



Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

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INFORMATION AND COMMUNICATION TECHNOLOGY

0417/12

Paper 1 Theory

February/March 2018

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.

Any businesses described in this paper are entirely fictitious.

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.

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

This document consists of **14** printed pages and **2** blank pages.

1 Complete the following sentences, using items from the list below.

- Applications** **A bar code reader** **A compiler** **A CPU** **Hardware**
A monitor **A printer** **A scanner** **System** **USB**

- (a) software is designed to manage computer hardware. [1]
 (b) software examples include word processing and spreadsheets. [1]
 (c) produces output in the form of hard copy. [1]
 (d) converts high-level language programs into machine code. [1]

2 Tick the most appropriate device for reading the details from the following media:

	Optical Mark Reader (✓)	Magnetic Ink Character Reader (✓)	Bar code reader (✓)	Chip and PIN reader (✓)
Debit card				
Bank cheques				
A candidate's responses for multiple-choice exam questions				
A label on a can of soup				

[4]

3 (a) Identify **two** uses of 3D printing that help doctors and patients in hospitals.

1

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2

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[2]

(b) Identify **two** uses of holographic imaging that help doctors and patients in hospitals.

1

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2

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[2]

4 CD, DVD and Blu-ray are types of optical storage media.

Tick the most appropriate optical storage medium for each of the statements.

	CD (✓)	DVD (✓)	Blu-ray (✓)
Stores lower quality audio files			
Has the highest storage capacity			
The RAM version of this medium is used to record and play recorded images at the same time			
Stores high definition movies			

[4]

5 Describe the following file formats.

(a) .css

 [2]

(b) .htm

 [2]

6 The Chennai Flood Defence Agency is concerned about the continued flooding of the Adyar river. You have been asked to produce a flood defence model, using a spreadsheet, to show the normal depth and the actual depth of the river.

Part of the flood defence model is shown.

	A	B	C	D
1	Chennai Flood Defence - Adyar River			
2				
3	Measurement point	Normal depth (m)	Actual depth (m)	Warning
4	Thiru-Vi-Ka Bridge	0.5	3.9	Alert
5	Kotturpuram Bridge	0.5	1.6	
6	Anna Salai Bridge	0.6	1.7	
7	Alandur Road Bridge	0.65	2	
8	Jawaharlal Bridge	0.7	2.6	
9	River Bridge	0.75	2.7	
10				

In the Warning column the model will display:

- 'Alert' when the actual depth is above 2.5 m
- 'Aware' when the actual depth is between 1.5 m and 2.5 m
- 'Safe' when the actual depth is below 1.5 m
- 'Error' when abnormal data is entered.

- (a) Test data is entered in cell C4.
Complete the following test plan for the warnings.

Test data	Type of data	Expected Result
3.4	Normal	
	Extreme	Aware
1.9	Normal	Aware
	Extreme	Aware
	Normal	Safe
	Abnormal	Error

[5]

- (b) You need to enter a formula in cell D4. This formula will be replicated down to cell D9.
Complete the formula that would be used in cell D4.

=IF(C4>2.5, "Alert",
.....

[5]

- (c) One of the users has incorrectly entered actual depth data into cells B4 to B9 rather than cells C4 to C9.

Describe how you can amend the spreadsheet to prevent this from happening in the future.

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.....[2]

(d) Part of the flood defence model is shown.

	A	B	C	D	
1	Chennai Flood Defence - Adyar River				
2					
3	Measurement point	Normal depth (m)	Actual depth (m)	Warning	
4	Thiru-Vi-Ka Bridge	0.5	3.9	Alert	
5	Kotturpuram Bridge	0.5	1.6		
6	Anna Salai Bridge	0.6	1.7		
7	Alandur Road Bridge	0.65	2		
8	Jawaharlal Bridge	0.7	2.6		
9	River Bridge	0.75	2.7		
10					

You have been asked to produce a graph or chart to show both the normal level and the recorded actual level at each of the bridges along the river. Include a legend and the names of each of the bridges.

(i) Name the most appropriate type of graph or chart to display this data.

.....[1]

(ii) Describe how you would use the spreadsheet software to create the graph or chart.

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.....[4]

- (e) The data will be collected from the river using a remote computer connected to sensors to measure the data.

Explain why it is better to use this method rather than collecting the data manually.

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.....[4]

- 7 Tick the **three** most accurate statements regarding computer hardware.

	Tick (✓)
CPU means Computer Processing Unit	
Data in RAM is not lost when the computer is turned off	
ROM is Read Only Memory	
A printer is an input device	
A touch screen can be an input device and an output device	
The control unit is part of the CPU	
The CPU is stored on the hard disk	
A pen drive is an example of internal memory	

[3]

Mail merged letters will be sent to customers.

(b) Describe how mail merge will be used to produce the letters.

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.....[4]

9 Websites that start HTTPS are secure websites. They use encryption when the data is transferred.

Explain what is meant by encryption.

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.....[3]

10 The Mansa Cricket Club (MCC) is considering setting up an online forum to allow users to post comments.

(a) Compare and contrast a moderated forum with an un-moderated forum.

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.....[6]

(b) The cricket club considered other methods of allowing its spectators to comment on the matches.

Tick the most appropriate method for each of these examples.

	Blog (✓)	Wiki (✓)	Email (✓)
Interactive cricket club web page that can be viewed and edited by users			
An online journal written by the club secretary			
Transmission of messages sent directly to the secretary of the cricket club			
Club members cannot edit the comments posted online			

[4]

- (c) The cricket club are designing a poster to publicise a match against a New Zealand XI. They have produced the following poster. The space available for the image is 1.3 cm high by 1 cm wide and the image is currently 26 cm high by 16 cm wide.



The image on the right is to be used in the poster but it is too large.

Describe how to edit the image, without cropping, to fit into the space in the poster.

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[3]

- (d) The image used in the poster is copyright-free.

Explain why copyright legislation is needed for images.

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[2]

11 There are two types of documentation, user and technical.

Tick the elements that are part of **User documentation**, **Technical documentation** or **Both**.

	User documentation (✓)	Technical documentation (✓)	Both (✓)
Purpose of the system			
Program listing			
Input format			
Error messages			
Hardware requirements			

[5]

12 Ananya is a student who is considering buying a new laptop computer. She visits the local store and is offered the choice of a laptop with an internal solid state drive (SSD) or a laptop where she can store her data in the cloud.

(a) Describe the benefits and drawbacks of using an SSD rather than the cloud to store her data.

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[6]

- (b) Ananya is planning to invite her friends to the local cinema and is going to send them an email.

Explain why she uses an email group to do this.

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.....[3]

- 13 A school has a computer room containing some laptops and some desktop computers. The headteacher must consider safety issues.

Identify **three** of these issues and for each one write down a method which would help the headteacher minimise the risk. Each method must be different in each case.

Issue 1

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Method 1

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Issue 2

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Method 2

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Issue 3

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Method 3

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[6]

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