Candidate Name _____

Centre Number [   ]

International General Certificate of Secondary Education
CAMBRIDGE INTERNATIONAL EXAMINATIONS
COMPUTER STUDIES   **0420/1, 0421/1**
PAPER 1

OCTOBER/NOVEMBER SESSION 2002

2 hours 30 minutes

Candidates answer on the question paper.
No additional materials are required.

TIME   2 hours 30 minutes

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 on the question paper.

INFORMATION FOR CANDIDATES

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

FOR EXAMINER'S USE

This question paper consists of 15 printed pages and 1 blank page.
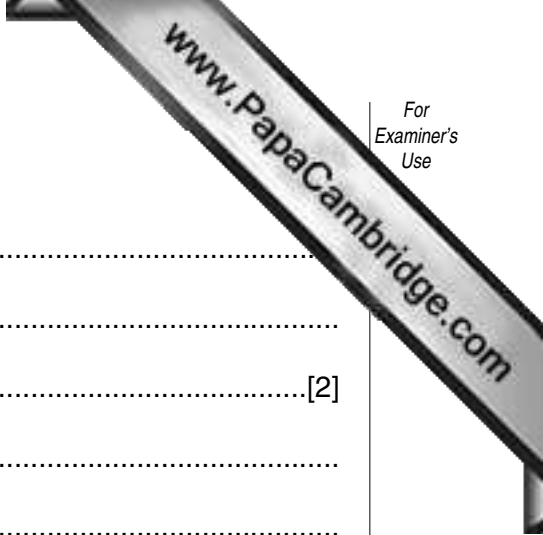
1   Explain, using examples, the meaning of these computer terms.

(a) data logging ....

....

....[2]

(b) check digit ....

....

....[2]

(c) serial access ....

....

....[2]

(d) assembler ....

....

....[2]

(e) handshaking ....

....

....[2]

2   State **three** ways that Data Protection Rules protect personal data.

1.   ....

....

....

2.   ....

....

....

3.   ....

....

....[3]
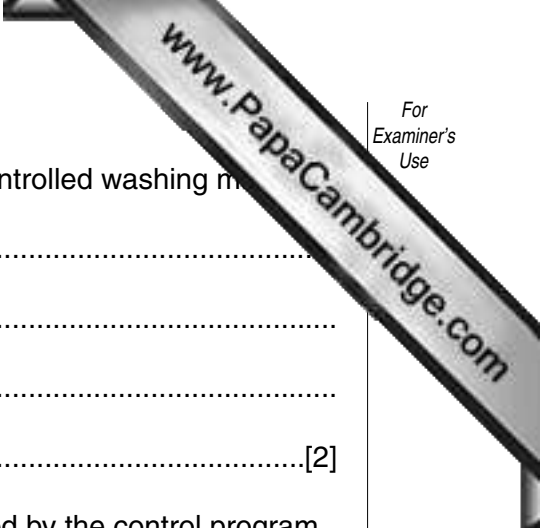
3 **(a)** State **two** sensors that could be used in a microprocessor-controlled washing m...

1. ....

....

2. ....

....[2]

(b) Describe how the data collected by the sensors would be used by the control program.

....

....

....

....

....[2]

4 **(a)** State **two** ways of preventing hackers from committing computer crimes.

1. ....

....

....

2. ....

....

....[2]

(b) Describe how fingerprinting systems can be used to help catch criminals.

....

....

....

....[2]

For Examiner's Use

5 **(a)** State **two** tasks done by robots on the production line in a car factory.

1. ....

....

2. ....

....[2]

(b) Describe how a robot is able to move around the factory without bumping into anything.

....

....

....

....[2]

(c) State **two** effects on factory workers of robots being used in the manufacturing of cars.

1. ....

....

2. ....

....[2]

6 **(a)** Explain why buffers are needed.

....

....

....

....[2]

(b) Give a reason for increasing the size of a buffer.

....

....

....

....[1]

(c) Explain the purpose of interrupts in the transmission of data to a printer.

....

....

....

[2]

7 Images can be captured with a digital camera. Describe **three** ways that digital ima[...]
be used with graphics software.

1. ....

....

....

2. ....

....

....

3. ....

....

