



CANDIDATE  
NAME

CENTRE  
NUMBER

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CANDIDATE  
NUMBER

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## 0417/11

October/November 2022

**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. Any blank pages are indicated.

- 1 Complete the following sentences using the most appropriate words from the list.

centre	double line space	footer	gutter	hanging
header	indented	justified	left	wrapping

- (a) A margin between the main content of the page and the fold of a book is called a

..... [1]

- (b) An area at the top of a page is called a

..... [1]

- (c) Feature of word processing that causes text to flow around an image is called

..... [1]

- (d) When text is aligned along both the left and right margins this is called

..... [1]

- 2 Smartphones and smartwatches can be used in everyday life. A smartwatch is a wearable computer in the form of a wrist-watch.

- (a) Apart from accessing the internet, give **three** other uses of a smartphone.

1 .....

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2 .....

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3 .....

.....

[3]

(b) Give **two** advantages of using a smartwatch rather than a smartphone.

1 .....

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2 .....

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[2]

(c) Give **two** disadvantages of using a smartwatch rather than a smartphone.

1 .....

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2 .....

.....

[2]

- 3** According to research carried out on passwords the top three most used passwords are 12345, qwerty and sunshine.

Describe, using other examples, the difference between a weak password and a strong password.

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[4]

4 A teacher is setting up a database which she will use to record her student's exam marks.

(a) The teacher is planning to test the mark range using different types of test data. The range of marks that the teacher can award is 0 to 100.

(i) Write down **one** example of extreme test data that the teacher can use to check the range.

..... [1]

(ii) Extreme test data is one type of test data. The teacher uses two other pieces of test data.

Write down the type of test data for each of the examples.

TEN .....

55 .....

[2]

(b) Part of the database is shown.

Student_name	Date_of_birth	Gender	Exam_mark	Average_mark
Seth	25/02/2007	M	22	43.4
Adom	17/07/2007	M	67	73.1
Maria	02/05/2007	F	78	67.9
Lesedi	15/12/2006	F	45	50.0

Write down the field name which is the most appropriate for the data type, based on the data shown in the table. Your answers must be different in each case.

Boolean .....

Numeric: integer .....

Numeric: decimal .....

Alphanumeric .....

[4]

- 5 A student is carrying out a scientific experiment to measure the temperature of a liquid as it cools down. The student uses a sensor connected to a computer to read the temperature.

(a) Give **three** advantages of using computers and sensors rather than the student taking the temperature readings herself.

1 .....

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2 .....

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3 .....

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[3]

(b) Describe how the readings taken by the sensor are displayed on a graph using the computer.

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[6]

(c) Explain the differences between measurement systems and control systems.

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[4]

- 6** There have been major issues regarding the accuracy of facial recognition systems for identifying suspects by the police.

Tawara Airport has installed biometric security including facial recognition systems to help the police recognise known criminals entering and leaving the country. Previously video was taken of all passengers and then checked manually.

- (a)** Discuss the effectiveness of using facial recognition systems rather than the manual video system to increase security in this way.

[illegible]

[8]

- (b) Give **three** examples of biometric data.

1 .....

2 .....

3 .....

[3]

- 7** Instant messaging involves users sending text messages to each other.

Evaluate how you would use eSafety strategies in your own use of instant messaging.

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]

- 8** Discuss the moral implications which need to be considered when creating an ICT solution.

[illegible]

[4]



- 9 Use of smartphones to access the internet has increased by over 200% in the past five years.

Compare the use of smartphones to access the internet with the use of desktop computers to access the internet. Your answer must include similarities and differences.

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[6]

**10** A group of students in a school are planning to publicise a school concert. They can either produce a web page which will be sent to the company that runs the school website or create a multimedia presentation and show this to students and visitors.

**(a)** Give **two** types of content which could be used in a multimedia presentation that cannot be used in a printed leaflet.

1 .....

2 .....

[2]

**(b)** Describe the advantages and disadvantages of using a multimedia presentation rather than a web page on the school website.

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[6]

The students need to test their multimedia presentation before it can be used.

