CANDIDATE
NAME

CENTRE
NUMBER

CANDIDATE
NUMBER

INFORMATION AND COMMUNICATION TECHNOLOGY **0417/13**

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 **14** printed pages and **2** blank pages.

UNIVERSITY *of* CAMBRIDGE
International Examinations

[Turn over

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

A
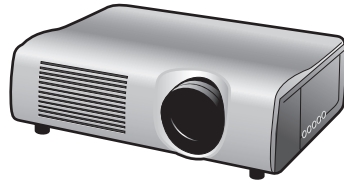
B

C
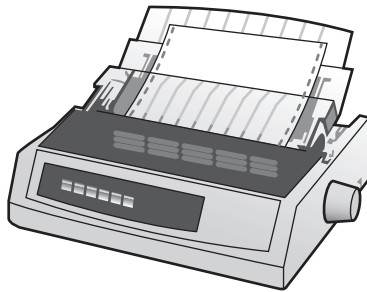
D

Buzzer	**Dot matrix printer**	**DVD RAM**	**Laser printer**
Monitor	**Multimedia projector**	**Pen drive**	**Speakers**

A ....   B ....

C ....   D ....

[4]

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

DVD ROM	**Graph plotter**	**Graphics tablet**
Magnetic tape	**Projector**	**Trackerball**

[2]

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

	TRUE	FALSE
A command line interface is a user friendly method of communication with a computer		
A desktop computer is not easily carried around		
A joystick is an example of hardware		
Output devices are examples of software		

[4]

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

Input device   Use

Bar code reader   **Inputting voiceovers into presentation software**

Microphone   **Selecting options from a list**

Mouse   **Inputting a PIN at an ATM**

Numeric key pad   **Inputting data from a school register**

Optical mark reader   **Inputting code numbers from products at a POS terminal**

[5]

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

Bluetooth   **An intranet**   **A router**

           A WAN   **A WLAN**

(a) .... is a network connecting several LANs.

(b) .... is a network with very little cabling.

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

(d) .... is used to connect two mobile devices to each other.

[4]

6 Tick **three** reasons why optical media may be used to store data rather than magnetic media.

	✓
It is easier to transfer data to other computers using optical media rather than fixed hard discs	
Optical media are cheaper to buy than magnetic media	
A CD stores more data than a fixed hard disk	
Data is easier to encrypt on optical media	
Optical media provide quicker access to individual data items than magnetic tape	
CD ROMs are easier to update than magnetic media	

[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
REPEAT *n*	Repeat the following instructions *n* times
END REPEAT	Finish the REPEAT loop
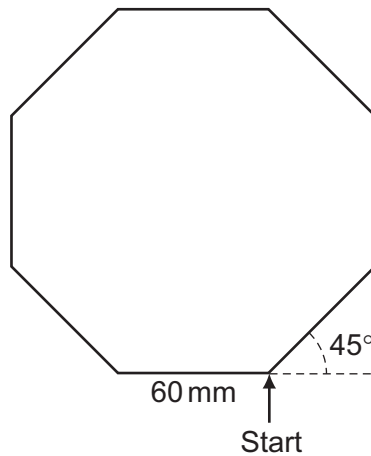
Complete the set of instructions to draw this shape by filling in the blank lines.

        PEN DOWN

        90

        REPEAT   ....

        FORWARD   ....

        45

        ....

[5]

8   Tick **three** developments which have arisen because of mobile phones.

	✓
Sending emails	
Text messaging	
Sending a photograph as soon as it has been taken	
Using the internet	
Making a phone call wherever you are	
Leaving messages when somebody is not available	

[3]

9   Tick **TRUE** or **FALSE** next to each statement to indicate whether it is an example of fraudulent use of the internet.

	TRUE	FALSE
Blogging		
Booking a cinema ticket		
Pharming		
Phishing		

[4]

10 A hospital uses computers to monitor patients' conditions.

   (a) Name **three** physical variables that could be monitored.

   1   ....

   2   ....

   3   .... [3]

   (b) Explain why computers cannot read physical variables directly.

   ....

   ....

   ....

   .... [2]

(c) Tick **three** advantages of using a computer rather than a nurse to monitor a patient's condition.

	✓
Nurses always make mistakes	
Computers can monitor continuously without taking breaks	
Computers can measure more than one variable at the same time	
Computers can take readings more frequently	
Nurses cannot take readings regularly	
Computers can analyse the results	

[3]

(d) The nurses will need a printed record of the computer readings as they are taken. They have decided to use a graph plotter. Give **two** reasons why they have chosen a graph plotter.

1 ....

....

2 ....

.... [2]

(e) When surgeons operate on patients they sometimes need to use computers. Give **two** reasons why they would use a light pen as an input device.

1 ....

....

2 ....