....[3]

8 The diagram shows part of a directory structure displayed by a windows-based operating
system.
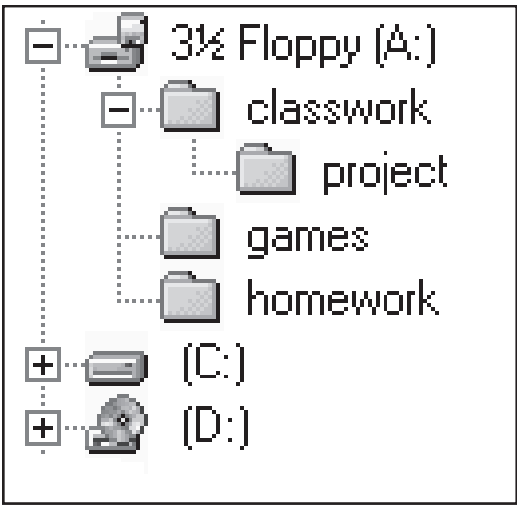
(a) Name

(i) a root directory ....

(ii) a sub-directory ....[2]

(b) Describe what happens to a floppy disk when it is formatted.

....

....

....

....[2]

(c) State **three** tasks, other than formatting, that an operating system will do for a us

1. ....

....

....

2. ....

....

....

3. ....

....

....[3]

9 A hotel has decided to invest in a new computer system.

(a) State **three** tasks in the design of this new system.

1. ....

....

....

2. ....

....

....

3. ....

....

....[3]

(b) State **two** stages in the implementation of the new system.

1. ....

....

....

2. ....

....

[2]

(c) State **two** items of user documentation that should be provided.

1. ....

....

....

2. ....

....

....[2]

10 A database contains data about items that have been ordered from suppliers.

SUPPLIER	CODE	DELIVERY DATE	PRICE ($)
A012	2146	28/09/02	44.99
C035	3724	30/09/02	249.50
M018	5613	05/10/02	98.15
L047	5613	11/10/02	102.75
P029	7215	17/10/02	127.50
R016	4639	19/10/02	22.89

(a) State a field that only contains numeric data.

....[1]

(b) Describe **two** validation checks that could be made on the DELIVERY DATE.

1. ....

....

2. ....

....[2]

(c) The following search condition is input.

(**CODE** = 5613) AND (**PRICE($)**<100).

Write down the output using only the SUPPLIER field.

....[1]

(d) Write down a search condition that will search for all items with a price more than $50 that will be delivered in October.

....[3]

11 A college offers courses which students access on-line. Students logon on to the from their own homes.

(a) In order to enroll on a course a student needs to complete an on-line application form which includes the student's name, address, telephone number, e-mail address and the course name. Design a screen input form for this enrolment.

[4]

(b) When the on-line students are studying a topic, they answer questions by typing their answers into a box. For example:

Question:	What is a CD-ROM?
Answer:	
Feedback:	

When a student has finished answering the questions, the answers are transmit... tutor. The tutor gives feedback to the student about the answers. Give **two** bene... the student of this type of learning.

1. ....

....

....

2. ....

....

....[2]

(c) At the end of the course, students do tests by selecting answers to multiple choice questions. For example.

How many bytes in a kilobyte?

○ 8

○ 100

● 1024

○ 1000000

In previous years, students came to the college and answered the questions on paper. Now they stay at home and answer on-line. Give **two** advantages to the college of the new system.

1. ....

....

....

2. ....

....

....[2]

12 The pie chart shows details of office expenses for three months.

OFFICE EXPENDITURE (JULY)

