

date

Centre Number

Candidate Name \_\_\_\_\_

**International General Certificate of Secondary Education  
CAMBRIDGE INTERNATIONAL EXAMINATIONS**

**COMPUTER STUDIES  
PAPER 1**

**0420/1, 0421/1**

**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.

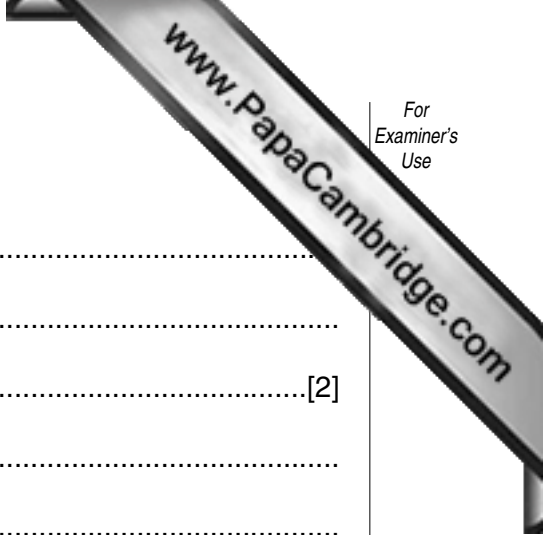
Write your answers in the spaces provided on the question paper.

**INFORMATION FOR CANDIDATES**

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

**FOR EXAMINER'S USE**

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1 Explain, using examples, the meaning of these computer terms.

(a) data logging .....  
.....  
.....[2]

(b) check digit .....  
.....  
.....[2]

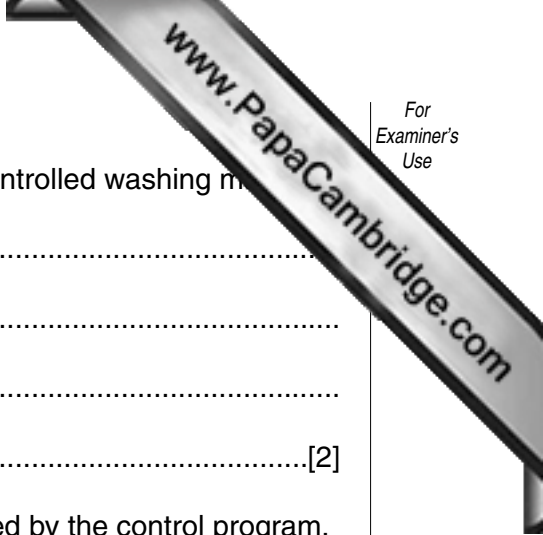
(c) serial access .....  
.....  
.....[2]

(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 machine.

- 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]

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]

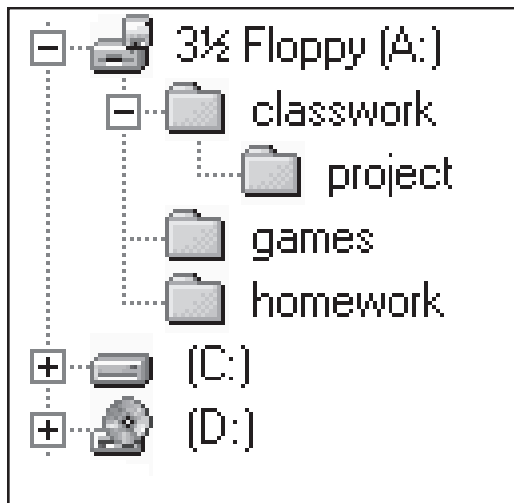
(c) Explain the purpose of interrupts in the transmission of data to a printer.

.....  
.....

7 Images can be captured with a digital camera. Describe **three** ways that digital images can 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 user.

- 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. ....  
.....  
.....

(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 college website 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.

