



**Cambridge International Examinations**  
Cambridge International General Certificate of Secondary Education

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NAME

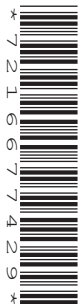
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CENTRE  
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**INFORMATION AND COMMUNICATION TECHNOLOGY**

**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.

1 Complete the sentences, using the most appropriate item from the list.

- a Blu-ray disc**      **a compact disc**      **a hard disk**      **a magnetic tape**  
**a memory card**      **a pen drive**      **a processor**      **RAM**  
**ROM**      **a solid state drive**

(a) Optical storage medium that is often used to store HD movies is called

.....[1]

(b) Internal memory where the data cannot be changed is called

.....[1]

(c) Magnetic medium which can only be used for serial access is called

.....[1]

(d) Internal memory that is volatile is called

.....[1]

2 Tick whether the following are examples of **application** or **system** software.

	application (✓)	system (✓)
Linker		
Database management systems		
Photo-editing software		
Compiler		

[2]

3 Tick whether the following statements are **true** or **false**.

	true (✓)	false (✓)
CRT monitors use more power than TFT monitors		
A touch screen can be used as an input device or an output device		
A dot matrix printer produces high quality graphics		
A motor is an input device		

[2]

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	

[3]

5 Identify **three** ways in which employment patterns have changed since the introduction of ICT.

- 1 .....
- .....
- 2 .....
- .....
- 3 .....
- .....

[3]

- 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 before the change



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.

After the system was implemented a number of customers complained about very expensive bills.

Each 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.

.....  
.....  
.....  
.....  
.....  
..... [3]

8 Data 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 Shopping often requires the use of a credit card.

(a) Give **three** methods of reading the data from the credit card.

1 .....  
.....  
2 .....  
.....  
3 .....  
..... [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.

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[4]

10 (a) A website uses anchors.

Describe what an anchor is and how it is used.

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[3]

(b) Write the HTML markup to create an anchor called “Top”.

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[3]

(c) State the main purpose of a web browser.

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.....

[1]

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

(a) When a book is borrowed the details of the book and the 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.

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[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

.....  
 ..... [1]

- (b) Design a screen input form which would be used to input data for one mobile (cell) phone, using all the fields shown in the example data.

In your answer include appropriate spacing for each field, and navigational aids.



[5]

- (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 connectivity of 4G.

.....

.....

.....

.....[5]

**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.

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.....[5]



(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 .....  
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3 .....  
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4 .....  
..... [4]

16 State what is meant by OMR and MICR, giving an example of their use.

OMR .....  
.....  
Example .....  
.....  
MICR .....  
.....  
Example .....  
..... [4]



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