UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE
NAME

CENTRE
NUMBER

CANDIDATE
NUMBER

INFORMATION AND COMMUNICATION TECHNOLOGY   0417/12

Paper 1   May/June 2010

                                                             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.

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 **15** printed pages and **1** blank page.

UNIVERSITY of CAMBRIDGE
International Examinations

[Turn over

1   Name the methods of storage **A**, **B**, **C** and **D** using the words from the list.

A
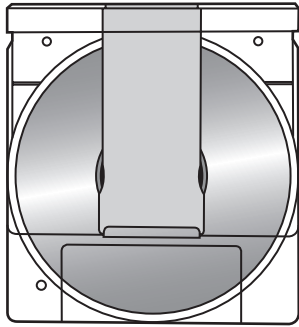
B

C
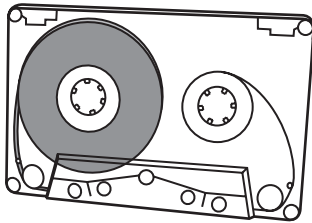
D
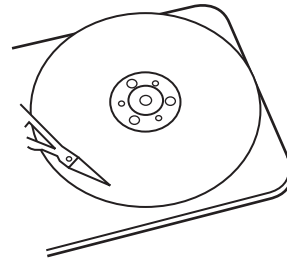
Bar code	Chip	DVD RAM	Graphics tablet
Light pen	Magnetic disc	Magnetic tape	Pen drive

A ....

B ....

C ....

D ....

[4]

2   Ring **two** items which are output devices.

Blu-ray disc	Graph plotter	Graphics tablet
Optical mark reader	Projector	Web cam

[2]

3   Tick **TRUE** or **FALSE** next to each of these statements.

	TRUE	FALSE
Input devices are examples of hardware		
Backing storage devices are examples of software		
A Graphical User Interface is a part of an operating system		
A laptop computer cannot be carried around		

[4]

4   Draw **five** lines on the diagram to match the input device to its most appropriate use.

Input device   Use

Remote control   **Inputting freehand drawings into a computer**

Keyboard   **Operating a television**

Touch screen   **Entering text when writing a book**

Chip reader   **Selecting options in a tourist information kiosk**

Graphics tablet   **Reading information from a credit card**

[5]

5   Complete each sentence below using **one** item from the list.

A hub   An intranet   A proxy server

A WAN   A WLAN

(a) .... is a device used to connect computers together to form a LAN.

(b) .... is a network with restricted access.

(c) .... can allow networked computers to connect to the internet.

(d) .... is a wireless local area network.

[4]

6 Students can use CDs or pen drives for storing their work. Give **three** reasons why students may prefer to use pen drives.

1 ....

....

2 ....

....

3 ....

.... [3]

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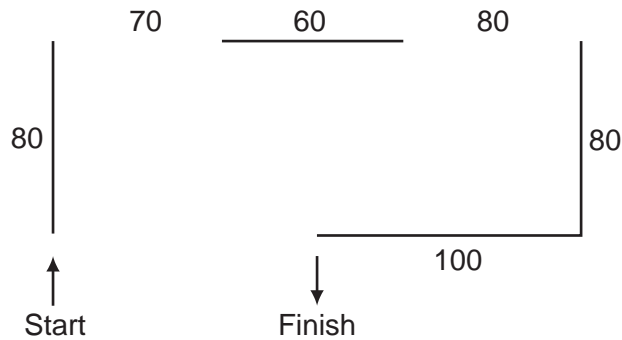
Complete the set of instructions to draw this shape by filling in the blank lines.

PEN DOWN

FORWARD 80

RIGHT 90

....

....

....

....

....

....

....

....

....

....

[5]

8   Tick **three** developments which have arisen because of the internet.

	✓
Web logs	
Databases	
Models	
Wikis	
DTP	
Social networking sites	

[3]

9   Tick **TRUE** or **FALSE** next to each statement to indicate whether it is an example of batch processing.

	TRUE	FALSE
Withdrawing money from an ATM		
Producing utility bills		
Booking a plane ticket		
Producing payslips		

[4]

10 A school uses a computer controlled greenhouse to grow plants.

   (a) Name **three** sensors that would be used in the greenhouse.

   1   ....

   2   ....

   3   .... [3]

   (b) Explain why analogue to digital conversion is needed when computers are used to control a greenhouse.

   ....

   ....

   ....

   .... [2]

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(c) Tick **three** advantages of using computers, rather than students, to control the growing conditions.

	✓
Computer readings are more accurate	
Students always forget to take readings	
Students might be unavailable to take readings during school holidays	
Computers can record data for later use	
Computers can analyse the results	
Computers can react to changes in the conditions immediately	

[3]

The students want a printed record of the computer readings as they are taken. They want to put the printer inside the greenhouse. Their teacher has suggested a dot matrix printer. The students suggested an inkjet printer.

(d) Give **two** reasons why the teacher has suggested a dot matrix printer.