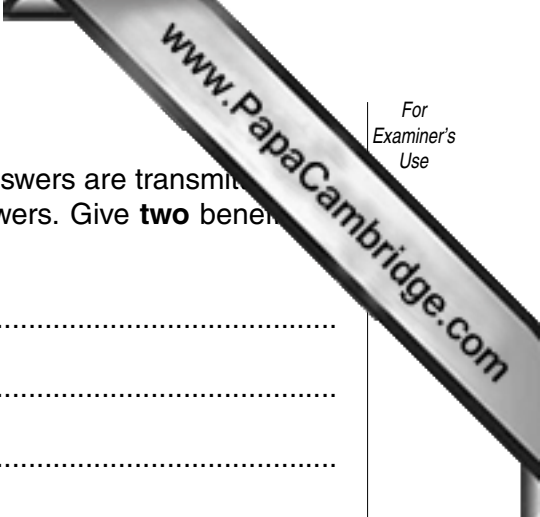


[4]

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

<b>Question:</b> What is a CD-ROM?	
<b>Answer:</b>	<input type="text"/>
<b>Feedback:</b>	





When a student has finished answering the questions, the answers are transmitted to a tutor. The tutor gives feedback to the student about the answers. Give **two** benefits to 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.

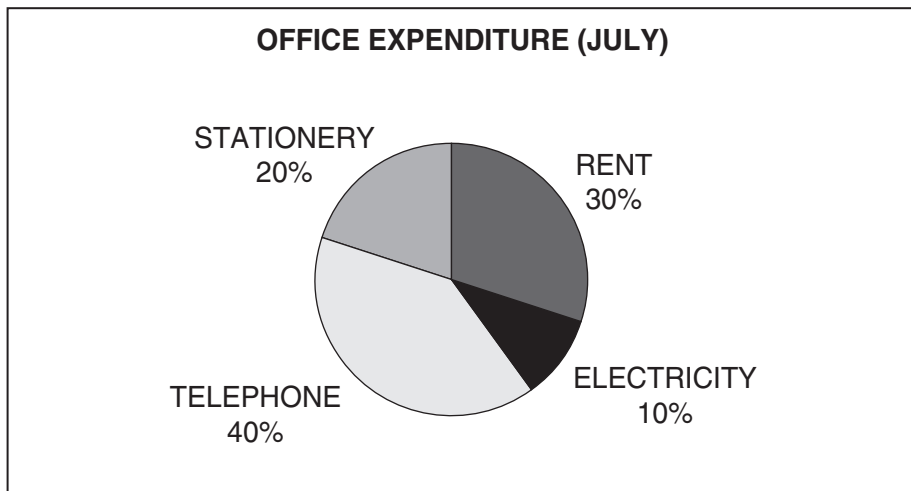
How many bytes in a kilobyte?

- 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.



(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]





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]

