Cambridge Assessment International Education

Cambridge IGCSE™

COMPUTER SCIENCE **0478/13**

Paper 1 **May/June 2020**

MARK SCHEME

Maximum Mark: 75

Published

Students did not sit exam papers in the June 2020 series due to the Covid-19 global pandemic.

This mark scheme is published to support teachers and students and should be read together with the question paper. It shows the requirements of the exam. The answer column of the mark scheme shows the proposed basis on which Examiners would award marks for this exam. Where appropriate, this column also provides the most likely acceptable alternative responses expected from students. Examiners usually review the mark scheme after they have seen student responses and update the mark scheme if appropriate. In the June series, Examiners were unable to consider the acceptability of alternative responses, as there were no student responses to consider.

Mark schemes should usually be read together with the Principal Examiner Report for Teachers. However, because students did not sit exam papers, there is no Principal Examiner Report for Teachers for the June 2020 series.

Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the June 2020 series for most Cambridge IGCSE™ and Cambridge International A & AS Level components, and some Cambridge O Level components.

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[Turn over

Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

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GENERIC MARKING PRINCIPLE 5: Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).
GENERIC MARKING PRINCIPLE 6: Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

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Question	Answer	Marks
1(a)	– 21 – 258 – 169	**3**
1(b)	1 mark for each correct hex value – 50 – 3D	**4**

Question	Answer	Marks
2(a)		**6**

Hardware device	Input (✓)	Output (✓)	Storage (✓)
Solid state drive (SSD)			✓
Sensor	✓		
Headphones		✓	
Microphone	✓		
USB flash drive			✓
Actuator		✓	

One mark for each correct tick

Question	Answer	Marks
2(b)	– Input – Black – White – Sensors – Binary **One** mark for each correct term in the correct place	**5**

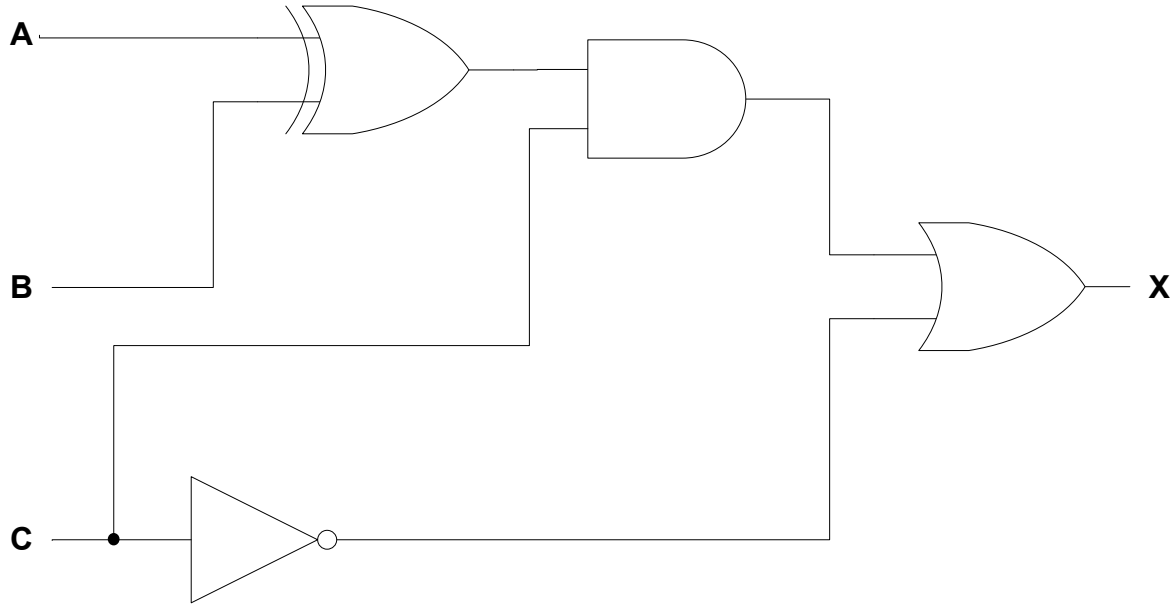
Question	Answer	Marks
3(a)	Any **three** from: – Sends request to webserver – Receives web pages back from webserver – Converts HTML to display web page – Manages protocols	**3**
3(b)	Any **three** from: – **Many** requests are sent from a computer – Requests are sent to the webserver – The webserver becomes flooded with traffic – The webserver cannot handle the requests / fails – The website can no longer be accessed – Attack maybe distributed	**3**

Question	Answer	Marks
4	– Serial (ignore any ref to simplex etc.) – IP (address) – Browser – MAC (address)	**4**

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Question	Answer	Marks
5(a)	Any **four** from: – Stock control system has a database of stock – Each product has a (unique) barcode – Barcode is scanned, and product looked up in database – Stock levels for product are reduced (by 1) – Stock is checked against minimum level – If stock at/below minimum level an order is placed – When stock is re-ordered flag is reset	**4**
5(b)	– It has RAM to store the data / programs / by example **currently in use** – It has ROM to permanently store the boot up instructions – It has HDD to store the stock database / software / OS / by example	**3**
5(c)	Any **four** from: – MAR – MDR – PC – ALU – CU – ACC – CIR – Buses – Registers	**4**

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Question	Answer	Marks
6(a)	 One mark for each correct gate.	4

Question	Answer	Marks
6(b)		**4**

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

Question	Answer	Marks
7(a)	Any **four** from: – Examines outgoing traffic to check what is being requested – Examines incoming traffic to check the content of what is being received – Sets rules/criteria for websites that can/cannot be accessed // creates a blacklist – Check if traffic meets/does not meet rules/criteria – If it does/does not, access to website granted/denied	**4**
7(b)	Any **three** from: – Software that can replicate itself – It could cause the computer to crash / run slow / generate errors – It could delete/damage files – It could fill up the storage space – It could stop the hardware being able to communicate – It could spread to other devices on the network	**3**

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Question	Answer	Marks
7(c)(i)	Any **two** from: – Locked padlock – HTTPS – View the certificate	**2**
7(c)(ii)	Any **four** from: – requests web server to identify itself/view the (SSL) certificate – receives a copy of the (SSL) certificate, sent from the webserver – checks if (SSL) certificate is authentic/trustworthy – sends signal back to webserver that the certificate is authentic/trustworthy – starts to transmit data once connection is established as secure	**4**

Question	Answer	Marks
8		**6**

Statement	3D (✓)	Inkjet (✓)	Laser (✓)
Uses a moving print head	✓	✓	
Uses liquid ink		✓	
Produces output using materials such as plastic and resin	✓		
Uses piezoelectric or thermal technology	(✓)	✓	
Uses a rotating drum to transfer the image to the paper			✓
Uses layer upon layer of material to create the output	✓		

One mark per each correct row.

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Question	Answer	Marks
9	– 1 – 0 – 1 – 1	**4**

Question	Answer	Marks
10(a)	Any **four** from: – Example of spyware e.g. Keylogger is used – Spyware is downloaded without knowledge (by example) – Spyware records key presses / screen clicks / screen activity – Data is relayed back to third party – Data is analysed // Patterns in data could reveal log-in details … – … details can then be used to log into the laptop (remotely)	**4**
10(b)	– Biometric device – Two step authentication	**1**

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