Cambridge IGCSE

Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER | | | | | |

CANDIDATE NUMBER | | | | |

5135683263

COMPUTER SCIENCE **0478/12**

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.

DC (KS/CB) 172695/2
© UCLES 2019

1 Input and output devices are often connected to a personal computer.

(a) Identify **three** input devices that can be connected to a personal computer.

1 .....

2 .....

3 .....
[3]

(b) Identify **three** output devices that can be connected to a personal computer.

1 .....

2 .....

3 .....
[3]

2 A finance company uses off-line storage to archive their accounts.

(a) Explain what is meant by off-line storage.

.....

.....

.....

..... [2]

(b) The computers in the finance company use both primary and secondary storage.

(i) Give **one** example of primary storage.

..... [1]

(ii) Give **two** examples of secondary storage.

1 .....

2 .....
[2]

© UCLES 2019

3 Vanessa writes a paragraph as an answer to an examination question about the central processing unit (CPU).

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

- Components
- Data
- Decoded
- Executed
- Fetched
- Instructions
- RAM
- ROM
- Secondary storage

The CPU processes ..... and ..... .

An instruction is ..... from .....

into the CPU where it is then ..... . Once this has taken place the

instruction is then ..... .

[6]

4 **(a)** Marley wants to store a video he has created for his school project.

He considers using a DVD or a Blu-ray to store the video.

Explain **two** differences between a DVD and a Blu-ray.

1 .....

.....

.....

.....

2 .....

.....

.....

.....

[2]

(b) **(i)** Marley also needs to store ten 8-bit colour images in a file for his project.

Each image is 500 pixels wide and 300 pixels high.

Calculate the total file size in megabytes (MB) for all Marley's images.

Show all your working.

.....

.....

.....

.....

.....

.....

.....

File size ..... **MB**

[3]

(ii) Marley prints the images for his project using an inkjet printer.

Describe how the inkjet printer prints an image.

.....

.....

.....

.....

.....

.....

.....

..... [4]

5 A music company wants to send a new music file to many radio stations. It will send the music file the day before the release date so that the radio stations can store the file ready for release.

The music company does not want the radio stations to be able to open the music file until 09:00 on the release date.

Identify **two** security measures **and** describe how each measure can be used to make sure the music file cannot be opened until the release date.

Security measure 1 .....

Description .....

.....

.....

Security measure 2 .....

Description .....

.....

.....

[4]

6 Priya creates a website to sell her old comic books and superhero figures.

(a) She uses HTML to create her website. The HTML she produces has both structure and presentation.

Explain what is meant by HTML **structure** and **presentation**. Include an **example** of each.

Structure .....

.....

.....

.....

Presentation .....

.....

.....

.....

[4]

(b) Priya uses cookies in her website.

Five statements are given about cookies.

Tick (✓) to show if the statement is **True** or **False**.

Statement	True (✓)	False (✓)
Cookies can be used to store a customer's credit card details		
Cookies can be used to track the items a customer has viewed on a website		
Cookies will corrupt the data on a customer's computer		
Cookies are downloaded onto a customer's computer		
Cookies can be deleted from a customer's computer		

[5]

© UCLES 2019

(c) Priya stores her website on a webserver.

To transmit the website data to the webserver she uses parallel duplex data transmission.

Describe how data is transmitted using parallel duplex data transmission.

.....

.....

.....

.....

.....

.....

.....

..... [4]

(d) Priya has a URL for her website.

State what is meant by a URL.

.....

..... [1]

(e) Priya is concerned about a denial of service attack (DoS) occurring on her webserver.

(i) Explain what is meant by a denial of service attack.

.....

.....

.....

.....

.....

.....

.....

..... [4]

(ii) Give **one** security device that can be used to help prevent a denial of service attack.

..... [1]

7 **(a)** An office has an automated lighting system. When movement is detected in the office the lights are switched on. If movement is not detected for a period of 2 minutes the lights are switched off. The system uses a sensor and a microprocessor.

Describe how the automated lighting system uses a sensor and a microprocessor.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [6]

(b) A microprocessor uses ROM.

Explain what is meant by ROM.

.....

.....

.....

.....

.....

