CANDIDATE
NAME

CENTRE
NUMBER

CANDIDATE
NUMBER

INFORMATION AND COMMUNICATION TECHNOLOGY

0417/11

Paper 1

May/June 2012

2 hours

Candidates answer on the Question Paper.

No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
You may use a soft pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

No marks will be awarded for using brand names of software packages or hardware.

Answer **all** questions.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

For Examiner's Use

This document consists of **14** printed pages and **2** blank pages.

UNIVERSITY *of* CAMBRIDGE
International Examinations

[Turn over

1 Name the input devices **A**, **B**, **C** and **D** using the words from the list.
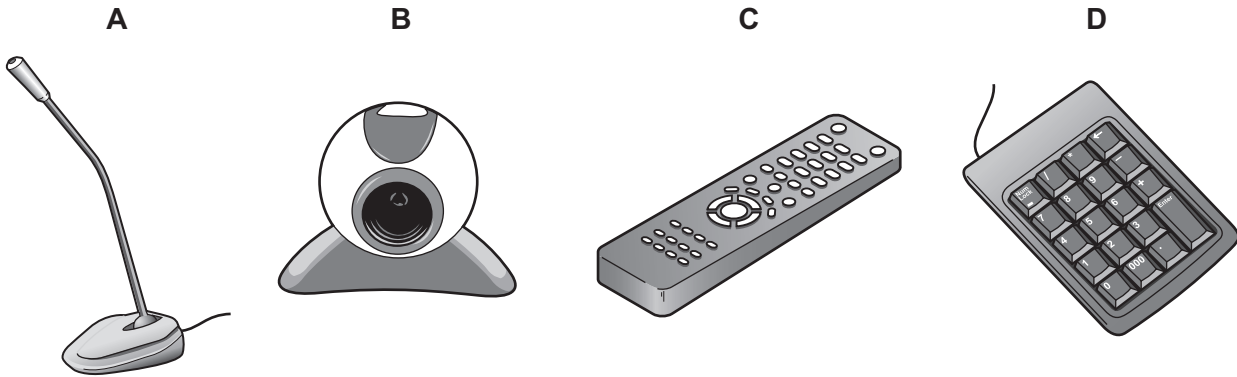
A	**B**	**C**	**D**

digital camera   microphone   number pad   remote control

scanner   touch pad   trackerball   web cam

A ....   B ....

C ....   D ....

[4]

2 Ring **two** items which are used for storing data.

buzzer   DVD R   joystick

magnetic tape   plotter   touch pad

[2]

3 Tick **True** or **False** next to each of these statements.

	True	**False**
A scanner is used to enter a PIN		
Word processing software is used to write letters		
Database software is used to create newspapers		
A command line interface uses icons to represent applications		
Sensors are used to monitor physical variables		

[5]

4   A test is marked out of 20 and recorded as an integer. Tick whether each of the following marks is an example of **abnormal** data or **extreme** data.

	Abnormal	Extreme
20		
21		
twenty		
0		

[4]

5   Name **three** network devices and for each one describe what it does.

Name ....

Description ....

....

Name ....

Description ....

....

Name ....

Description ....

.... [6]

6   Tick which of the following statements apply to traditional **LANs** and which apply to **WLANs**.

	LANs	WLANs
Uses wireless technology to transmit data		
Faster transmission of data		
Greater security		
Is cheaper as there is less cabling		

[4]

7 A floor turtle can use the following instructions:

INSTRUCTION	MEANING
FORWARD n	Move n mm forward
BACKWARD n	Move n mm backward
LEFT t	Turn left t degrees
RIGHT t	Turn right t degrees
PENUP	Lift the pen
PENDOWN	Lower the pen
REPEAT n	Repeat the following instructions n times
END REPEAT	Finish the REPEAT loop

