH JOINT EDUCATION COMMITTEE
General Certificate of Education
Advanced Subsidiary/Advanced

WJEC CBAC

CYD-BWYLLGOR ADDYSG CYMRU
Tystysgrif Addysg Gyffredinol
Uwch Gyfrannol/Uwch

342/01

COMPUTING CP2

THE COMPUTER, DATA AND APPLICATIONS

P.M. MONDAY, 15 January 2007

(1½ hours)

For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1	5	
2	4	
3	4	
4	4	
5	3	
6	7	
7	6	
8	2	
9	3	
10	6	
11	7	
12	9	
Total	**60**	

INSTRUCTIONS TO CANDIDATES

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

Answer **all** questions.

Answers should be written in the spaces provided. 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.

The intended marks for questions or part questions are given in brackets [ ]. You are advised to divide your time accordingly. The total number of marks available is 60.

You are reminded of the necessity for good written communication and orderly presentation in your answers.

1. A secretary uses a word processing package to produce letters.

   (i) Describe how the secretary could use **each** of the features named below:

   (I) thesaurus; [1]

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   .....

   (II) print preview. [1]

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   (ii) The secretary sends confidential letters to clients using email.

   (I) Describe **one** advantage of sending the letters using email compared to conventional post. [1]

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   (II) Describe **two** possible concerns that the clients may have about receiving this type of communication by email. [2]

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5

2. Two secondary storage devices are a floppy disc drive and a hard disc drive.
Name **two** other secondary storage devices, giving a suitable use for **each** device. [4]

First device .....

Suitable use .....

.....

.....

Second device .....

Suitable use .....

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4

3. DAP Motors is a small garage that repairs and services cars. Details of customers and their cars are stored in paper files at reception. Cars need to be serviced at regular intervals.

The number of customers is growing and the garage owner believes that the current paper based system may be losing business.

Describe **two** possible problems with the current paper based system that may lead to the garage losing business and describe how a computerised database system could solve **these** problems. [4]

Problem 1 .....

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Solution .....

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Problem 2 .....

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Solution .....

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4

4. *(a)* Explain the difference between data *validation* and *verification*. [2]

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(b) National Insurance numbers have the following structure:

LetterLetter DigitDigit DigitDigit DigitDigit Letter

An example of a valid National Insurance number is RZ 25 27 29 Y

A company uses a validation check when the National Insurance number is input into a computer system.

Describe a suitable validation check that could be carried out on the National Insurance number, and give an example of **invalid** data that would be detected by this validation check. [2]

Description of the validation check .....

.....

.....

Example of invalid data .....

4

5. *(a)* Briefly explain the **purpose** of *handshaking* when used in connection with a computer and a printer. [1]

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(b) Describe the communication that would take place between a computer and a printer before any data to be printed is sent to the printer. [2]

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3

6. *(a)* Explain how a record is added to:

(i) a serial file; [1]

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(ii) a sequential file. [2]

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(b) Records within a file can be *fixed* or *variable* length. Give **one** advantage of a *fixed* length record and **one** advantage of a *variable* length record. [2]

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(c) A factory with approximately two thousand employees has a payroll file which contains *fixed* length records stored in *sequential* order. At the end of every month, the file is used to calculate that month's pay for each employee and produce the pay slips.

(i) Briefly explain why *sequential* order is the most appropriate in this situation. [1]

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(ii) Briefly explain why *fixed* length records are the most appropriate in this situation. [1]

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7. Operating systems can use different modes of operation including:

- *real time transaction processing*
- *real time processing*
- *batch processing*.

(a) Name an application where *real time transaction processing* is used, and give **one** reason why this mode of operation is used for this application. [2]

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(b) Name an application where *real time processing* is used, and give **one** reason why this mode of operation is used for this application. [2]

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(c) Name an application where *batch processing* is used, and give **one** reason why this mode of operation is used for this application. [2]

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6

8. *(a)* A computer can have a 64-bit *word* length. What is meant by the term *word* in this context? [1]

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(b) Computer game consoles can use different word sizes. Explain the advantage of having a computer game console with a 128-bit word size rather than 64-bit. [1]

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2

9. A personal computer can use RAM cache and disc cache memory for storing data.

(i) Why is cache memory used? [1]

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(ii) Describe data that could be stored in:

(I) RAM cache; [1]

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(II) Disc cache. [1]

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3

10. Bank customers can access their bank accounts on-line using the Internet. They are able to view statements, set up regular payments and transfer money. These accounts could be subject to *malicious* or *accidental damage*.

(i) Describe what is meant by the term *malicious damage* and give an example of *malicious damage* that a customer could suffer with an on-line bank account. [2]

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Explain how the bank could prevent *malicious damage*. [1]

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(ii) Describe what is meant by the term *accidental damage* and give an example of *accidental damage* that a customer could suffer with an on-line bank account. [2]

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Explain how the bank could prevent *accidental damage*. [1]

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6

11. Cameras used by the police can photograph a vehicle's number plate. The number plate data is transmitted to a central database where it is used to identify the owner of the vehicle.

(i) The number plate data is transmitted using a wide area network (WAN). Why is a local area network (LAN) **not** suitable for the transmission of this data? [1]

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(ii) If the output from a camera is analogue, what process must be carried out on the data before it can be used as input into a computer? [1]

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(iii) Describe **two** ways the police could use this system to help them in detecting crime. [2]

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(iv) The Data Protection Act will apply to the data stored on the database. Describe **three** principles of the Data Protection Act. [3]

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7

12. In the following question, additional credit (up to 3 marks) will be given if your answer demonstrates skill in written communication.

Engineers working for a mining exploration company have to travel to remote areas of the world searching for oil, gas and other minerals. They collect geological and environmental data, take photographs and write reports. The engineers have lap top computers with fast Internet access and only visit an office when necessary.

Describe how the engineers could make use of *email* and the *Internet*.

Describe any **benefits** for the company of the engineers carrying out most of their work away from an office and give **one** reason why the engineers may occasionally have to visit an office. [6+3]

L3

C6

T9

For continuation only (of any question). Please write question number clearly.