



CANDIDATE
NAME

CENTRE
NUMBER

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CANDIDATE
NUMBER

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0417/13

May/June 2023

1 hour 30 minutes

You must answer on the question paper.

No additional materials are needed.

- 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.

- The total mark for this paper is 80.
- 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 A book has an ISBN which is 0 330 24720 4

Tick (✓) the most appropriate validation check to test the validity of the ISBN.

A character check ☐

B format check ☐

C length check ☐

D range check ☐

[1]

- 2 Identify the most appropriate hardware from the descriptions given.

(a) An internal hardware component that connects a computer to a Local Area Network.

..... [1]

(b) An external device that retains a computer's data even after the computer is turned off.

..... [1]

(c) An input device that is attached to a monitor.

..... [1]

- 3** A group of students are producing a class newsletter which they will email to parents of students in the class. They are deciding whether to use a laptop computer or a smartphone to type the newsletter.

- (a)** Discuss the advantages and disadvantages of using a laptop computer rather than a smartphone for this purpose.

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[6]

- (b) The students have decided to use a smartphone. Data for the newsletter will be input, stored and output by the smartphone.

- (i) Identify **two** devices that are part of the smartphone that could be used to input the data for the newsletter.

1

2

[2]

- (ii) Identify **two** devices that are part of the smartphone that could be used to output data from the newsletter.

1

2

[2]

- (iii) Identify **two** appropriate devices that could be used to store data for the newsletter.

1

2

[2]

- (c) The newsletter is to be saved as a PDF and sent as an email attachment to parents.

Describe **two** benefits of saving the newsletter as a PDF.

1

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2

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[2]

- (d) Describe the features that the students must include to make the newsletter appeal to the parents.

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[4]

- 4** A company uses an intranet. They are considering using an extranet.

Compare an intranet with an extranet. Your answer must include similarities and differences.

[illegible]

[6]

- 5** Identify **two** appropriate IT-related causes for each of the health issues. Your answers must be different in each case.

(a) repetitive strain injury (RSI)

1

2

[2]

(b) eye strain

1

2

[2]

6 Two-factor authentication can use a number of different forms of identification.

- (a) One form of identification is to use 'where the user is'.
An example of this would be the user's GPS location.

State **two** other forms of identification. Give an appropriate example of each.

1
.....

Example
.....

2
.....

Example
.....

[4]

- (b) Explain the purpose of two-factor authentication.

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[2]

7 The retail industry uses point of sale (POS) systems.

(a) Discuss the benefits of using POS in the retail industry.

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[4]

(b) Describe the steps involved in automatic stock control when an item is sold at a POS terminal.

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[6]

- 8 A teacher is creating a spreadsheet as an electronic mark book. Part of the electronic mark book displays how well a student did on a piece of work. When a student completes a piece of work the teacher will enter the mark into the electronic mark book and a message will be displayed.

- If the student gains 60 or more marks then 'Merit' is displayed
- If the student gains 50 to 59 marks then 'Pass' is displayed
- If the student gains a mark below 50 marks then 'Not Pass' is displayed.

The formula the teacher has used is:

=IF(A1>=60,"Merit",IF(A1>50,"Pass","Not Pass"))

The formula will need to be tested. The teacher will do this by entering test data into cell A1.

- (a) Explain the steps that need to be taken to test the formula. Include in your answer any test data used and the reasons why these were chosen.

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[5]

- (b) When the teacher enters a mark of 50 he expects 'Pass' to be displayed.

State the changes he needs to make to the formula to ensure 'Pass' is displayed.

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[1]

- (c) When the electronic mark book is complete it needs to be tested with live data.

Explain what is meant by live data.

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[2]

- 9 The manager of an organisation is planning a meeting of its directors. The manager plans to use audio-conferencing for the meeting.

- (a) Explain what is meant by audio-conferencing.

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[3]

- (b) The organisation could use video-conferencing for the meeting.

Describe **three** advantages of using audio-conferencing rather than video-conferencing in this scenario.

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[3]

(c) Identify the hardware and software required to join the audio-conference.

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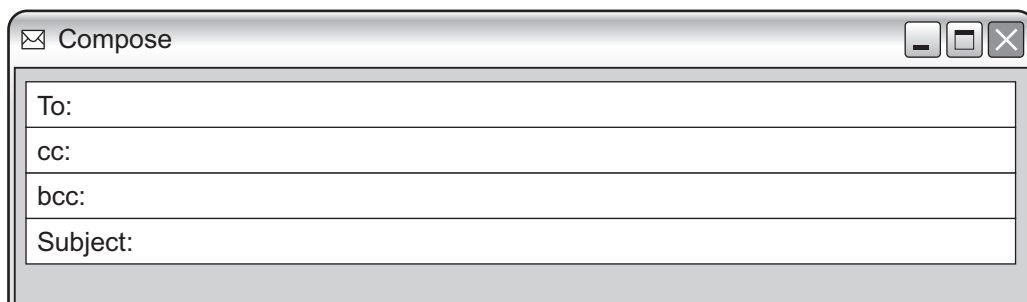
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[4]

- 10** A school secretary is composing an email. She will send the email to a teacher and will copy the headteacher into the message. She can either copy the headteacher in as cc or bcc.