NOT TO
SCALE

45°

100 mm

Start

60°

80 mm

200 mm
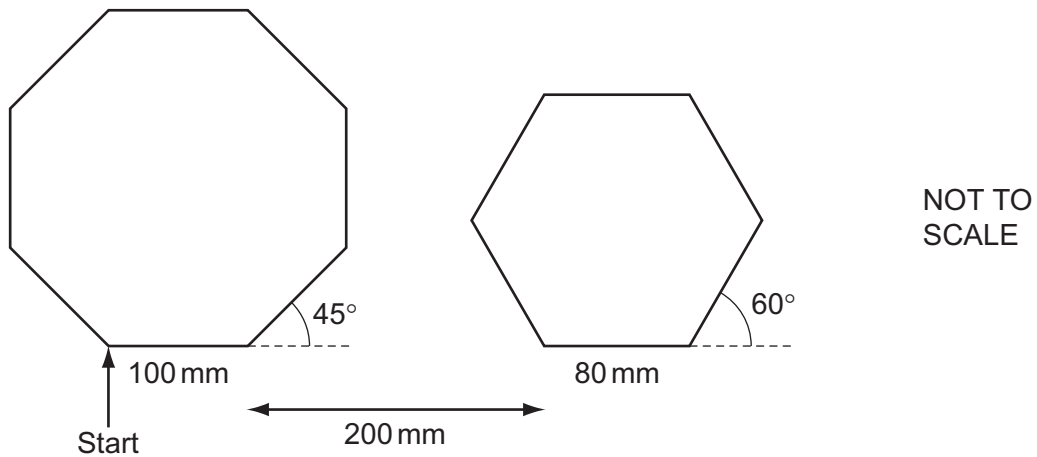
Complete the set of instructions to draw this shape by filling in the blank lines.

PENDOWN

RIGHT   90

REPEAT   ....

.... 100

LEFT   ....

....

PENUP

FORWARD   300

PENDOWN

REPEAT   ....

.... 80

.... 60

....

[8]

8 Use the most appropriate phrase from the list below to complete the sentences.

retouch photographs.

print out photographs.

input candidate examination answers.

input data from a magnetic stripe.

store high definition copies of movies.

open windows in a greenhouse.

input data from a chip.

input temperature in a microprocessor controlled greenhouse.

(i) A blu-ray disc is used to ....

(ii) A graphics tablet is used to ....

(iii) An inkjet printer is used to ....

(iv) A motor is used to ....

(v) An Optical Mark Reader is used to ....

[5]

9 Explain why computer systems have both backing storage and RAM.

....

....

....

....

....

.... [3]

10 Below is a diagram of a river running past a chemical factory. The same types of sensor, connected to a computer in the factory are placed at A and B to monitor pollution of the river by the factory.
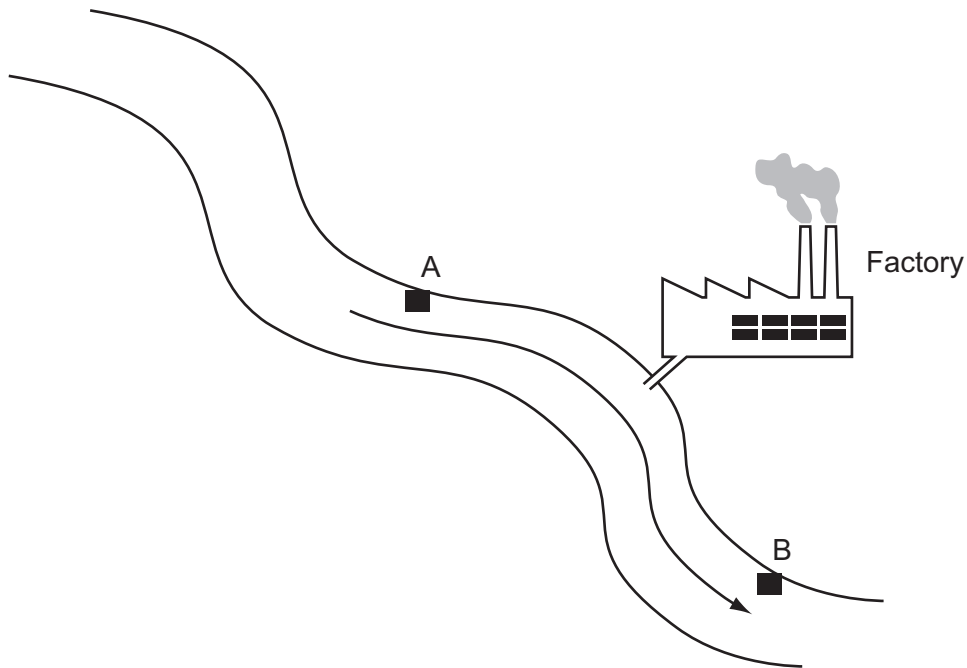
(a) Name **three** sensors which would need to be placed at both A and B.

