Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

COMPUTER SCIENCE **0478/11**

Paper 1 Theory **October/November 2018**

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 approved 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.

DC (NF/SW) 150228/3

1 **(a)** Computer files can be saved in different file formats.

Four file formats and **four** file types are given.

Draw a line to match each file format to the most suitable file type.

File format	File type
.jpeg	Text file
.mp3	Image file
.mp4	Audio file
.txt	Video file

[3]

(b) Jamelia wants to store an image file. The image has an 8-bit resolution and is 150 pixels by 100 pixels in size.

Calculate the file size of the image. Give your answer in kilobytes (kB). Show all of your working.

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File size ..... kB

[3]

(c) Large files can be compressed to reduce their file size.

Two types of compression that can be used are lossy and lossless.

Explain how a file is compressed using lossless compression.

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..... [3]

(d) The table contains **four** different file formats that use compression.

Tick (✓) to show whether each file format uses **lossy** or **lossless** compression.

File format	Lossy (✓)	Lossless (✓)
.jpeg		
.mp3		
.mp4		
.zip		

[4]

[Turn over

2 **(a)** **Six** binary or hexadecimal numbers and **six** denary conversions are given.

Draw a line to connect each binary or hexadecimal number to the correct denary conversion.

Binary or hexadecimal	Denary
01001011	75
4E	78
11011010	157
10011101	167
A7	25
19	218

[5]

(b) Hexadecimal is often used by computer programmers to represent binary values.

Explain why computer programmers may choose to use hexadecimal.

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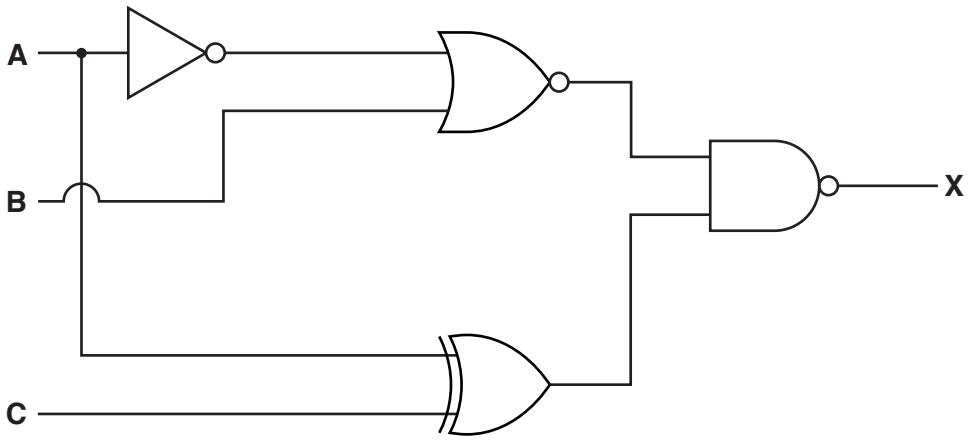
..... [2]

3 A logic circuit is shown:



(a) 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]

(b) Explain the difference between the functions of an AND gate and an OR gate.

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..... [3]

[Turn over

4 Phishing and pharming are two examples of online security threats to a computer system.

(a) Explain what is meant by phishing and pharming.

Phishing .....

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Pharming .....

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[4]

(b) Identify **two** other online security threats to a computer system.

Security threat 1 .....

Security threat 2 .....

[2]

(c) Give **two** security measures that can help to protect a computer system from online security threats.

Security measure 1 .....

Security measure 2 .....

[2]

5 **(a)** **Five** storage devices or media are listed in the table.

Tick (✓) to show whether each storage device or media is an example of **primary**, **secondary** or **off-line** storage.

Storage device or media	Primary (✓)	Secondary (✓)	Off-line (✓)
External HDD			
RAM			
Internal SSD			
ROM			
DVD			

[5]

(b) Users can store their data on optical storage media.

Explain how data is written to optical storage media.

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..... [4]

[Turn over

(c) A sports events company uses a digital camera attached to a drone (small flying system), to video their events from the sky.

The video is stored as it is captured, on a device that is attached to the drone.

(i) Circle the most suitable type of storage to store the video.

Optical Magnetic Solid state

[1]

(ii) Explain the reasons for your choice in **part (c)(i)**.

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..... [2]

6 Two examples of output devices are a 3D printer and a 3D cutter.

(a) The table contains **four** statements about 3D printers and 3D cutters.

Tick (✓) to show which statements apply to each output device, some statements may apply to both output devices.

Statement	3D printer (✓)	3D cutter (✓)
Outputs a physical 3D product		
Uses a high powered laser to create the output		
Creates 3D prototypes		
Uses layers of material to create the output		

[4]

(b) Identify the software used to create the computerised designs for 3D printing.

..... [1]

(c) A Digital Light Projector (DLP) is another example of an output device.

Describe how a DLP displays an image.

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..... [3]

7 Computers can use different methods of transmission to send data from one computer to another.

Parallel data transmission is one method that can be used.

(a) Explain what is meant by parallel data transmission.

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..... [2]

(b) Give **one** benefit and **one** drawback of parallel data transmission, compared to serial data transmission, over short distances.

Benefit .....

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Drawback .....

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[2]

(c) Give **one** example where parallel data transmission is used.

..... [1]

8 Kamil correctly answers an examination question about a number of internet terms.

Six different terms have been removed from Kamil's answer.

Complete the sentences in Kamil's answer, using the list given. Not all terms in the list need to be used.

- browser
- connection
- domain name server (DNS)
- Internet
- Internet Service Provider (ISP)
- IP address
- MAC address
- network
- protocol
- uniform resource locator (URL)
- webpages
- hypertext mark-up language (HTML)

A ..... is a program that allows a user

to view ..... .

An ..... is a company that provides a

connection to access the ..... .

The main ..... that governs the

transmission of data using the Internet is http.

The ..... is provided by the network,

and given to each device on the network.

[6]

9 A sports stadium uses a pressure sensor and a microprocessor to monitor the number of people entering the sports stadium. For the counter to increment the weight on the pressure sensor must exceed 5 kg.

Explain how the system uses the pressure sensor and the microprocessor to monitor the number of people entering.

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..... [5]

10 Personal computers (PCs) use an operating system.

Explain why this type of computer needs an operating system.

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