

Cambridge International Examinations

Cambridge International General Certificate of Secondary Education

CANDIDATE NAME				
CENTRE NUMBER		CANDIDATE NUMBER		

INFORMATION AND COMMUNICATION TECHNOLOGY

0417/13

Paper 1 Theory October/November 2017

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 in the spaces at the top of this page and any additional pages you use.

Write in dark blue or black pen.

Do not use staples, paper clips, 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.

The syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of 15 printed pages and 1 blank page.



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	a Blu-ray disc	a compact disc	a hard disk	a I	mag	netic tap			
	a memory card	a pen drive	a processo	r R	AM				
	ROM	a solid state drive							
(a)		m that is often used to sto							
(b)	Internal memory where	e the data cannot be cha	nged is called						
(c)		ch can only be used for s							
(d)	Internal memory that is volatile is called								
Γick	whether the following	are examples of applicat	-			ystem			
			ion or system so	oftware.					
Lir	nker	are examples of applicat	ion or system so	oftware.		ystem			
Lin		are examples of applicat	ion or system so	oftware.		ystem			
Lir Da Ph	nker utabase management s	are examples of applicat	ion or system so	oftware.		ystem			
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Lir Da Ph Co	nker atabase management synoto-editing software compiler a whether the following	are examples of applicat ystems	ion or system so	oftware. lication (✓)	S	ystem (✓)			
Lir Da Ph Co	nker Atabase management sylvato-editing software Examples The monitors use more parts and the sylvators are sometimes.	are examples of applicat ystems statements are true or fa	ion or system so app	oftware. lication (✓)	s	ystem (√)			
Lir Da Ph Co Tick	nker atabase management synoto-editing software compiler AT monitors use more prouch screen can be us	ystems statements are true or fa	ion or system so app	oftware. lication (✓)	s	ystem (√)			

4 Tick three ways in which data entry can be verified.

	Tick (√)
Compare with source document	
Carry out a range check on the data	
Only accept alphabetic characters	
Get a second person to read through the document	
Ensure the data is 100% accurate	
Type in the data twice and compare versions	
Calculate a check digit	
Check spelling	

6 Peter was asked to resize an image to fit a space in a document. The image before the change and the image after the change are shown below.







The image after the change

(a)	Describe the steps Peter used to resize the image.
	[2]
(b)	Peter has been asked to remove some of the sky in the image.
	Identify the formatting technique Peter would use to do this.
	[1]
(c)	Having created the document, Peter needs to email it to his teacher. The file is too large for the email attachment. The file size must be reduced so it can be attached to the email.
	Describe the steps required to carry out this process.
	[2]

7

An	electricity company has created a new computer system to produce its bills.
Afte	er the system was implemented a number of customers complained about very expensive bills
Eac	ch module was tested in the system using validation checks.
(a)	Explain what other testing should have been carried out before the system was implemented
	[2
(b)	Prior to implementation the management was undecided over the method of changeover to be used.
	Explain why the management would choose direct changeover rather than parallel running.
	o

8	Data	a transmitted through the World Wide Web can be protected by encryption.
	(a)	Explain what is meant by encryption of data.
		[3]
	(b)	Explain what is meant by a digital certificate.
		[2]
9	Sho	pping often requires the use of a credit card.
	(a)	Give three methods of reading the data from the credit card.
		1
		2
		3
		J
		[3]

	(b)	Shopping for groceries using the internet has become popular and is replacing more traditional types of grocery shopping.
		Describe the advantages and disadvantages of grocery shopping using the internet rather than other methods.
		[4]
10	(a)	A website uses anchors.
		Describe what an anchor is and how it is used.
		[3]
	(b)	Write the HTML markup to create an anchor called "Top".
		[3]
	(c)	State the main purpose of a web browser.
		[1]

11	A school library has computerised its book borrowing system. Students are allowed to borrow	W
	books free of charge.	

(a)	When a book is	borrowed	the deta	ils of the	e book	and th	he borrower	have to	be	input	to the
	system.										

Tick **three** direct data entry devices which could be used in such a system.

Direct data entry device	Tick
Bar code reader	
Magnetic Ink Character Reader	
Magnetic stripe readers	
Keyboard	
Mouse	
RFID chip reader	

[3]

(b)	The library uses a database with two tables: borrowers and books. They have recently purchased a biometric reader which will identify the borrower from their thumb print. A borrower may only borrow a maximum of six books.
	Describe the computer processing involved when a book is borrowed using this system.
	[6]

Question 12 starts on page 10.

12 A systems analyst is creating a new database for a shop to store the details of its mobile (cell) phones. Part of the design of this database will involve the identification of suitable validation checks.

Below is a list of some of the data to be included in the database.

ID_number	Make	Model	Connectivity	Price
Z13026	YNOS	NAM1	5G	\$299.00
A23543	OIKAN	RID4	3G	\$150.99
T32167	MUGAS	BLK2	4G	\$250.00

(a) For the following fields write down the most appropriate validation check. Each validation check must be different. The database will have at least 100 records and each ID number will

be different.
ID_number
[1]
Connectivity
[1]
Price

	using all the fields shown in the example data.
	In your answer include appropriate spacing for each field, and navigational aids.
	[5]
(c)	[5] The system is being tested using live data. Write the search criteria you would enter into the database to search for a mobile (cell) phone costing less than \$200.00 which has a connectivity of 4G.
(c)	The system is being tested using live data. Write the search criteria you would enter into the database to search for a mobile (cell) phone costing less than \$200.00 which has a
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13	A theatre uses an online booking system to allow customers to book specific seats for its performances.
	A customer has loaded the theatre website. Describe the inputs and outputs of such a system before the customer pays for a ticket.
	ובו

14 Contactless debit cards are replacing standard debit cards. Some countries are introducing

contactless debit card transactions at ATM machines.
Discuss the advantages and disadvantages to the bank of using these cards at an ATM.
iei
[6]

- 15 Computers can be used in different applications to control a process, to simply gather data (measurement only) or to mimic a human expert (expert systems).
 - (a) Tick whether the following applications use Control, Measurement (only) or Expert system.

	Control (√)	Measurement (only) (√)	Expert system (✓)
Computerised glasshouse			
Burglar alarm			
Chess games			
Automatic washing machine			
Recording weather conditions			
Monitoring air pollution			

(b)	Measurement systems can use sensors. The computer cannot read the data directly from the sensor.
	Explain how a device can be used to enable the computer to read the data from the sensor.
	[2]
(c)	Identify the four components of an expert system.
	1
	2
	3
	4
	[4]
Stat	te what is meant by OMR and MICR, giving an example of their use.
OM	R
Exa	mple
MIC	CR
Fxa	mple
LAG	
	[4]

16

17	Social networking is often used today rather than face-to-face conversations, letter writing and telephone conversations.					
	Discuss the advantages and disadvantages of using social networking.					
	[8]					

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