(c) Name **two** output devices they can use and for each one, write down a reason for its use.

Output device 1 .....

Reason .....

.....

Output device 2 .....

Reason .....

.....

[4]

- 11** A receptionist in a medical centre is going to send out emails to patients about medical results. The receptionist will use the data from patients' medical and personal records and mail merge these. One of the disadvantages of this system is that the receptionist will have access to personal data.

(a) Describe **four** other disadvantages of using mail merge.

1 .....

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2 .....

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3 .....

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4 .....

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[4]

Due to data protection laws, personal data should be kept confidential and secure.

**(b)** Explain why personal data should be kept confidential and secure.

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.

[6]

**12** Many students prefer to store data on external storage devices like pen drives or portable hard disk drives.

Describe **four** advantages of using a pen drive rather than a portable hard disk drive.

- 1 .....
- 2 .....
- 3 .....
- 4 .....

[4]

**13** Hyperlinks, bookmarks and anchors are software tools used in web pages and web browsers.

**(a)** Describe the function of a hyperlink.

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..... [2]

**(b)** Describe the term bookmark.

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..... [2]

**(c)** Describe the function of an anchor.

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..... [2]

- 14** A research student is undertaking a study of endangered animals in the Amazon rainforest. She is using a drone to replace surveys carried out on foot. A drone is a remote-controlled flying vehicle.

Describe the benefits and drawbacks of using a drone to monitor the animals in the rainforest.

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[6]

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# **Cambridge IGCSE™**

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**INFORMATION & COMMUNICATION TECHNOLOGY**

**0417/11**

Paper 1 Theory

**October/November 2022**

**MARK SCHEME**

Maximum Mark: 100

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<p><b>Published</b></p>
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This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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

Cambridge International is publishing the mark schemes for the October/November 2022 series for most Cambridge IGCSE™, Cambridge International A and AS Level components and some Cambridge O Level components.

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This document consists of **10** 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)	Gutter	1
1(b)	Header	1
1(c)	Wrapping	1
1(d)	Justified	1

Question	Answer	Marks
2(a)	<b>Three</b> from, for example: SMS Making/receiving a phone call Checking the time Use appointments/calendar Taking pictures Record sound Bluetooth to share files	3
2(b)	<b>Two</b> from: More accessible/portable as it is on the wrist Less chance of being lost/stolen/forgotten Less chance of it being dropped as it is fastened to the wrist Can access simple apps easier for example heart rate/timer	2
2(c)	<b>Two</b> from: Smaller screen size therefore difficult to see More difficult to enter the data More difficult to access detailed apps for example, email	2

Question	Answer	Marks
3	<p>Max <b>three</b> from: Weak password is easy to guess Weak passwords consist of all letters or all digits or all digits with one letter/all letters with one digit//words found in a dictionary//Strong passwords use a mixture of upper case, lower case, symbols and digits Weak password is one that has less than 8 characters Weak password has repeated characters Weak password has characters next to each other on a QWERTY keyboard Weak passwords are ones that are similar to the username Weak passwords can use personal information All of the examples given in the question are weak passwords</p> <p>Max <b>two</b> from: A good example of a strong password A good example of a different weak password</p>	4

Question	Answer	Marks
4(a)(i)	<b>One</b> from: 0 100	<b>1</b>
4(a)(ii)	Abnormal Normal	<b>2</b>
4(b)	<b>Boolean</b> Gender <b>Numeric: integer</b> Exam_mark <b>Numeric: decimal</b> Average_mark <b>Alphanumeric</b> Student_name	<b>4</b>

Question	Answer	Marks
5(a)	<b>Three</b> from: Measurements can be taken continually Safer to take the measurements Measurements can be taken outside school hours The computer will not forget to take readings Readings are taken at a more consistent time interval The computer reads the data more accurately	<b>3</b>
5(b)	<b>Six</b> from: The data from the sensor is read/received by the computer The data is converted to digital by the ADC The software is opened on the computer The graph type is loaded/selected The data is uploaded to the graph The graph is plotted/created Axes/legend/title added	<b>6</b>
5(c)	<b>Four</b> from: <b>Measurement</b> Automatically detects changes in the environment Measurement takes the readings and stores the result Measures/reads physical quantities  <b>Control</b> Changes the environment Compares against preset value Action taken depending on comparison to preset value  <b>To gain full marks the description must have correct answers for both measurement and control</b>	<b>4</b>

