



CANDIDATE NAME

CENTRE NUMBER

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS General Certificate of Education Ordinary Level

VERSITY OF CAMBRIDGE INTERNA eral Certificate of Education Ordinary I		MMM, PapaCambri	age com
	CANDIDATE NUMBER		1

COMPUTER STUDIES

7010/12

Paper 1

May/June 2013

2 hours 30 minutes

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.

Answer all questions.

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

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 E	Examiner's Use

This document consists of 20 printed pages.



732	
For iner's	
My. Wers	
1 26	

(a)	State two items found in typical technical documentation.	de
	1	
	2	
		[2]
(b)	State two items found in a typical user guide.	
	1	
	2	
	To the state of th	[2]

2 Four types of data storage media and four descriptions are shown in the table below.

Tick (\checkmark) the appropriate boxes in the table to match each data storage medium to its most suitable description.

	CD-ROM	DVD-RAM	fixed hard disk	memory stick
storage medium where data can only be read and not altered				
portable medium which allows transfer of data between computers				
memory where operating systems and applications software are usually stored				
medium which allows recording and playback to occur at the same time				

[4]

- 3 Three common devices are listed below:
 - MP3 player
 - digital camera
 - mobile phone

		4	
		34	
		3	
Thr	ee c	ommon devices are listed below:	_
•	digi	ommon devices are listed below: 3 player tal camera bile phone oose one of the above devices.	72
(a)	Des	oose one of the above devices. scribe the type of internal memory the device uses. scribe how data is transferred from the device to a computer.	
	Dev	rice	
	Тур	e of internal memory used	
	Met	hod of transferring data to a computer	
	•••••	[2]	
(b)	Мос	dern mobile phones include a digital camera and an MP3 player.	
	(i)	Give one disadvantage when compared to a dedicated MP3 player.	
	(ii)	Give one disadvantage when compared to a dedicated digital camera.	
		[2]	

(a) Computer systems can introduce a number of health and safety issues in the office

omputer systems can introduce a number of the potential risks are shown below. Include the risk is a health issue or a safety	licate by ticking t		Da Canne
potential risk	health issue	safety issue	
repetitive strain injury (RSI) caused by excessive clicking of a mouse or typing			
railing wires connected to a computer ystem			
zone gas and toner particles produced uring laser printer operation			
neadaches and eye strain caused by glare from a computer monitor/screen			
electrocution caused by spilling liquids on a computer system			

[5]

(b)	Introduction of computer systems can also have an impact on the workers in the office.
	Give three potential ways computers can affect the office workers.
	1
	2
	3
	[3

www.papaCambridge.com Five definitions are given on the left hand side of the diagram below. Five computer 5 are shown on the right.

By drawing arrows, connect each definition to the correct computer term.

website that allows virtual communication; user joins a site and invites friends who, in turn, invite their own friends

technology that allows telephone calls to be made using computer networks, such as the Internet

online "place" where a group of people get together and discuss a number of topics

software that allows any user to freely create and edit a web page using their own web browser

marking, saving and archiving certain websites or items (such as photos); for example, it allows users to track and organise favourite websites or photos

chat room

social networking

tagging

VolP

wiki

[4]

[1]

6	Five	e students made the following statements. lain why each statement is incorrect .
	Ехр	lain why each statement is incorrect .
	(a)	"I always use CD-ROMs to save my data."
		[1]
	(b)	"The advantage of WiFi in the home is you don't need the use of a telephone line connection."
		[11]
		[1]
	(c)	"Satellite navigation systems in cars send signals to satellites so that the satellite can work out where they are."
		[1]
	(d)	"Sending an email will cause a problem if the recipient is in another time zone where the time difference is 12 hours."
		[1]
	(e)	"Video conferencing allows meetings to be called at any time."

	the state of the s	
	7	1
	e speed at which a CD spins in a portable music CD player is controlled by sense mall microprocessor. Describe how the sensors and microprocessor are used to control the speed of t spinning CD.	Cam
(a)	Describe how the sensors and microprocessor are used to control the speed of t spinning CD.	he
		••••
		[4]
(b)	Sudden movements can make the CD "skip".	
	How can the microprocessor deal with this so that the CD operates correctly?	
		[2]
(c)	Why would an MP3 player not suffer from the same problem?	
		[1]

7

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- 8 Expert Systems are made up of a number of components.
 - (a) The diagram below shows four of these components and four definitions.