STATIONERY
20%

RENT
30%

TELEPHONE
40%
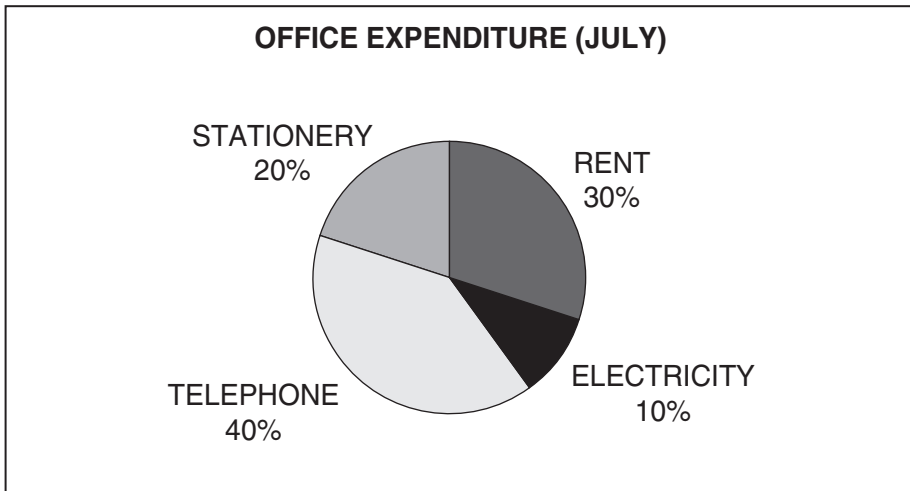
ELECTRICITY
10%

(a) On the spreadsheet below, shade the cells that must be used to create the pie chart.

	A	B	C	D	E	F
1		JULY	AUGUST	SEPTEMBER	TOTAL ($)	AVERAGE ($)
2	RENT	72	72	106	250	
3	ELECTRICITY	24	0	66	90	30
4	TELEPHONE	96	90	114	300	100
5	STATIONERY	48	38	64	150	50
6	TOTAL	240	200	350	790	

[2]

(b) Write down a formula that could be put in cell **F2** to calculate the average expenditure on rent from July to September.

....[2]

(c) The zero in cell **C3** was entered in error. State the cells in which the values should change automatically when the correct amount is input.

....[2]

13 Read this algorithm.

```
set Total_1 to zero
set Total_2 to zero
set Counter to one
while Counter < eight
    Counter = Counter + 1
    input Number
    if Number > zero then Total_1 = Total_1 + Number
    if Number < zero then Total_2 = Total_2 + Number
endwhile
output Total_1
output Total_2
```

(a) Write down the output if the following set of numbers are input.

       4,   1,   -3,   2,   -5,   0,   6

....[2]

(b) Modify the algorithm so that it will accept any number of numbers, the input is terminated by a rogue value and the output is the **Total** of all the numbers input except the rogue value.

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....[4]

14 A tourist information centre has its own web site.

(a) Explain the purpose of the modem and the Internet Service Provider (ISP) that the centre uses.

Modem

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....

Internet Service Provider (ISP).

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....[3]

(b) Describe **two** ways that information about visitors to the web site and their requirements could be collected by the web pages.

1. ....

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2. ....

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....[2]

15 Describe how an expert system would identify types of plants.

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....

....[4]

For
Examiner's
Use

16 (a) State **two** causes of systems failure.

1. ....

....

2. ....

....[2]

(b) State **two** ways the data can be protected against systems failure.

1. ....

....

2. ....

....[2]

17 A computer is used to control the traffic at a busy road junction.

(a) State an input device that should be used.

....[1]

(b) State an output device that could be used.

....[1]

(c) Describe the processing done by the computer to control the output device.

....

....

....

....[1]
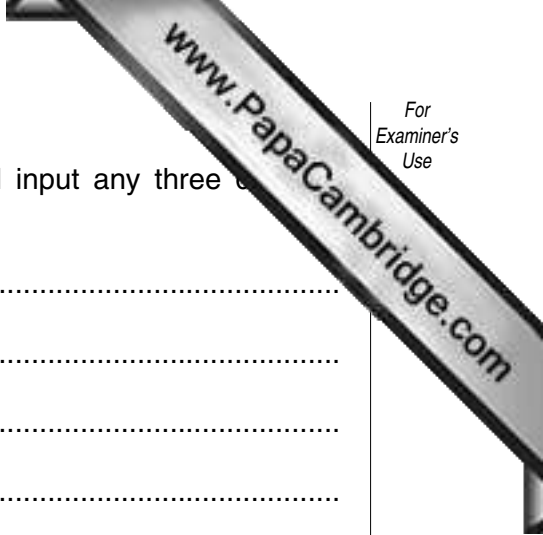
18 A company uses the following systems flowchart for on-line order processing and in...