.... [2]

11 A DVD shop owner wants to use a spreadsheet to calculate his profits. This is part of a spreadsheet he could use.

	A	B	C	D	E	F
1	DVD title	Cost price	Selling Price	Profit per DVD	Number in stock	Total profit per title
2	Alice in Wonderland	$21	$24	$3	12	
3	Toy Story 2	$18	$24	$6	14	
4	How to train your dragon	$15	$20	$5	10	
5	Alpha and Omega	$22	$31	$9	5	
6						
7					Total profit of the four titles	

(a) Give the cell reference of the cell that contains $18.

.... [1]

(b) Give the cell reference of a cell that contains a label.

.... [1]

(c) Write down the formula that has been used to calculate the value in cell D4.

.... [1]

(d) The **Total profit per title** is calculated by multiplying the **Profit per DVD** by the **Number in stock**. Write down the formula that should go in cell F2.

.... [1]

(e) The owner wants to enter a similar formula to calculate the **Total profit per title** in cells F3 to F5. Write down the name of the technique he could use to do this.

.... [1]

(f) How many columns are shown in the spreadsheet?

.... [1]

(g) The owner wants to find out his total profit for these four titles using a formula. Write down the formula he should use.

.... [1]

(h) Give the reference of the most appropriate cell to insert this formula.

.... [1]

(i) If the owner changes the **Selling price** of Alice in Wonderland to $28 which other **three** cells would now change as a result?

.... [3]

12 Ali and his family have three computers in their home. He wants to connect the computers into a network which will have access to the internet.

(a) Give **two** advantages of doing this.

1 ....

....

2 ....

.... [2]

(b) Give **two** disadvantages of doing this.

1 ....

....

2 ....

.... [2]

13 The use of computer networks can lead to problems of keeping data secure and confidential. Two methods of overcoming this are the use of authentication techniques and data encryption.

(a) Tick **two** authentication techniques.

	✓
Firewall	
Passwords	
Biometrics	
An intranet	

[2]

(b) Tick **two** features of data encryption.

	✓
It makes it impossible to access computer systems	
Only authorised users can understand the data	
A key is needed to decrypt data	
It prevents viruses	

[2]

14 Peter owns a small company. He wishes to replace the existing computerised system with a new one. He has employed a systems analyst, Sarbjit, to plan this.

(a) Sarbjit wishes to collect information about the existing system using a variety of methods. Tick **TRUE** or **FALSE** to indicate whether the following statements give appropriate reasons why the method would be used.

	TRUE	FALSE
Examining documents helps to identify the inputs and outputs of the system		
A questionnaire makes the workers feel good		
An interviewer can ask questions based on the previous response		
Observing the current system helps to identify any problems with the system		

[4]

(b) Sarbjit will need to design the file structure of the new system. Tick **four** items which would need to be included in this design.

	✓
Field names	
Screen layout	
Field types	
Key field	
Field lengths	
User needs	
System specification	
Input forms	

[4]

15 After a system is designed it will be implemented. For each of the following situations, write down the most appropriate method of implementation.

 (a) A small company with very little money to spare

 ....

 (b) A company where the most important consideration is not to interrupt production

 ....

 (c) A company which only wants a small scale implementation to begin with

 .... [3]

16 After a system has been implemented it needs to be tested. Describe **two** testing strategies and state a reason why each is needed.

 Strategy 1 ....

 ....

 Reason 1 ....

 ....

 Strategy 2 ....

 ....

 Reason 2 ....

 .... [4]

17 Monica has purchased a laptop computer. Describe **three** additional things she would need in order to send an email.

1 ....

....

2 ....

....

3 ....

.... [3]

18 A bank uses a chip and pin system at its ATMs. A customer wishing to withdraw cash inserts their card. The ATM checks to see if the card is valid and if so asks the customer to type their PIN. Put the following steps in order using the numbers 2 to 8 for a customer whose transaction is successful. Step 1 has already been done for you.

The customer types in the PIN	1
If they are the same the customer is asked which service is required	
The customer's account is checked to see if it has sufficient funds	
The amount is checked against the card limit	
The typed PIN is compared with the PIN stored in the chip	
The customer selects required service (cash)	
If there are sufficient funds and the amount is within the card limit the required notes are issued.	
The customer is asked how much money they want to withdraw	

[7]

19 Building structures are often modelled using computers. Give **three** reasons why models are used for this purpose rather than the real thing.

1 ....

....

2 ....

....

3 ....

.... [3]

20 Describe **three** ways to evaluate the reliability of information found on a website.

1 ....

....

2 ....

....

3 ....

.... [3]

21 The internet has given rise to a number of developments, including blogs and wikis.

(a) Give **two** features of a blog.

1 ....

....

2 ....

.... [2]

(b) Give **two** features of a wiki.

1 ....

....

2 ....

.... [2]

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