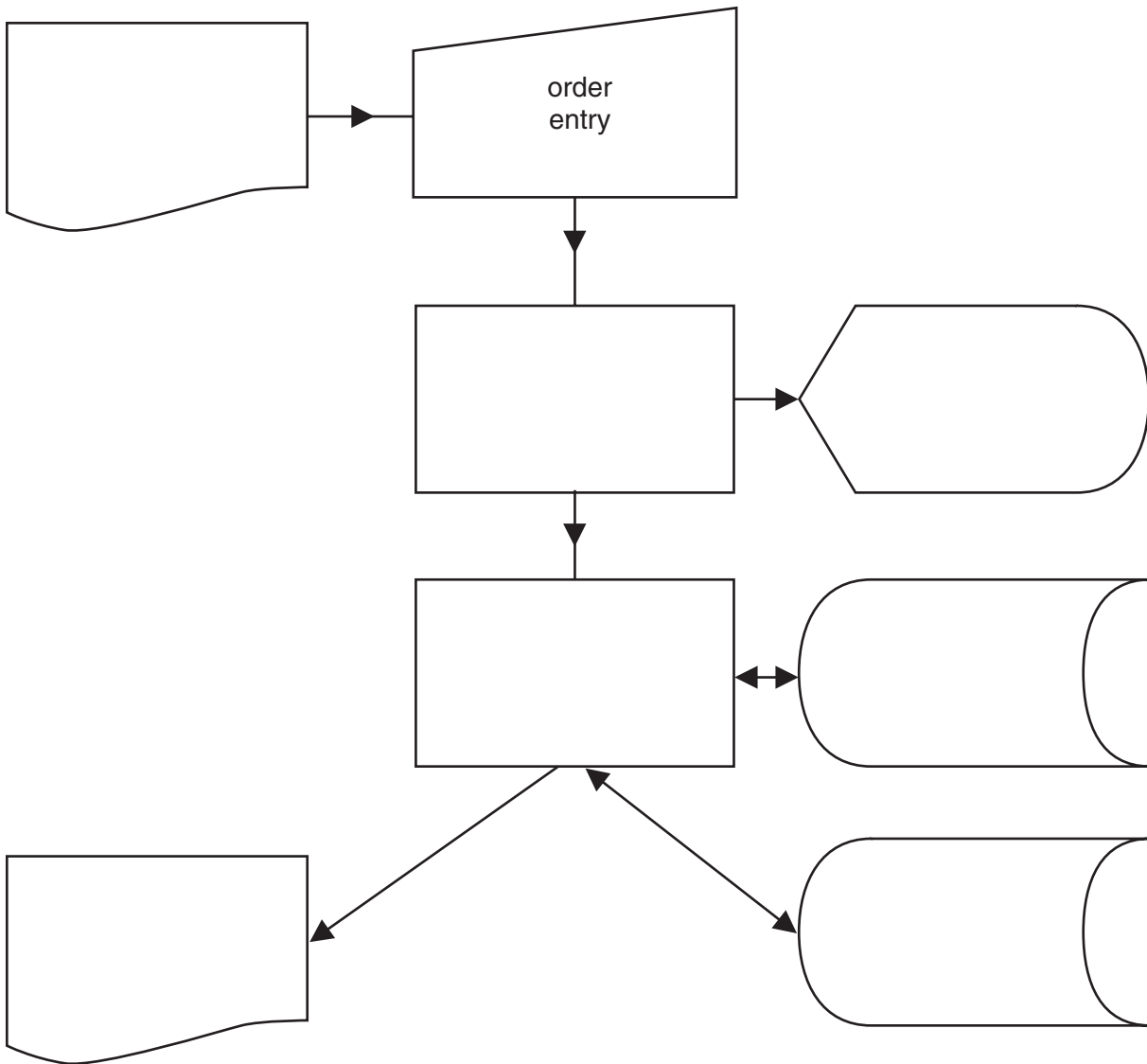
(c) Describe the processing done by the computer to control the output device.

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

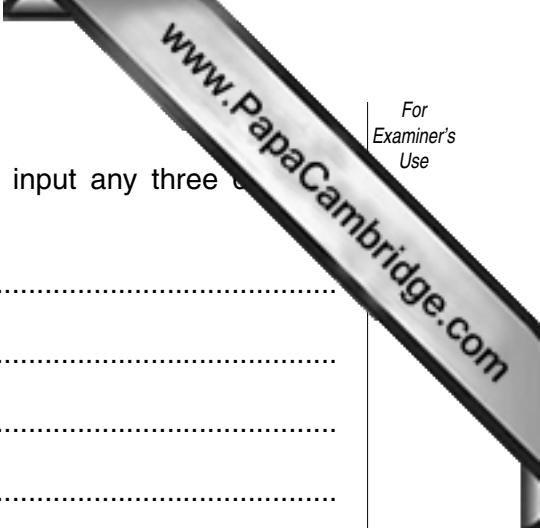
18 A company uses the following systems flowchart for on-line order processing and invoicing.

Write the terms from the list below into the correct symbols in the flowchart. One term has already 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.

Dotted lines for writing the algorithm.

