



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

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**INFORMATION AND COMMUNICATION TECHNOLOGY**

**0417/12**

Paper 1 Theory

**February/March 2019**

**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 on 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 regulated for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **16** printed pages.



2

- 1 For each of the different statements, tick the most appropriate network.

	WAN (✓)	WLAN (✓)	LAN (✓)
A cabled network used in one building.			
The internet is an example of this type of network.			
Several networks connected together using a router.			
This network is connected without cables.			

[4]

- 2 Tick whether the following are examples of **System Software** or **Applications Software**.

	System Software (✓)	Applications Software (✓)
Compiler		
Word processing software		
Spreadsheet software		
Operating system		

[2]

- 3 Command Line Interface (CLI) and Graphical User Interface (GUI) are examples of interfaces found in computer systems.

Give **two** advantages of a computer having a GUI rather than a CLI.

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2 .....

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[2]

4 A router is used in networks.

Describe how a router routes data packets.

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..... [3]

5 An office worker is about to open an attachment but is worried it might contain a computer virus.

Explain what is meant by a computer virus.

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..... [2]

6 Circle **three** items which are used as output devices.

- |         |                   |             |             |
|---------|-------------------|-------------|-------------|
| Buzzer  | CD/RW drive       | Keyboard    | LCD monitor |
| Speaker | Solid state drive | Trackerball | Web cam     |

[3]

- 7 The Tawara Tea Company supplies tea to its customers. The company has created a spreadsheet to help its sales team to keep track of its orders.

The spreadsheet has two worksheets, named Products and Orders.

Part of the spreadsheet is shown below.

All prices and costs are displayed in Indian Rupee ₹.

Worksheet: Products

	A	B	C
1	<b>Tea code</b>	<b>Product name</b>	<b>Price per unit</b>
2	272	Singbulli Champagne Oolong	₹ 16.00
3	347	Phuguri Supreme	₹ 16.00
4	348	Tumsong Supreme	₹ 16.00
5	349	Pussimbing Supreme	₹ 16.00
6	3	Phuguri	₹ 8.50
7	5	Goomtee	₹ 8.00
8	6	Risheehat	₹ 6.40
9	7	Makaibari Organic	₹ 4.90
10	8	Bannockburn	₹ 5.00
11	9	Chamong Organic	₹ 4.00

Worksheet: Orders

	A	B	C	D
1	<b>Order ID</b>	<b>Tea code</b>	<b>Quantity ordered</b>	<b>Cost</b>
2	124	272	24	
3	124	348	25	
4	124	6	105	
5	124	9	120	
6	124	349	30	
7	125	3	225	
8	125	5	220	
9	125	6	200	

A salesman needs to create a formula to be placed in cell D2, in the Orders worksheet, that finds the Price per unit of the tea, multiplies it by the Quantity ordered and then displays the result.

- (a) Write a formula that needs to be entered in cell D2. This formula will be replicated down to cell D9.

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 ..... [8]

The salesman has created a new worksheet called Receipt which automatically produces a receipt for each order.

Worksheet: Receipt

	A	B	C	D	E
1	<b>Order ID</b>	<b>Tea code</b>	<b>Product name</b>	<b>Quantity ordered</b>	<b>Cost</b>
2	124	272	Singbulli Champagne Oolong	24	₹ 384
3		348	Tumsong Supreme	25	₹ 400
4		6	Risheehat	105	₹ 672
5		9	Chamong Organic	120	₹ 480
6		349	Pussimbing Supreme	30	₹ 480
7				<b>Total</b>	₹ 2416

(b) Explain how he could format the Cost column (column E) to display the values in Indian Rupees as shown.

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..... [3]

8 A drone is a remote controlled flying vehicle. A drone is being used to monitor floods in Mumbai.

(a) Complete the following sentences, using the most appropriate word or words from the list below.

- buzzer                      joystick                      monitor                      pressure sensor
- ROM                      speaker                      temperature sensor                      video camera

(i) The drone is microprocessor controlled with input from a  
..... [1]

(ii) Images of the floods are captured using a  
..... [1]

(iii) The images sent from the drone are displayed on a  
..... [1]

(b) Name **three** advantages of using a drone to monitor the floods rather than collecting the data manually.

- 1.....  
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- 2.....  
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- 3.....  
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[3]

- 9 Aadhya and her family are planning a visit to the Gir National Park and she is creating a web page about the destination.

