



Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

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INFORMATION AND COMMUNICATION TECHNOLOGY

0417/12

Paper 1 Theory

October/November 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 **13** printed pages and **3** blank pages.

2

- 1 Tick whether the following are examples of **applications software** or **system software**.

	applications software (✓)	system software (✓)
Control software		
Compiler		
Word processing		
Device drivers		

[2]

- 2 Complete the following sentences, using the most appropriate technology from the list.

a 3D printer **a dot matrix printer** **a laser printer** **a light sensor**
a magnetic ink character reader **a microphone** **an optical mark reader**
a speaker **a web cam** **a wide format printer**

- (a) A device that is most suited to being used to produce hard copy output in a general office environment is called

..... [1]

- (b) The input device that reads the cheque number from a bank cheque is called

..... [1]

- (c) A device that outputs hard copy large architectural drawings is called

..... [1]

- (d) A device that outputs sound is called

..... [1]

3

- 3** Pupils working on a science project use the school network to store and retrieve files. They log onto the network using individual passwords.

(a) Abisha is using his name as his password.

Give **two** reasons why this is not a good idea.

1

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2

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[2]

(b) Give **two** other pieces of advice the teacher should give regarding the management of passwords.

1

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2

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[2]

- 4** A school is setting up a new computerised system to manage many aspects of the school administration.

(a) Describe how this system can be used to manage student registration and attendance.

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.....

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.....

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..... [3]

(b) Describe the benefits of using this system.

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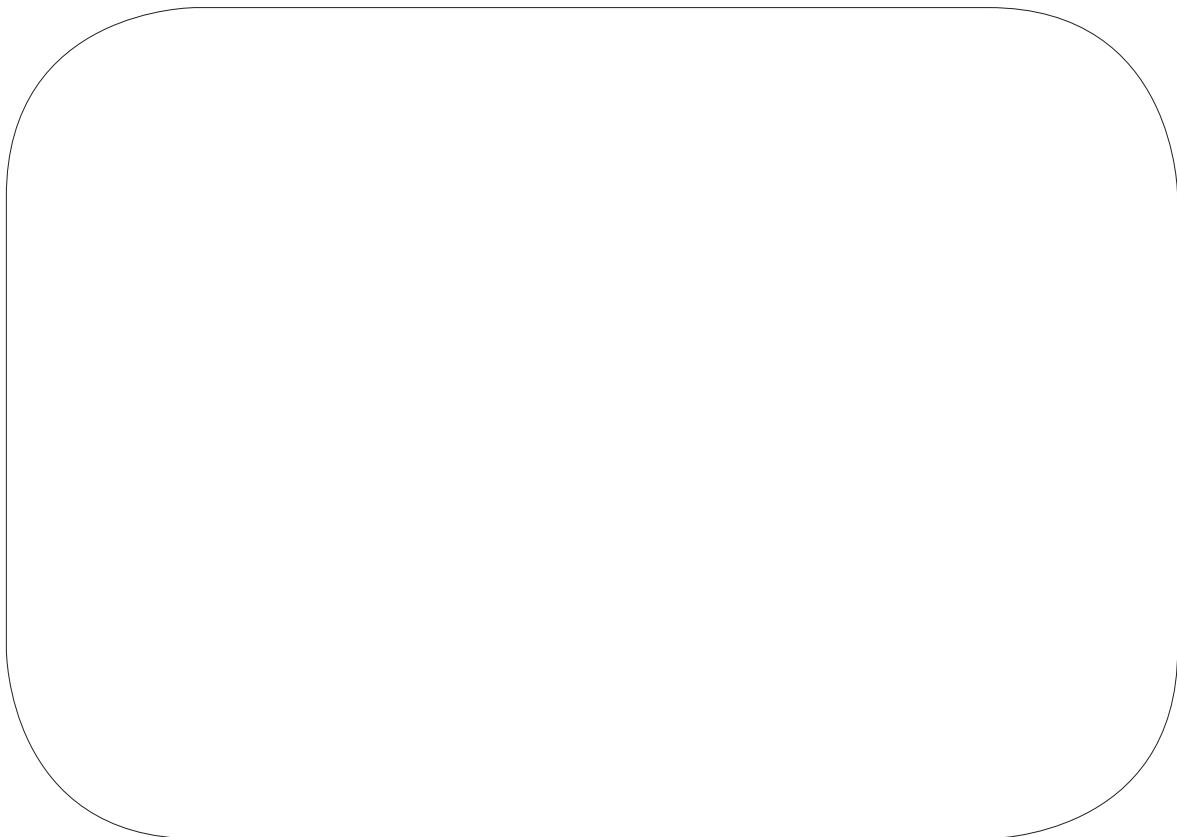
..... [2]

- (c) The data from the registration system is saved in the school administration database.

The head teacher will need to check the attendance records for any student for any semester. She will type in the Student_ID and the Semester (Autumn, Spring or Summer). After she has done this the following data will appear on the same screen.

