Cambridge IGCSE

Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

0858620473

COMPUTER SCIENCE **0478/13**

Paper 1 Theory **May/June 2019**

1 hour 45 minutes

Candidates answer on the Question Paper.

No Additional Materials are required.

No calculators allowed.

READ THESE INSTRUCTIONS FIRST

Write your centre number, candidate number and name in the spaces at the top of this page.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.
No marks will be awarded for using brand names of software packages or hardware.

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.

The maximum number of marks is 75.

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 **11** printed pages and **1** blank page.

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Cambridge Assessment International Education

[Turn over

1 Victoria is building a website for her cake design business.

(a) She uses the hexadecimal colour code #D2E3F5 as the background colour for her website.

The colour code is stored in two 12-bit binary registers.

Show how the code would be stored in the registers.

D2E

3F5

[6]

(b) Victoria uses HTML to create her website.

State what is meant by HTML.

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..... [1]

(c) The HTML Victoria writes has both structure and presentation.

Five examples are given of structure and presentation.

Tick (✓) to show which example is **Structure** and which is **Presentation**.

Example	Structure (✓)	Presentation (✓)
The colour applied to a text heading on a web page		
The font style applied to a paragraph of text on a web page		
The placement of a paragraph of text on a web page		
The size that an image is set to be displayed at on a web page		
The placement of an image next to a paragraph of text on a web page		

[5]

(d) Customers will use a web browser to access Victoria's website.

Victoria writes a paragraph of text to explain how the website will be displayed on a customer's computer.

Use the list given to complete Victoria's paragraph by inserting the correct **six** missing terms. Not all terms will be used.

- browser
- domain name
- firewall
- hexadecimal
- HTML
- https
- MAC address
- search engine
- Uniform Resource Locator (URL)
- web server

The user enters the website ..... into the address bar.

The protocol that is used is ..... . The URL contains

the ..... for the website. This is used to look up the

IP address of the company. A DNS server stores an index of IP addresses.

The browser sends a request to the ..... as this is

where the files for the website are stored. The files are sent back to the

..... as ..... files.

This is interpreted by the browser and the web page is displayed.

[6]

(e) When customers access Victoria's website they will be given the message:

> This website uses cookies. An explanation of their purpose can be found in our cookies policy.

(i) Explain what is meant by cookies.

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(ii) Explain why Victoria would use cookies as part of her website.

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2 **(a)** A computer can have both a MAC address and an IP address.

Four statements are given about MAC addresses and IP addresses.

Tick (✓) to show whether each statement is **True** or **False**.

Statement	True (✓)	False (✓)
A MAC address is unique to a computer on a network		
Once an IP address has been set it cannot be changed		
A MAC address is made up of the computer's serial number and the IP address		
If a computer does not have an IP address it cannot communicate with another device using the Internet		

[4]

(b) A computer uses the Von Neumann model and the stored program concept.

(i) Explain what is meant by the stored program concept.

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..... [2]

(ii) The Von Neumann model has several components that are used in the fetch-execute cycle.

One component is the Arithmetic Logic Unit (ALU).

Describe the role of the ALU.

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..... [4]

(c) The computer has an operating system.

(i) A signal causes the operating system to stop and assess what to do next.

Identify the name of this signal.

..... [1]

(ii) State **two** functions of an operating system.

1 .....

2 .....
[2]

[Turn over

3 A finance company is concerned that its employees are being distracted by using gaming websites at work.

(a) Explain how a firewall could help prevent this distraction.

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..... [4]

(b) The finance company is also worried about the security of the data stored on its servers.

The company has decided to encrypt the data to improve the security.

Describe how the data are encrypted.

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..... [4]

(c) The finance company realises that its computer systems have been hacked.

The company thinks that spyware was used to obtain a user's password.

Explain how spyware could have been used to obtain the user's password.