Question	Answer	Marks
6(a)	<p><b>Eight</b> from:</p> <p><b>For</b></p> <p>Face can be identified faster</p> <p>Face can be identified by electronic comparison therefore relative higher level of accuracy</p> <p>Facial recognition can uniquely identify individuals</p> <p>Can automatically compare faces from older images</p> <p>System can work continuously but a human checker would need to take breaks</p> <p><b>Against</b></p> <p>Dark glasses/facial hair/face coverings may cause the facial recognition systems to not work</p> <p>More difficult to change biometric data</p> <p>Recognising a person can be slower as more checking is carried out</p> <p>Harder to set up the facial recognition system</p> <p>Takes longer to add new people to the system</p> <p>Biometrics can use a lot of memory to store the data</p> <p>Intrusive as personal details have to be stored</p> <p>More likely to be affected by the environment</p> <p>With the video system each frame needs to be checked with known images which can lead to errors</p> <p><b>To gain full marks the discussion must have correct answers for both for and against</b></p>	<b>8</b>
6(b)	<p><b>Three</b> from:</p> <p>Finger print</p> <p>Hand print</p> <p>Vein geometry</p> <p>Retina</p> <p>Iris</p> <p>Speech/Voice</p>	<b>3</b>

Question	Answer	Marks
7	<p><b>Six</b> from:</p> <p>I block unwanted messages/suspicious users... ...and report the sender</p> <p>Before using the messaging system, I check how to block and report unwanted users... ...this stops predators</p> <p>I never arrange to meet strangers alone</p> <p>I always tell a responsible adult if I plan to meet someone</p> <p>I always meet in a public place</p> <p>I avoid giving away personal information</p> <p>I report abusive messages from a sender of the messages</p> <p>I report cyber-bullying</p> <p>When sending messages I always use appropriate language</p> <p>If someone messages me with private and personal information about themselves I respect their confidentiality/privacy</p> <p>I always read carefully the messages before I send</p> <p>I avoid sarcasm</p> <p>I am not offensive when replying</p> <p>I carefully check that I am replying to the correct person</p> <p>I do not enable my location when messaging</p>	6

Question	Answer	Marks
8	<p><b>Four</b> from:</p> <p>What may be immoral in some cultures may be acceptable in others</p> <p>Just because something is immoral doesn't mean that it is illegal</p> <p>The ICT solution can cause distress to others/be offensive</p> <p>Becomes immoral if the person gains from their actions</p> <p>Max <b>two</b> marks for examples:</p> <p>Not creating a website full of false facts/news</p> <p>Not including obscene/offensive/inappropriate/extreme/blasphemy /discriminatory content</p> <p>Not creating a video solution that earns you money by stating false facts/lies</p> <p>Not creating an ICT solution that coerces people to give money</p> <p>Invasion of privacy</p>	4

Question	Answer	Marks
9	<p><b>Six from:</b></p> <p><b>Similarities</b></p> <p>Both can use Wi-Fi to access the internet</p> <p>Both can access the internet use hotspots</p> <p>Both can use Bluetooth Tethering to allow access to the internet</p> <p><b>Differences</b></p> <p><i>Desktops</i></p> <p>More websites will work with the desktop</p> <p>Larger keyboards to type in a web address</p> <p>Larger screens to see the whole webpage</p> <p>More stable and reliable connections</p> <p>Tends to be a clearer layout to make it easier to access the internet</p> <p>More accessible information</p> <p>A desktop can connect to the internet via an ethernet cable</p> <p><i>Smartphones</i></p> <p>Access the internet from more locations</p> <p>Easier to look things up on the go</p> <p>Screen/keyboard built into the device therefore easier to access websites</p> <p>A smartphone can use mobile data/4G/3G to access the internet</p> <p>A smartphone is more portable therefore you can access the internet while travelling</p> <p><b>To gain full marks the comparison must have correct answers for both similarities and differences</b></p>	6

