

Cambridge International Examinations

Cambridge Ordinary Level

CANDIDATE NAME			
CENTRE NUMBER		CANDIDATE NUMBER	

COMPUTER SCIENCE

2210/12

Paper 1 Theory

May/June 2017

1 hour 45 minutes

Candidates answer on the Question Paper.

No Additional Materials are required.

No calculators allowed.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces at the top of this page.

Write in dark blue or black pen.

You may use an HB pencil for any diagrams, graphs or rough working.

Do not use staples, paper clips, 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.

The maximum number of marks is 75.



1	Name three different buses that are used in the fetch-execute cycle.
	Bus 1
	Bus 2
	Bus 3
	[3]
2	Give two examples of primary, secondary and off-line storage.
	Primary
	Example 1
	Example 2
	Secondary
	Example 1
	Example 2
	Off-line
	Example 1
	Example 2[6]

3 The diagram shows **five** output devices and **five** descriptions.

Draw a line between each output device and its description.

Output Device Description Inkjet printer Flat panel display that uses the light modulating properties of liquid crystals. LCD screen Flat panel display that uses an array of light-emitting diodes as pixels. 2D cutter Droplets of ink are propelled onto paper. LED screen Electrically charged powdered ink is transferred onto paper. Laser printer High powered laser that uses the x-y plane.

[4]

There are various methods used to detect errors that can occur during data transmission and storage.
Describe each of the following error detection methods.
Parity check
Check digit
Checksum
Automatic Repeat request (ARQ)

	Convert	57 from de	nary to	binary a	and sho	ow your	workin	ıg.			
(b)	Show the	e binary nu	mber fro	om pari	: (a) as	it woul	d be sto	ored in	the foll	owina	reaisters.
(-)										9	
								Re	gister 1	l	
											Davia
											Regis
(c)	A binary main me		ored in a	a registe	er can h	nave ma	any diff	erent u	ses, foi	exam	ple an addres
(c)	main me		s for a b	oinary n	umber	stored	in a reg	jister.		exam	ple an addres
(c)	main me Give two Use 1	other use	s for a b	oinary n	umber	stored	in a reg	jister.		exam	ple an addres
(c)	main me Give two Use 1	mory. other use	s for a b	oinary n	umber	stored	in a reg	jister.		exam	ple an addres
	main me Give two Use 1 Use 2	other use	s for a b	oinary n	umber	stored	in a reg	jister.		exam	ple an addres
	main me Give two Use 1 Use 2	other use	s for a b	oinary n	umber	stored	in a reg	jister.		exam	ple an addres
	main me Give two Use 1 Use 2 A registe	o other use	outer co	ntains t	oinary o	stored	in a reg	gister.		exam	ple an addres

6 Airline boarding passes can be read from a smartphone instead of a printout.



	/ what ty e is read	barcode	A is a	n example	e of. Explair	n how the	data stored	in this type of
•••••		 	•••••					
•••••		 						
								[4]

- 7 Computer A is communicating with computer B.
 - (a) Draw an arrow or arrows to show simplex, duplex and half-duplex data transmission. The direction of the data transmission must be fully labelled.

Simplex data transmission





Computer A

Computer **B**

Duplex data transmission





Computer A

Computer B

Half-duplex data transmission





Computer A

Computer B

(b) State a use for the following data transmission methods. The use must be different for each data transmission method.

Simplex	
Duplex	

[2]

[6]

(c)	A computer includes an Integrated Circuit (IC) and a Universal Serial Bus (USB) for dat transmission.	ta
	Describe how the computer uses these for data transmission, including the type of data transmission used.	ta
	IC	
	USB	
	[4	 4]

A company has a number of offices around the world.

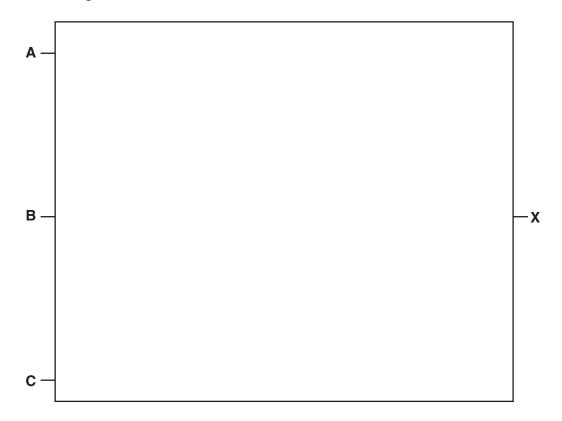
8

(a)	Data is transmitted between the offices over the Internet. In order to keep the data safe the company is using Secure Socket Layer (SSL) protocol and a firewall at each office.
	Explain how SSL protocol and a firewall will keep the company's data safe.
	SSL protocol
	Firewall
	TA1
	[4]
(b)	A company stores personal details of its customers on a computer system behind a firewall.
	Explain, with reasons, what else the company should do to keep this data safe.
	[6]

unit.
Explain how the sensor and microprocessor will maintain a constant low temperature.
[e]

10 For this logic statement:

(a) Draw the logic circuit.



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

Α	В	С	Working space	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]

[4]

A company sells smartphones over the Internet.

Explain how the information stored on the company's website is requested by the customer, sent to the customer's computer and displayed on the screen.

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