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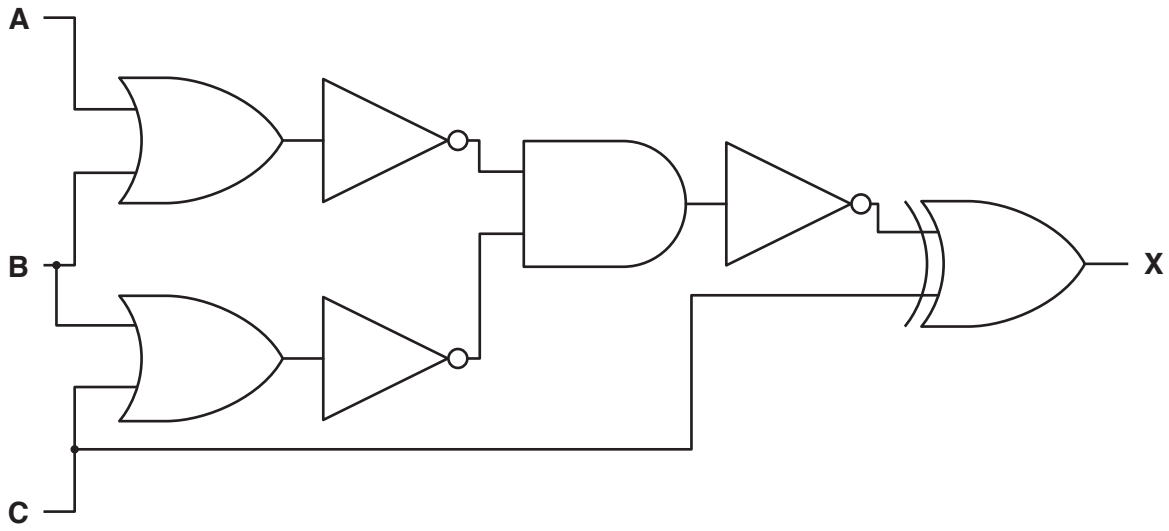
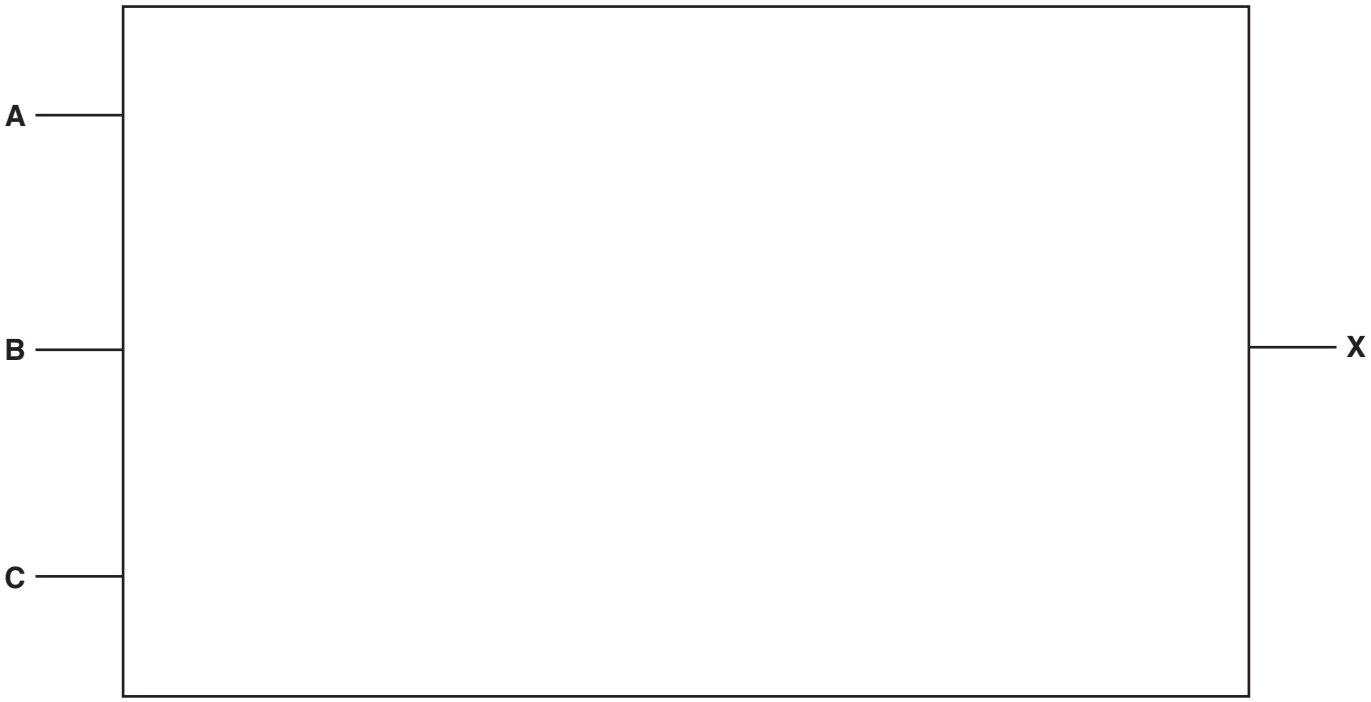
4 Consider the given logic circuit:



(a) Redraw the logic circuit using only 4 logic gates. Each logic gate used must have a maximum of **two** inputs.



[4]

(b) Complete the truth table for the **given** logic circuit.

A	B	C	Working space	X
0	0	0		
0	0	1		
0	1	0		
0	1	1		
1	0	0		
1	0	1		
1	1	0		
1	1	1		

[4]

(c) Describe the purpose of a logic gate in a logic circuit.

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..... [2]

5 The three binary numbers in the registers given have been transmitted from one computer to another.

One binary number has been transmitted incorrectly. This can be identified by the use of a **Parity bit**.

Identify the binary number that has been transmitted **incorrectly**. Explain how you identified the incorrect binary number.

	Parity bit							
Register A	1	0	1	1	1	0	0	1
Register B	1	1	1	0	0	1	1	1
Register C	1	0	0	1	1	0	1	1

The binary number that has been transmitted incorrectly is in **Register** .....

Explanation .....

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..... [4]

6 A museum has an information point.

Visitors to the museum can use the information point to plan their visit to the museum.

The information point allows visitors to access the information using a resistive touch screen.

Visitors can either listen to the information or read it on the screen. They can also select to output a paper copy of the information they require.

(a) Describe how the resistive touch screen registers the visitor's touch.

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(b) The information point has a screen to allow visitors to read information.

Identify **two** other output devices that are present in the information point.

Output device 1 .....

Output device 2 .....

[2]

(c) The information point uses both primary and secondary storage.

Explain what is meant by primary and secondary storage.

Primary .....

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Secondary .....

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[4]

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