



CANDIDATE
NAME

CENTRE
NUMBER

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CANDIDATE
NUMBER

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0417/12

May/June 2020

2 hours

You must answer on the question paper.

No additional materials are needed.

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- You may use an HB pencil for any diagrams, graphs or rough working.

INFORMATION

- The total mark for this paper is 100.
- The number of marks for each question or part question is shown in brackets [].
- No marks will be awarded for using brand names of software packages or hardware.

This document has **16** pages. Blank pages are indicated.

- 1 The 2020 Olympic Games committee is producing a database to show the medal winners in the cycling events.

It is important that the correct data type is used in each of the fields.

(a) Tick (✓) the most appropriate data type for each of the following fields.

	Boolean (✓)	Numeric (✓)	Text (alphanumeric) (✓)
Athlete_name			
Gold_medal (Y/N)			
Age			
Name_of_country			

[4]

- (b) A report has been produced that shows the male gold medal winners from the past three Olympic Games.

Write down **six** of the formatting features that have been used in the report.

Press Release: Mountain Bike competitions

The gold medalists for the 2008 to 2016 games in the Mountain Bike competitions are:

2008 Julien Absalon

Julian is a French rider who won at the Laoshan Mountain Bike course in Beijing, China. In 2012 he abandoned the race but came 8th in 2016.

2012 Jaroslav Kulhavý

Jaroslav is a member of the Czech Republic team who won at Hadleigh Farm, UK.

2016 Nino Schurter

Nino is from Switzerland. He won the Rio Mountain Bike competition in 34.617 mins at the Deodoro cycling base.

- 1.....
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- 2.....
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- 3.....
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- 4.....
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- 5.....
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- 6.....
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[6]

2

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C:\users\Test >_

(a) Write down the type of interface shown.

..... [1]

(b) Write down **two** disadvantages of using this type of interface.

1.....

.....

2.....

.....

[2]

- 3 Complete the following sentences using the most appropriate network term.

A communication method that wirelessly connects a mobile phone to a car, to allow hands-free use of the mobile phone is

A network device that allows a stand-alone computer, using a dial-up analogue connection, to connect to an ISP is a

A network device that allows a LAN to connect to the internet is a

A wireless communication method used in WLAN is

[4]

- 4 A teacher is creating a spreadsheet that will record the grades students achieved in recent tests and compare the average grades of these tests with the students' forecast grades. The grading the teacher is using awards 1 for the highest grade down to 10 for the lowest. The teacher has created a validation rule on the grade entered.

- (a) Give examples of data used to test the validation rule. Your answers for abnormal test data must be for a different reason in each case.

Type of test data	Example of test data
Normal	
Abnormal	
Abnormal	
Extreme	

[4]

- (b)** Part of the spreadsheet is shown, column G subtracts the Forecast grade from the Average grade.

	A	B	C	D	E	F	G
1	Grades obtained in:						
2	Student name	Exam 1	Exam 2	Exam 3	Average grade	Forecast grade	Difference
3	Velia Grimaldi	5	7	8	7	6	1
4	Giuseppe Campo	4	5	3	4	4	0
5	Nicola Donati	2	3	3	3	3	0
6	Giovanni Agnelli	1	3	2	2	5	-3