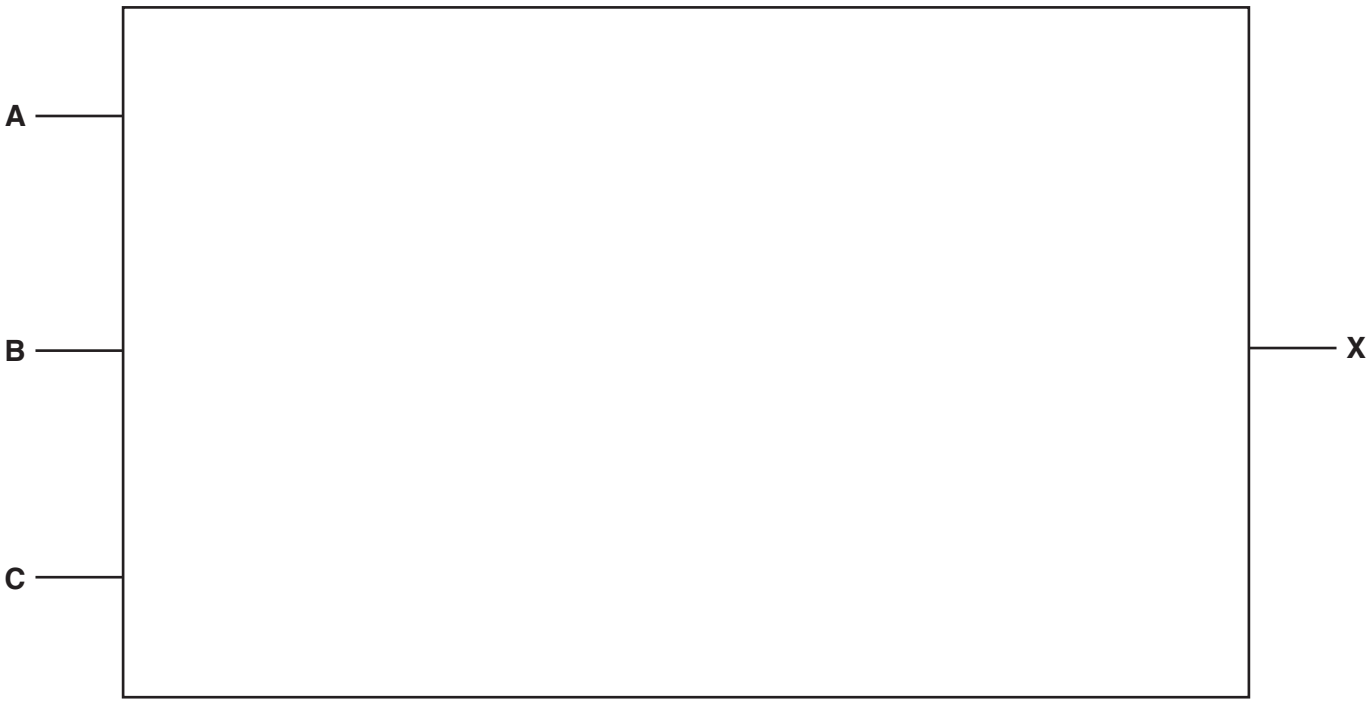
..... [3]

© UCLES 2019

8 Consider the logic statement:

X = 1 if ((A is 1 NOR C is 1) AND (B is NOT 1 NOR C is 1)) OR (A is 1 AND B is 1)

(a) Draw a logic circuit to match the given logic statement. Each logic gate used must have a maximum of **two** inputs. Do **not** attempt to simplify the logic statement.



[6]

(b) Complete the truth table for the given logic statement.

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]

© UCLES 2019

9 The contents of three binary registers have been transmitted from one computer to another. **Even parity** has been used as an error detection method.

The outcome after transmission is:

Register A and **Register C** have been transmitted **correctly**.

Register B has been transmitted **incorrectly**.

Complete the **Parity bit** for each register to show the given outcome.

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

[3]

10 Remy has a mobile device that has a capacitive touch screen.

Describe how the capacitive touch screen registers Remy's touch.

.....

.....

.....

.....

.....

.....

.....

..... [4]

BLANK PAGE

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in the Cambridge Assessment International Education Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at www.cambridgeinternational.org after the live examination series.

Cambridge Assessment International Education is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of the University of Cambridge Local Examinations Syndicate (UCLES), which itself is a department of the University of Cambridge.

© UCLES 2019