She has started writing some of the HTML but has made some mistakes.

```
<html>
<!-- Visit to Gir National Park -->
<head>
</head>
<title>The Gir National Park</title>
<body>
<table style= "width:100%">
<tbody style="background-color: #9acd32">
<tr>
<td rowspan="2">
</td>
<td><h1>The Gir National Park</h1>
<h3>A National Park of Gujarat</h3>
</td>
<td ><img scr="GIR-LOGO.JPG" alt="Logo for Gir National Park">
</td>
</tr>
<tr>
<td colspan="2" >This webpage is under construction.
</td>
</tr>
</tbody>
<table>
</body>
</html>
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Write down **four** mistakes which would prevent this markup from working properly. Your answers must be different in each case.

- 1 .....
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- 2.....
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- 3.....
- .....
- 4.....
- .....

[4]

10 An electric bus system is being considered for New Delhi. Passengers will use smart cards to travel on the bus. They will have to add money to their smart card before they can travel.

(a) Compare and contrast the use of smart cards rather than using cash to pay for a journey.

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The new electric bus system will help to reduce the air pollution in the city. Sensors are used in the system.

(b) Name a sensor that could be used to detect high levels of air pollution.

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..... [1]



- (c) The sensor monitors the air pollution. When the air pollution reaches a certain limit, a message is displayed on a street sign in the city to warn pedestrians and road users.

Describe the computer processing involved in this system.

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..... [4]

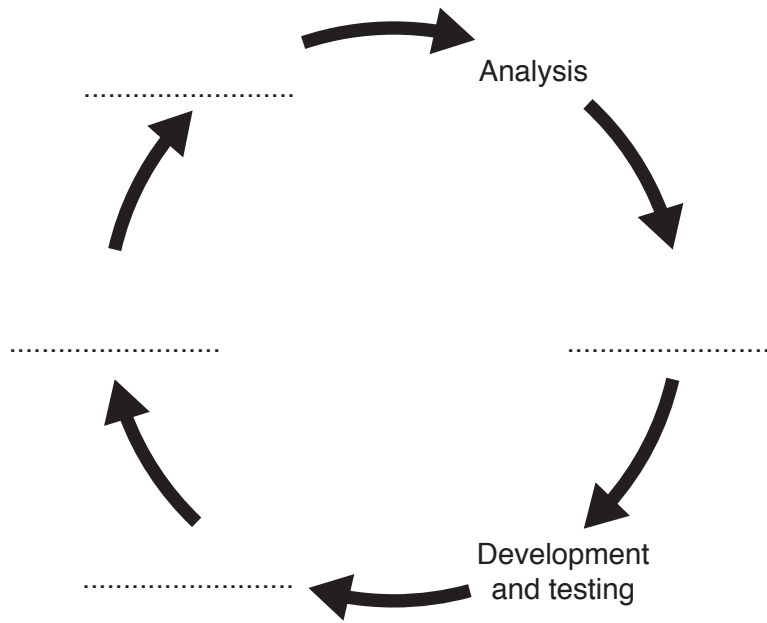
- (d) Data from the sensor needs to be converted from analogue to digital before it is processed.

Explain the need for this conversion.

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..... [2]

- 11 The systems life cycle is shown. The Design, Evaluation, Documentation and Implementation stages are missing.

Write these stages into their correct places.



[4]

12 Tawara High School has developed a new computerised system to timetable lessons and examinations. The school needs the new system to be in use before the start of the new school year. The school is planning to implement the new system using either direct changeover or parallel running.

(a) Discuss the advantages and disadvantages of using direct changeover compared with parallel running as a method of implementing the system.

In your answer name the method you would use, giving reasons for your choice.

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[8]

(b) Describe **four** advantages of using computerised timetabling systems.

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[4]

- 13** Aayush has been involved in an accident and has badly damaged his hand. A surgeon is attempting to replace Aayush’s hand with a prosthetic hand.

Explain how the surgeon would use a 3D printer to create the prosthetic hand.

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..... [4]

- 14** A student has handed in her homework. One of the incorrect answers she gave was that encryption could be used to stop an unauthorised person accessing a computer system.

**(a)** Explain what is meant by encryption and why it is used.

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..... [4]

**(b)** Identify a method which would help to prevent unauthorised access to a computer.

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15 Geographic Information Systems (GIS) use satellites.

Describe, using an example, how GIS can be used.

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..... [5]

**16** A programmer is developing a presentation of a new ICT solution for a conference and needs to consider the audience.

**(a)** Using examples, explain why presentations and ICT solutions have to take into account the type of audience.

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..... [4]

**(b)** The programmer is concerned that the software used for the presentation will be copied by the participants during the conference.

Describe how the software could be protected from illegal copying.

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..... [4]

17 Repetitive Strain Injury (RSI) is one of the health problems associated with the prolonged use of computers.

(a) Describe RSI and what causes it.

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..... [2]

(b) State **two** strategies for preventing RSI.

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..... [2]