By drawing arrows, link the four components to their correct definitions:

made up of a series of if ... then statements called inference rules

Inference Engine

provides reasoning mechanism in a typical expert system

Knowledge Base

presents questions and information to a user and allows them to input a response

Rules Base

collection of facts used to solve problems in an expert system

User Interface

[3]

[3]

(b)	Describe three of the limitations associated with using Expert Systems .
	1
	2
	3

www.PapaCambridge.com Thin film technology is becoming increasingly common. This uses material as this sheet of paper but which acts just like an LCD monitor. A microprocessor is used to co. 9 the device and solid state memories are used to supply the data. (a) Describe two advantages of thin film technology

aj	Describe two advantages of third limit technology.
	1
	2
	[2]
(b)	Describe two applications that could use thin film technology.
	1
	2
	[2]

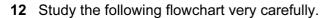
THE	For iner's

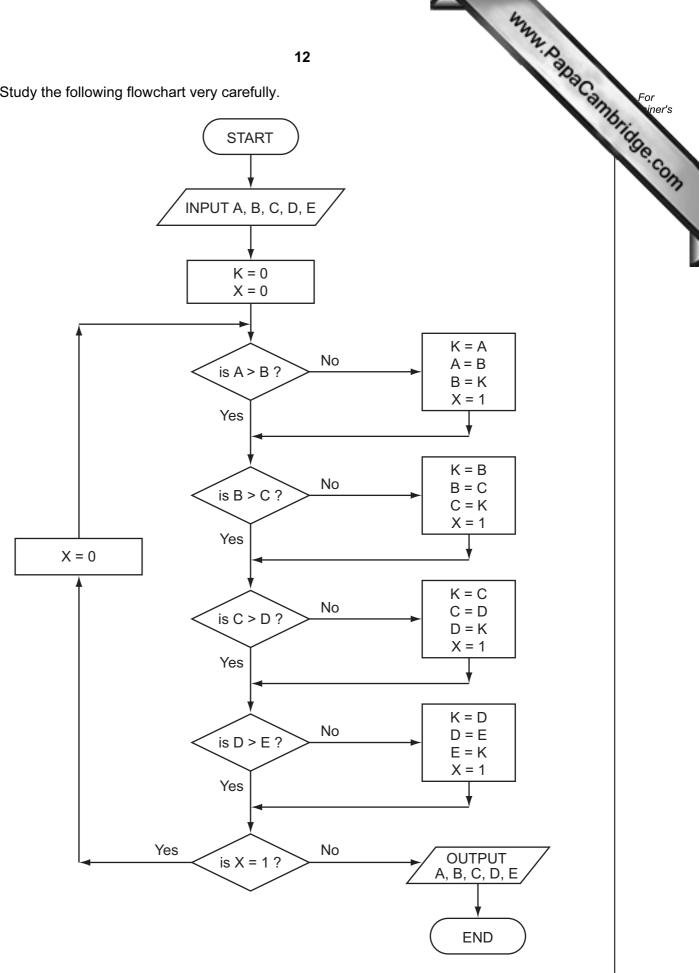
10 A company uses an intranet which can also communicate with the outside world to the Internet.

(a)	The system uses modems.
	What is the purpose of a modem?
	[1]
(b)	Part of the company's security strategy is to use a firewall.
	Describe two features of a firewall.
	1
	2
	[2]
(c)	Connecting to the Internet can cause potential problems.
	State two of these problems.
	1
	2
	[2]

survey of materials		arried out and a d	database was pro	duced. A sect
Motorway ID	Length (km)	Cars per day	Toll charge per km (\$)	duced. A sect Number of lanes
M1	100	50 000	0.60	2
M2	210	75 000	0.40	3
M3	180	60 000	0.50	4
M4	40	20 000	0.30	3
M5	25	15 000	0.10	2
M6	100	40 000	0.70	4
M7	30	10 000	0.40	2
M8	150	60 000	0.60	4

(a)	How many fields and how many records are shown?
	(i) number of fields
	(ii) number of records [2]
(b)	Using Motorway ID only, what would be output if the following search condition was used?
	(Length (km) > 100) AND (Number of lanes > 3)
	[1]
(c)	What search condition is needed to find the motorways where the number of cars per day exceeds 50 000 or the toll charge per kilometre is greater than \$0.50?
	[2]





(a) Complete the trace table for this flowchart using the following test data:

			13			mm. K	ana Cambrida	
plete the t 3, 5, 1, 4,		for this flow	chart using	the following	ng test data	:	Cambrid	For viner's
Α	В	С	D	Е	К	Х		C.CON

(b)	What values are output from the flowchart using the above test data?
	[1]
(c)	What function is this flowchart carrying out?
(d)	What would happen if the value of X wasn't set to 0 in the return loop of the flowchart?
	[1]

[5]

n details:

- 13 A company requests new customers who register online to give the following details:
 - name
 - address
 - type of credit/debit card
 - payment card number

All details must be entered.

(i)	Describe one suitable different validation check for each field.
	name
	address
	type of credit/debit card
	payment card number
	[4]
(ii)	Which of the four fields could be offered as a drop down box? Explain.
	[2]

(b) Other data required:

- date of birth
- male or female
- accept/decline company conditions

www	
15	
Other data required:	For siner's
Other data required: • date of birth • male or female • accept/decline company conditions	Dridge Co.
Describe suitable input methods for this data.	13
date of birth	
	. '
male or female	,
	.
accept/decline company conditions	.
[3	1

14 Some decorative lights are made up from a cluster of red, blue, green, yellow and LEDs.

llow and connected for iner's

Each colour is represented by a binary code:

32	16	8	4	2	1
1	0	0	0	0	0
0	1	0	0	0	0
0	0	1	0	0	0
0	0	0	1	0	0
0	0	0	0	1	0
0	0	0	0	0	1

red blue green yellow

white

black (all lights off)

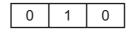
A 6-bit register, R1, stores the 1-values to represent a sequence of colours. Thus, if R1 contains:

0	1	0	1	0	1

this means the **blue**, **yellow** and **black** colour sequence is stored and displayed in that order.