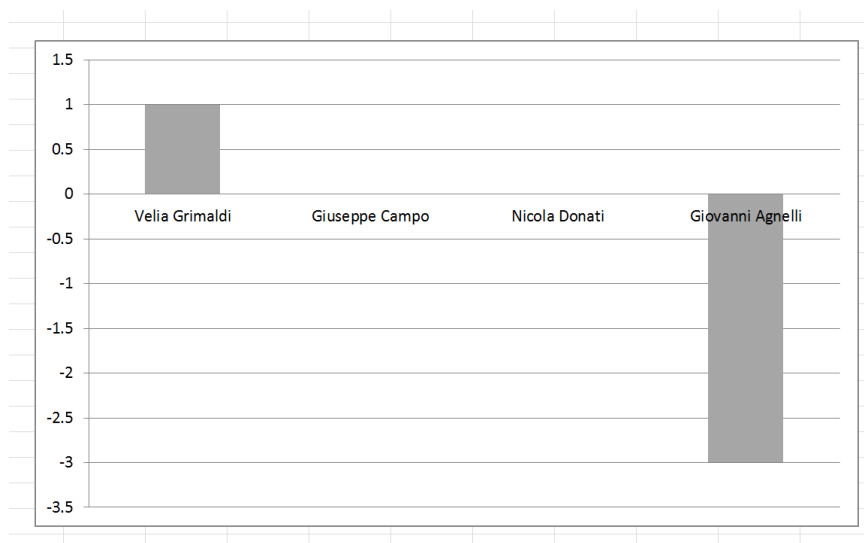
- (i) Describe the steps the teacher can take to edit the spreadsheet to prevent new data being typed into the Forecast grade column.

[illegible]

- (ii) The teacher has typed a formula in cell E3. The formula is `ROUNDUP(AVERAGE(B3:D3),0)`
Explain, in detail, what the formula does.

[illegible]

- (c) The teacher has produced a graph showing the differences between the forecast grade and the average grade for each student. The graph looks like this.



Describe the steps taken to create the graph. Include in your answer **three** improvements that could be made to the graph.

Method.....

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Improvement 1.....

.....

Improvement 2.....

.....

Improvement 3.....

.....

[6]

- 5** When using the internet, FTP can be used.

Explain what is meant by the term FTP.

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[2]

- 6** Smishing and phishing can affect the security of a user's data.

(a) Compare and contrast smishing and phishing.

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[6]

(b) Describe the methods which can be used to help prevent phishing.

This image shows a full page of white paper with horizontal dashed lines, typical of primary school handwriting practice paper. The lines are evenly spaced and run across the entire width of the page. There are no margins, text, or other markings present.

7 Complete each sentence using the most appropriate output device from the following list.

3D printer	Buzzer	Dot matrix printer	Heater
Laser printer	LCD monitor	Light	Wide format printer

(a) The device that can produce prosthetic limbs is called a

..... [1]

(b) The device that can output soft copy is called a

..... [1]

(c) The device that can produce sound as its main output is called a

..... [1]

- 8 Tablet computers tend to be used more than desktop computers.

Describe the advantages and disadvantages of using a tablet computer rather than a desktop computer.

This image shows a full page of white paper with horizontal dashed lines, typical of primary school handwriting practice paper. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

[6]

- 9** People rely heavily on microprocessor-controlled devices in the home.

(a) Describe **two** drawbacks in terms of lifestyle changes this has produced for the users of such devices.

1.
2.

[2]

- (b) Many of the microprocessor-controlled devices in our homes use WiFi connections.

Describe the benefits and drawbacks of using WiFi connections in this way.

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[6]

- 10 Music scores can now be produced using computer systems and appropriate software.

Describe the features of this technology.

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[4]

11 A headteacher is planning to produce a presentation to showcase the school's achievements.

- (a) Describe **two** methods the headteacher could use to gather information about the requirements of the target audience.

1.....

 2.....

[2]

- (b) The presentation is to be shown on large monitors at the entrance to the school. The school is planning to embed music into the presentation so that music could be played as the presentation is shown.

Describe the steps the headteacher would need to take to play music in the background of the slides.

.....

[4]

- (c) After showing the presentation to the parents the headteacher wishes to use the presentation to show to young children to encourage them to come to the school.

Describe the features that the headteacher must include to make the presentation meet the needs of an audience of young children.

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[4]

- 12 (a) Describe repetitive strain injury (RSI) and explain what causes it.

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[2]

- (b) Give **three** ways of minimising the risk of RSI.

1.....

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2.....

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3.....