Field name
Student_name
Days_present
Number_of_lates
Number_absences
Parents_phone_number
Tutor_group

Design a suitable screen layout to display one record. It must have appropriate spacing for each field, navigation aids and a space to type in search data. Do not include examples of students.



[6]

5

A student record from the database is shown below.

Field name	Example Data
Student_ID	8543
Semester	Spring
Student_name	Kannur Rahul
Days_present	180
Number_of_lates	4
Number_absences	6
Parents_phone_number	01244878387
Tutor_group	11ABC

- (d) Name an appropriate validation check that could be used for each of the following fields, based on the data shown in the record.

Field name	Validation check
Semester	
Number_of_lates	
Parents_phone_number	

[3]

- 5 Describe the benefits and drawbacks of using a Graphical User Interface (GUI) rather than a Command Line Interface (CLI).

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.....

..... [4]

- 6 A Medical Authority in a large city is planning to centralise its medical booking system. This will allow patients to make all of their doctors' appointments, dental appointments and hospital appointments online.

- (a)** Discuss the benefits and drawbacks to both the patients and the medical staff of this type of system.

[8]

- (b)** The Medical Authority creates many different types of documents including letters and memos. Each of them is produced using its corporate house style.

Explain why corporate house styles are required.

..... [3]

7

- 7 A student is setting up a database of information about volcanoes for a Geography project. The following is part of the database.

Name_of_volcano	Country	Height	State	Last_eruption	Volcano_type
Usu	Japan	731	Active	2001	Stratovolcano
Tor Zawar	Pakistan	2237	Dormant	2010	Fissure
Datong	China	1882	Extinct	450	Cinder Cone
Changbaishan	China	2744	Active	1903	Stratovolcano
Stromboli	Italy	926	Active	2016	Stratovolcano
Tengchong	China	2865	Dormant	1609	Pyroclastic cone
Wudalianchi	China	597	Dormant	1721	Multi-coned

Operators such as AND, OR, NOT, LIKE, >, >=, <, <=, =, <> can be used to search the volcano database. The search criteria for all the dormant volcanoes with a height of less than 1000 metres would look like this:

State = "Dormant" AND Height < 1000

Use only the given operators and data to:

- (a) write down the search criteria that will produce a list of all the volcanoes that are not extinct in China that also last erupted before the year 1900.

.....
 [6]

- (b) write down the names of the volcanoes that match the requirements of **part (a)**.

.....
 [2]

- (c) The data is sorted into ascending order of height.

Write down the name of the volcano which would now be in the first record.

.....
 [1]

- (d)** Drones are remote-controlled flying devices. Data can be collected by drones that fly through the gas cloud of the volcano. The drones have sensors attached to them which send the data to a computer. The computer analyses the data.

Discuss the benefits and drawbacks of using this method of measurement.

[7]

- (e) Explain why the data collected by the sensors cannot be read directly by the computer.

..... [2]

9**8** Spam emails are a problem for computer systems.**(a)** Explain what is meant by a spam email.

.....

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..... [2]

(b) Explain why spam emails need to be prevented.

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..... [2]

(c) Describe the methods which can be used to prevent spam emails.

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..... [4]

9 Describe how a router forwards data packets from one network to another.

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..... [3]

10

- 10 A local railway company is considering introducing a new system for its passengers using e-tickets on a smart phone. Before introducing this new system, analysis of the current system is required.

- (a)** Describe the steps that would be carried out in the analysis of the current system.

[6]

The e-ticket will link to a database containing personal data.

- (b)** Give two examples of personal data that could be stored.

1

2

[2]

- (c)** Details of each of the passengers have been entered into the database.

Give **one** reason why this data was verified on entry.

..... [1]

11

Proofreading is sometimes thought to be verification.

(d) Explain the difference between verification and proofreading.

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..... [2]

11 .PDF and .RTF are two file formats used for storing documents.

Describe the file formats and explain the differences between them.

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..... [5]

12

- 12** HotHouse Design is a large design company. It has recently created a new web address for their design portfolios. The web address is:

<https://www.hothouse-design.co.uk/portfolios>

- (a)** Describe the following parts of the web address.

[https://](https://www.hothouse-design.co.uk/portfolios)

.....

hothouse-design

.....

.uk

.....

/portfolios

.....

[4]

- (b)** Hyperlinks are widely used in web pages.

Explain what is meant by a hyperlink.

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..... [2]

- 13** Spreadsheets use functions, formulae and named ranges.

- (a)** Describe the term:

Function

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.....

.....

Formula

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.....

.....

[4]

13

(b) Explain why a named range is used in a spreadsheet.

.....

.....

.....

..... [2]

14 Emails are a very popular way of communicating.

Tick **four** statements, relating to emails that are true.

	Tick (✓)
Emails can only be sent from a computer.	
An email can be used to send a message to many people at the same time.	
It always takes a long time for an email to arrive.	
All emails must have an attachment.	
Attachments may have to be compressed to be sent via email.	
Emails can be used to send legal documents.	
Every email has to be printed out.	
In order to send an email back to the sender without retyping the address, reply is used.	
Email means extended mail.	
Email attachments are always checked for viruses before they are sent.	

[4]

14

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