Write the terms from the list below into the correct symbols in the flowchart. One term h...
been done for you.

        customer orders
        invalid orders
        invoices
        order entry
        order file
        stock file
        update process
        validation process
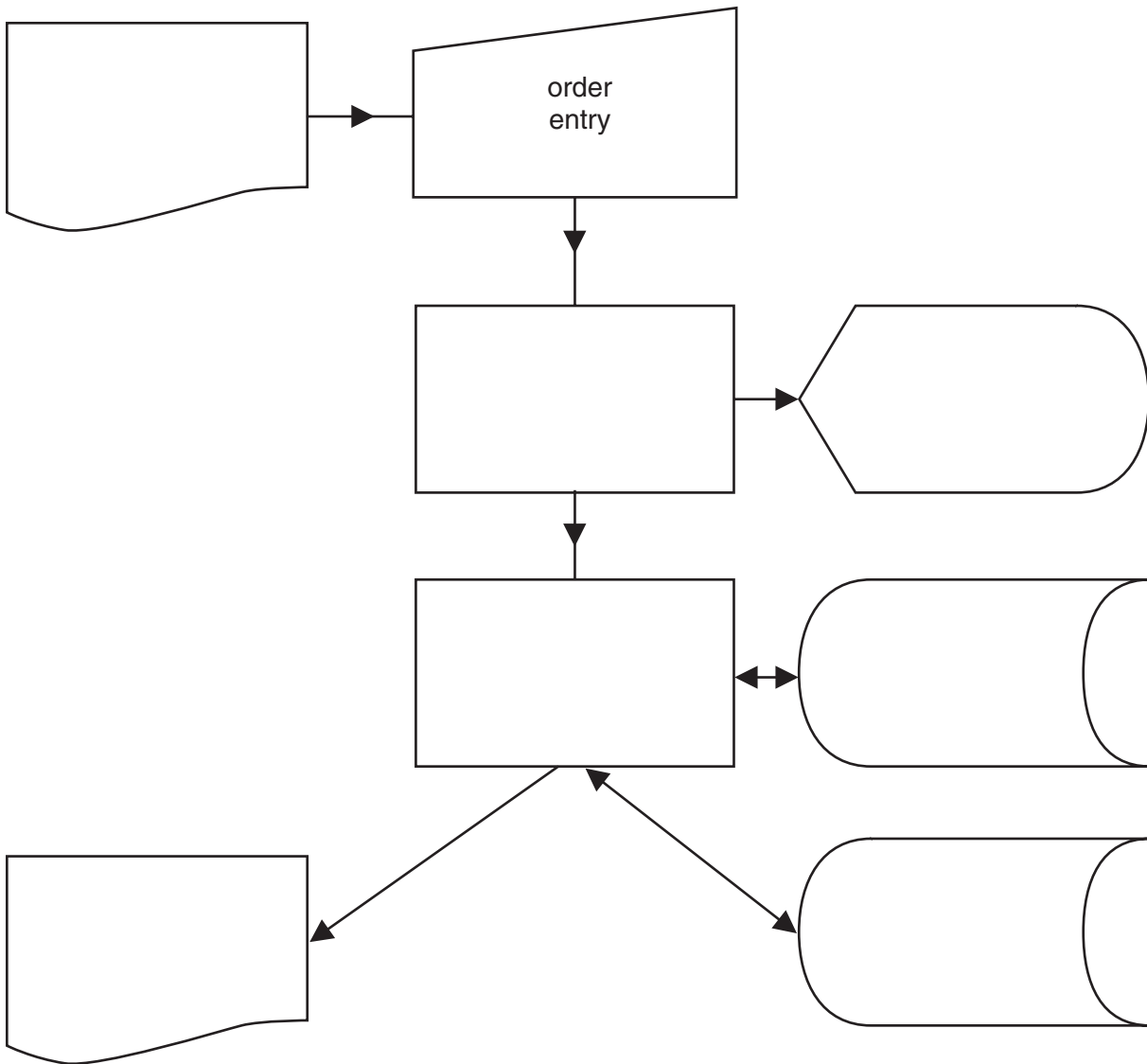
[4]

19 Using pseudo code or otherwise, write an algorithm which will input any three numbers and then print them out in ascending order.

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[4]

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