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[3]

- 13** Modern laptop computers tend to use external solid state storage rather than external optical storage.

Compare and contrast the use of solid state storage with the use of optical storage to store data.

This image shows a full page of a handwriting practice worksheet. It consists of multiple sets of three horizontal dashed lines, providing a guide for letter height and placement. The lines are evenly spaced across the entire page, which is otherwise blank.

[8]

- 14** There are two types of storage within a computer, internal memory and backing storage.

Discuss the differences between internal memory and backing storage.

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[6]

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Cambridge IGCSE™

INFORMATION AND COMMUNICATION TECHNOLOGY

0417/12

Paper 1 Written

May/June 2020

MARK SCHEME

Maximum Mark: 100

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.

This document consists of **9** printed pages.

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.

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.

Question	Answer				Marks
1(a)		Boolean	Numeric	Text (alphanumeric)	4
	Athlete_name			✓	
	Gold_medal(Y/N)	✓			
	Age		✓		
	Name_of_Country			✓	
	One mark per correct row				
1(b)	Six from: Italic Increase/decrease font size Border Tab Bold Superscript Underline Text highlighting				6

Question	Answer	Marks
2(a)	Command Line Interface/CLI	1
2(b)	Two from: Have to remember/learn the commands Have to type in the commands <u>accurately</u> Difficult to edit once commands typed in	2

Question	Answer	Marks
3	Bluetooth Modem Router WiFi	4

Question	Answer	Marks
4(a)	<p>One from: Normal data: Any <u>integer</u> between 1 and 10</p> <p>Two from: (must be a different type) Abnormal data: Any number outside the range/alphabetic/symbol/negative number/decimal number</p> <p>One from: Extreme: 1 or 10</p>	4
4(b)(i)	<p>Five from: Select the whole sheet Right click then Format cells Click Protection tab unlock cells Highlight F3:F6/Forecast grades column/column F Lock cells Click on Review then protect sheet</p>	5
4(b)(ii)	<p>Calculates the Average of the range B3 to D3 Rounds up the answer to 0 decimal places/integer</p>	4
4(c)	<p>Three from: Highlight A3:A6 Hold CTRL Select G3:G6 Click insert Column/bar graph</p> <p>Three from: Add legend Add chart title Add axes labels Remove gridlines Change colour/thickness of the bars</p>	6

Question	Answer	Marks
5	<p>Two from: File transfer protocol Used when transferring files from one computer to another over the internet</p>	2

Question	Answer	Marks
6(a)	<p>Max five from:</p> <p><i>Comparisons</i> Both use communication devices to collect personal data Both require the user to communicate quickly Both require the user to enter personal data Both use the internet</p> <p>Max five from:</p> <p><i>Differences</i> Smishing: fake text messages/SMS are sent to a phone Phishing: fake emails are sent to your computer In smishing the user may be asked to make a phone call A smishing message is shorter than a phishing email Easier to spot a smishing message Smishing messages tend to use 5000 in the message</p>	6
6(b)	<p>Six from:</p> <p>Avoid clicking on any unknown emails with links. Do not reply to emails that have asked you about any of your personal data. Report any suspicious activity. If the email urges you for a quick reply then that is a clear sign of phishing. Do extensive research before replying to any message, check the domain name/company name If the email is too good to be true, it possibly is Check the time when the unknown email was sent. If the email was sent at an unusual time, then that is another sign of phishing. If the to: box has a large number of similar emails to yours then it is phishing If there are several grammar mistakes then it is suspicious</p>	6