Question	Answer	Marks
10(a)	<p><b>Two from:</b></p> <p>Moving images/video</p> <p>Sound/Audio</p> <p>Animation</p>	2

Question	Answer	Marks
10(b)	<p><b>Six from:</b></p> <p><b>Advantages</b>  Easier to display to parents  Can take less time to display the information  Quicker to change/update content of the multimedia presentation  More control over the layout of the presentation as not using a third party browser  More control over the sound in the presentation as using own equipment  People viewing the Multimedia Presentation will be school based  Can be viewed without internet access</p> <p><b>Disadvantages</b>  The multimedia presentation is only available in the school during school time whereas a web page can be used in other places  The visitor may not see the whole presentation  The multimedia presentation may not include sound due to being shown in the school  Multimedia presentations can require expensive hardware to produce and view  Multimedia seen by less people  Multimedia more expensive software needed to produce the presentation  More specialist training needed to produce it</p> <p><b>To gain full marks the description must have correct answers for both advantages and disadvantages</b></p>	6
10(c)	<p><b>Monitor/data projector</b> – 1 mark  <b>One from:</b>  To show what the presentation looks like  To show the layout of the presentation</p> <p><b>Speaker</b> – 1 mark  To listen if the sound matches the images – 1 mark</p> <p><b>Printer</b> – 1 mark  To check that handout format works – 1 mark</p>	4

Question	Answer	Marks
11(a)	<p><b>Four from:</b>  The email appears generic  If the email is not checked and the data not kept up to date before the mail merge the errors are more difficult to change  If a mistake is made on the master/template then all emails are affected  Emails can be sent with wrong data/records which could be embarrassing  Emails could be sent to the wrong patient  Moving the data file/source/renaming the file can cause the mail merge to fail  The emails may be directed to junk mail folders</p>	4



Question	Answer	Marks
11(b)	<b>Six</b> from: The data will have the name/medical information attached therefore it needs protecting The data is confidential as it links directly to the person The data will be sensitive To prevent blackmail/bullying from using medical results To prevent fraud from using financial information To prevent identity theft using contact details To avoid the doctor's surgery getting fined if it got made public The doctor's surgery's reputation would suffer Patients would lose trust	<b>6</b>

Question	Answer	Marks
12	<b>Four</b> from: Is more robust as no moving parts Can be more easily carried Use less power Have faster data access Have faster data transfer times	<b>4</b>

Question	Answer	Marks
13(a)	<b>Two</b> from: Method of accessing/linking other resources/web pages from the current web page Clicking on the word/phrase/image/area of page Navigation/re-directed to another web page	<b>2</b>
13(b)	<b>Two</b> from: Method of saving a web page's address Used for easy retrieval of the website Storing a link to a website	<b>2</b>
13(c)	<b>Two</b> from: An anchor is a specific location/reference point within a web page When clicked it can move the pointer to the start/end of a page Used on very long pages to save you having to physically scroll all the way down/up the page. The browser will automatically jump to the corresponding heading within the page/destination anchor	<b>2</b>

Question	Answer	Marks
14	<p><b>Six from:</b></p> <p><b>Benefits</b></p> <p>Safer to use drones than human life being risked in forest areas</p> <p>Drones can gain a better overall view of the forest than the human</p> <p>Drones can be used in areas that would not be accessible to humans</p> <p>Drones can cover a greater area than a human in the time available</p> <p>Data from the drone can be automatically uploaded to computer system</p> <p>May change animal behaviour if humans are used//Less invasive for the animals</p> <p><b>Drawbacks</b></p> <p>Damp conditions/environment/weather may cause issues with the electronics</p> <p>Difficult to navigate in the tree areas</p> <p>Noise/sight of the drone may affect the animals</p> <p>More chance of collision/bird attack</p> <p>If drone crashes it could be difficult to find/retrieve</p> <p>Potential danger to other animals/birds</p> <p><b>To gain full marks the description must have correct answers for both benefits and drawbacks</b></p>	<b>6</b>