1 ....

2 ....

3 .... [3]

(b) Describe how the computer would monitor the level of pollution in the river.

....

....

....

....

....

....

....

....

.... [5]

11 **(a)** Doctors often use expert systems to help them to diagnose illnesses.
Name **four** components of a typical expert system.

1 ....

2 ....

3 ....

4 .... [4]

(b) Name **two** other applications which involve the use of expert systems.

1 ....

....

2 ....

.... [2]

12 Name and describe **three** validation checks which could be carried out on a 16-digit credit card number when it is typed into a computer.

Name ....

Description ....

....

Name ....

Description ....

....

Name ....

Description ....

.... [6]

 [Turn over

13 Describe how the following health problems can arise due to the use of computers. Give a different cause for each.

RSI in the wrists ....

....

RSI in the fingers ....

....

Headaches ....

....

Back pain ....

.... [4]

14 A bank is looking into a variety of security measures to protect its customers' data. Describe **three** types of authentication technique they could use and for each give a benefit and a drawback.

Technique 1 ....

....

Benefit ....

....

Drawback ....

....

Technique 2 ....

....

Benefit ....

....

Drawback ....

....

Technique 3 ....

....

Benefit ....

....

Drawback ....

.... [9]

15 Gita has employed Johann, a systems analyst, to create a new database system for her car sales business. She only sells cars made by Rock and only the models Feisty, Mendo and Galactica in red, blue or gold. Most of the cars have air conditioning but some do not. She sells 3, 4 and 5 door cars.

(a) Give a reason why would it not be sensible to have a Make field in the database.

....

.... [1]

(b) Complete the design table below giving the field names which would be used in the database and describing the most appropriate validation check which could be carried out on each field.

Field name	Validation check
Model	

[7]

(c) Discuss verification and validation.

....

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....

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....

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....

.... [6]

 [Turn over

16 A travel agent keeps a spreadsheet record of his customers' holiday bookings to various destinations. This is split into two sheets. Sheet 1 contains the Code for each destination. Sheet 2 contains a list of his customer bookings so far.

	A	B
1	Code	Destination
2	BAH	Bahamas
3	COZ	Cozumel
4	EGY	Egypt
5	IND	India
6	MAL	Maldives
7	MEX	Mexico

Sheet 1

(Commas are used as delimiters in the functions shown below.)

	A	B	C
1	Destination	Code	Trips
2	=VLOOKUP(B2,Sheet1!$A$2:$B$7,2,0)	BAH	=COUNTIF($A$8:$A$18,B2)
3	=VLOOKUP(B3,Sheet1!$A$2:$B$7,2,0)	EGY	=COUNTIF($A$8:$A$18,B3)
4	=VLOOKUP(B4,Sheet1!$A$2:$B$7,2,0)	MAL	=COUNTIF($A$8:$A$18,B4)
5	=VLOOKUP(B5,Sheet1!$A$2:$B$7,2,0)	MEX	=COUNTIF($A$8:$A$18,B5)
6			
7	Destination code of holidays booked so far this year		
8	EGY		
9	MAL		
10	BAH		
11	MEX		
12	MAL		
13	BAH		
14	EGY		
15	EGY		
16	MAL		
17	EGY		
18	BAH		

Sheet 2

(a) Explain what the function in cell A2 in Sheet 2 does.

....

....

....

....

.... [3]

(b) What destination would you expect to see in cell A4 in Sheet 2?

.... [1]

(c) Explain what the function in cell C2 in Sheet 2 does.

....

....

....

....

.... [3]

(d) What value would you expect to see in cell C3 in Sheet 2?

.... [1]

(e) Spreadsheets are often used to produce computer models.
Discuss the benefits and drawbacks of computer modelling.

....

....

....

....

....

....

....

.... [4]

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