1 ....

....

2 ....

.... [2]

(e) Give **two** reasons why the students have suggested an inkjet printer.

1 ....

....

2 ....

.... [2]

11 A school library has a file for storing details of the books it has and a file for storing details of its borrowers. The two files are linked using a common field.

Book File

Code	Title	Author	Published	Number in stock	Cost
1857028898	The Code Book	Simon Singh	1999	2	£10.99
0747591054	The Deathly Hallows	J K Rowling	2007	8	£17.99
0748791167	Sepulchre	Kate Mosse	2007	3	£18.99
0563371218	Full Circle	Michael Palin	1997	1	£19.99

Years 10 and 11 Borrower File

Number	Name	Form	Book Borrowed	Due Back
0102	Me Te Loan	11A	1857028898	14/06/2010
1097	Gurvinder Moore	10C	0747591054	12/06/2010
0767	Akhtar Aftab	10B	0748791167	06/06/2010
0611	Graham Reeves	10D	0563371218	08/06/2010

(a) How many records are there in the book file?

.... [1]

(b) How many fields are there in the borrower file?

.... [1]

(c) What type of database do these two files form?

.... [1]

(d) Give **two** reasons why this type of database system is used rather than having two flat files.

1 ....

....

2 ....

.... [2]

(e) Which field is the primary key in the Book file?

.... [1]

(f) Which field is the foreign key?

.... [1]

(g) Which field has the data type currency?

.... [1]

(h) What data type would be most appropriate for the **Due Back** field?

.... [1]

(i) Name the most appropriate validation check for the **Number in stock** field.

.... [1]

(j) Name the most appropriate validation check for the **Form** field.

.... [1]

12 Aftab and his family have three computers in their home. He wants to connect the computers into a network. Explain why he would need:

A router ....

....

A browser ....

....

Email ....

....

An ISP ....

.... [4]

13 The use of computer networks can lead to problems in keeping data secure and confidential.

(a) Tick **two** problems which can affect the security of data.

	✓
Data encryption techniques are easy to crack	
Data can be accessed without being in the building where it is stored	
Data thieves often do not leave physical signs of robbery	
Data passwords are easy to guess	

[2]

(b) Tick **two** ways of increasing the confidentiality of data.

	✓
Make backups of the data	
Users should write down their password in case they forget it	
Have a firewall connected to the network	
Have different levels of access to the data	

[2]

14 Joan owns a small company. She wishes to replace the existing computerised system with a new one. She has employed a systems analyst, Jasvir, to plan this.

(a) Before Jasvir decides on a system he must collect information about the existing system. Tick whether the following statements about the various methods of information collection are **TRUE** or **FALSE**.

	TRUE	FALSE
Examining documents has to be done in the presence of all the workers		
Appointments have to be made with a worker in order to complete a questionnaire		
It is possible to change questions in the course of an interview		
Observing the current system can provide a detailed view of the workings of the system		

[4]

(b) After Jasvir has completed the analysis of the existing system, he will need to design the new system. Tick **four** items which would need to be designed.

	✓
Inputs to the current system	
User and information requirements	
Data capture forms	
Validation routines	
Problems with the current system	
File structure	
Report layouts	
Limitations of the system	

[4]

 [Turn over

15 After a system is designed it will be implemented. Give **one** advantage of each of the following methods of implementation.

Direct changeover ....

....

Parallel running ....

....

Phased implementation ....

.... [3]

16 After a system has been implemented it needs to be evaluated. Identify **two** evaluation strategies and state a reason why each is needed.

Strategy 1 ....

....

Reason 1 ....

....

Strategy 2 ....

....

Reason 2 ....

.... [4]

17 Describe **three** items of hardware which would be needed, in addition to those normally supplied with a PC, in order to take part in a video conference.

1 ....

....

2 ....

....

3 ....

.... [3]

18 A supermarket uses POS terminals at its checkouts. This enables stock levels to be updated automatically. Put the following steps in order using the numbers 2 to 8. Step 1 has already been done for you.

The number in stock of the matching record is read	
Until a match is found with the entered bar code	
The data file is searched	
The bar code on the product is read by the bar code reader	1
The new value of number in stock is written back to the file	
If it is equal to the re-order number then more goods are automatically re-ordered	
One is subtracted from the number in stock	
The number in stock is compared with the re-order number	

[7]

19 Give **three** reasons why pilots are trained using flight simulators rather than by flying real aircraft.

1 ....

....

2 ....

....

3 ....

.... [3]

20 Explain what is meant by the following terms.

Phishing ....

....

Pharming ....

....

Spam ....

.... [3]

21 When sending documents companies sometimes use email and sometimes use ordinary post.

   (a) Give **two** reasons why email might be used.

   1 ....

   ....

   2 ....

   .... [2]

   (b) Give **two** reasons why ordinary post might be used.

   1 ....

   ....

   2 ....

   .... [2]

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