The length of time each light is on is set by a binary value in another register, R2:

Thus



means each colour is on for 2 seconds.

(a) The two registers contain the following values.

What is the sequence of coloured lights and the timing for each colour?

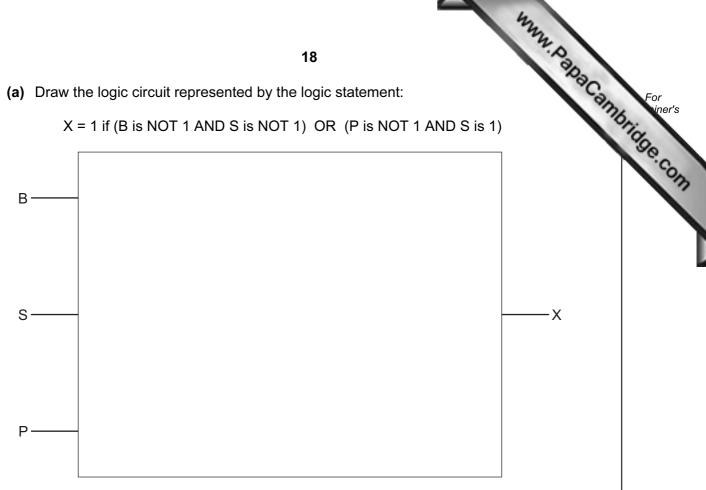
R1						R2		
0	1	1	0	1	0	1	1	1

sequence of colours	
timing	
	[2]

www.PapaCambridge.com (b) What will the two registers contain if the coloured light sequence is red, gre **black** and the timing is 5 seconds? R2 **R1** (c) What is the problem with trying to display green, blue, red in that order?

15 (a) Draw the logic circuit represented by the logic statement:

X = 1 if (B is NOT 1 AND S is NOT 1) OR (P is NOT 1 AND S is 1)



(b) Complete the truth table for the above logic statement.

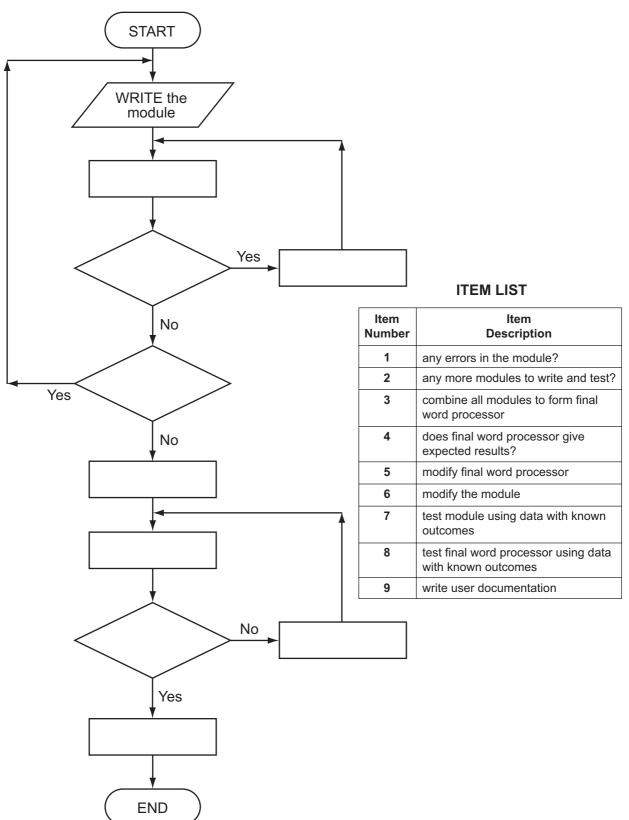
			Working space	
В	S	Р		Х
0	0	0		
0	0	1		
0	1	0		
0	1	1		
1	0	0		
1	0	1		
1	1	0		
1	1	1		

[4]

[6]

www.papaCambridge.com 16 A large word processor is being developed by first writing a series of modules. The then put together to form the final word processor. Testing is done on each module and the final word processor. The following flowchart shows how this word processor developed. Several of the stages have been omitted.

Complete the flowchart, using item number only, from the list of items given.



[Turn over © UCLES 2013

[5]

17 A country has four mobile phone network operators. Each mobile phone number has

digits. The fir	rst three digits identify the network operator:
444 555 666 777	Yodafone N2 network Kofee mobile Satsuma mobile
	gorithm, using pseudocode or flowchart only, which reads 50 000 eight-digit e calls made during the day and outputs the number of calls made on each of vorks.
	[6]

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