Question	Answer	Marks
7(a)	3D printer	1
7(b)	LCD Monitor	1
7(c)	Buzzer	1

Question	Answer	Marks
8	<p>Max four from:</p> <p><i>Advantages</i> Tablet computers are more portable Can be used in more places than a desktop computer Smaller footprint as the units are not separate Powered by battery so can be used away from a power supply Internet connection may be better as device is portable</p> <p>Max four from:</p> <p><i>Disadvantages</i> Tablet computers are easier to steal/lose As the elements of a desktop computer are separate they are easier to upgrade/tablet computers are one unit Batteries can run out/desktop computers have less chance of running out of power Screens are smaller Keyboard tends to be onscreen/touch screen therefore can be harder to use No mouse therefore pointing devices/touchscreen can be harder to use Webcams tend to be static therefore harder to use Less standard ports/sockets Desktop computers have a better heat dispersion rate Desktop computers are less likely to be damaged as they are not portable.</p>	6

Question	Answer	Marks
9(a)	<p>Two from:</p> <p>Can lead to unhealthy eating due to dependency on ready meals Can lead to laziness Lack of fitness/exercise Manual household skills are lost</p>	2

Question	Answer	Marks
9(b)	<p>Max four from:</p> <p><i>Drawbacks</i></p> <p>Security issue with the data being sent as passwords can be accessed</p> <p>Leads to laziness as voice control used</p> <p>Heavily reliant on power/battery power</p> <p>Other people can hack devices</p> <p>Reliant on the WiFi connection</p> <p>Can be affected by walls/weather</p> <p>Affected by distance from the WAP</p> <p>Max four from:</p> <p><i>Benefits</i></p> <p>Smartphones can connect to the devices and can control them</p> <p>Wireless so no tripping over wires</p> <p>Voice control can be used to activate the devices</p> <p>Home surveillance from afar</p> <p>TV on demand</p> <p>Keyless door locks are more secure</p>	6

Question	Answer	Marks
10	<p>Four from:</p> <p>The music score can be generated from the music played</p> <p>The editing/correcting of the music score in a different key is faster</p> <p>Solo music scores can be easily transformed into music for many parts</p> <p>Software can automatically correct the music score</p> <p>Music can be played automatically as it is written</p> <p>Music notes are automatically printed out in the correct format</p> <p>Music scores can be saved for future editing</p>	4

Question	Answer	Marks
11(a)	<p>Interview members of the target audience to see what they want from the presentation</p> <p>Give out questionnaires to the target audience</p>	2
11(b)	<p>Four from:</p> <p>Select slide 1</p> <p>Click Insert ...</p> <p>... Select Audio</p> <p>Locate the music on PC and select</p> <p>Click play in background</p> <p>Test it by running the slideshow</p>	4

Question	Answer	Marks
11(c)	Four from: The font needs to be easy to read Larger font needed Different font Bright colours Animation used Simpler language Shorter length Transition effects More pictures than text Different music	4

Question	Answer	Marks
12(a)	Damage to fingers and wrists – 1 mark One from: Caused by continuous use of a keyboard Caused by repetitive clicking of a mouse button	2
12(b)	Three from: Use an ergonomic keyboard Use an ergonomic mouse Use a wrist rest/use a mouse rest Use voice-activated software Take regular breaks Maintain correct posture of arms	3

Question	Answer	Marks
13	<p>Max seven from:</p> <p><i>Differences</i> Optical discs such as CDs, DVDs and Blu-ray discs are read from and written to using a laser beam</p> <p>Solid state storage such as pen drives and SSDs are read from and written to using semiconductor chips</p> <p>Optical discs have slower access times Optical discs have slower transfer rates Optical discs can be more easily scratched Solid state do not have to get up to speed before they work Solid state has lower power consumption</p> <p>Max seven from:</p> <p><i>Comparisons</i> Both store videos, music, files, images, data Both are portable Both use direct access Both can be easily lost/stolen Both backing storage</p>	8

Question	Answer	Marks
14	<p>Six from:</p> <p>Internal storage examples RAM and ROM Internal storage is chip based Backing storage can be solid state, optical or magnetic Backing storage is permanent storage RAM loses memory when computer is turned off RAM contains current instruction ROM contains instructions to boot up the computer Backing storage has slower access speeds More storage in backing storage</p>	6