(a) Describe what is meant by cc and bcc.

cc

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.....

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bcc

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.....

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[4]

- (b) A teacher is considering setting up either a forum or a blog for his class to help his students with their studies.

Describe the benefits of using a forum rather than a blog.

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[5]

- 11 Many books contain a gutter margin.

Explain what is meant by a gutter margin.

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[3]

- 12 A web page has an attached stylesheet in the head section and also has an inline style attribute in the body section.

Explain why the inline style attribute is used.

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[2]

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Cambridge IGCSE™

INFORMATION AND COMMUNICATION TECHNOLOGY

0417/13

Paper 1 Theory

May/June 2023

MARK SCHEME

Maximum Mark: 80

Published

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 May/June 2023 series for most Cambridge IGCSE, Cambridge International A and AS Level and Cambridge Pre-U components, and some Cambridge O Level components.

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.

Mark scheme Abbreviations and Rules

/ separates alternative words / phrases within a marking point

// separates alternative answers within a marking point

underline actual word given must be used by candidate (grammatical variants accepted)

max indicates the maximum number of marks that can be awarded

() the word / phrase in brackets is not required, but sets the context

Note: No marks are awarded for using brand names of software packages or hardware. These must be created.

Examiners must ensure that annotations are placed to show that the whole answer has been seen

Annotations MUST be placed in white space close to where the mark is awarded

Before submitting a script please check all ticks match marks

At the end of prose answers place a TV to show that the whole answer has been marked

Any blank pages place the SEEN annotation

If an answer is left blank then use SEEN and award NR, but if anything has been written for example ‘Don’t know’, ‘?’ etc. then use NAQ and award 0. If an answer has been attempted and crossed out then attempt to mark it.

Question	Answer	Marks
1	B Format check	1

Question	Answer	Marks
2(a)	Network Interface Card / NIC	1
2(b)	Backing storage	1
2(c)	Touch screen	1

Question	Answer	Marks
3(a)	<p>Six from:</p> <p>Advantages Larger screen to read the typed data Laptop uses a physical keyboard therefore easier to type Larger keyboard to type in the data Fewer data entry errors due to larger screen / keyboard More suited for entering mass amounts of data Laptop version of software will have more features than smartphone version of software More computer storage for typed text Easier to add other devices to store the data</p> <p>Disadvantages Less portable / heavier than a smartphone as the smartphone can be slipped into a pocket Smartphones are smaller therefore easier to carry More likely to have a smartphone with them</p> <p>To gain full marks candidates must have correct answers from both advantages and disadvantages.</p>	6
3(b)(i)	<p>Two from:</p> <p>Camera Microphone Touch screen</p>	2
3(b)(ii)	<p>Two from:</p> <p>Speaker Screen</p>	2
3(b)(iii)	<p>Two from:</p> <p>SD card Flash memory Internal storage SSD</p>	2

Question	Answer	Marks
3(c)	Two from: Retains the format of the original newsletter Takes up less storage space Independent of hardware and software	2
3(d)	Four from: Interesting / engaging content Use of longer sentences / not using slang / emoticons Use of some technical language More text than pictures Balanced use of white space and content Clear readable fonts Formal layout Balance of size between headings and text Contrasting colours Use suitable images More real images than cartoons	4

Question	Answer	Marks
4	Six from: Similarities Both have shared content Both use internet technologies / TCP-IP Both have restricted access Both sit behind a firewall Differences Intranet shares data within an organisation whereas extranet shares content with external users and employees Extranet is part of a company's intranet Intranet allows communication within the organisation whereas extranet allows communication with customers / suppliers Extranet can lead to more security breaches Intranet is owned by a single organisation whereas extranet can be used by several organisations To gain full marks candidates must have correct answers from both similarities and differences	6

Question	Answer	Marks
5(a)	Two from: Prolonged use of a keyboard Prolonged use of a mouse Using a keyboard with a bad posture Working in a cramped workspace	2
5(b)	Two from: Staring at a computer screen for a long time Glare / flicker on the computer screen Dirt on the computer screen Screen brightness does not match the room light brightness Sitting too close to the screen Top of monitor not in line with the eyes	2

Question	Answer	Marks
6(a)	One mark for each form of identification and one mark for each corresponding example given: Form of identification: something the user owns: Example: card reader / pen drive / dongle / mobile phone Form of identification: something the user knows: Example: password / PIN / TAN / email address / CVV on back of a credit card / answers to security questions Form of identification: something the user has: Example: biometrics	4
6(b)	Two from: To protect user's data / credentials To reduce the possibility of unauthorised access Combines two different forms of identification Makes it more secure by adding an extra layer of security	2

Question	Answer	Marks
7(a)	<p>Four from:</p> <p>By electronically tracking the sales of goods the industry could know when to order items...</p> <p>...so that the goods do not run out in the stores</p> <p>The POS system allows a business to identify which products are selling well / selling badly...</p> <p>...so products do not run out / left of the shelves</p> <p>Through this identification, a business can increase the order of profitable products and reduce unmarketable inventory</p> <p>Increases speed of transaction as the checkout staff do not need to enter the price of each item</p> <p>Itemised bills can be generated on screen and printed for customers</p> <p>It allows self check out which means less staff are needed therefore reducing staff costs</p>	4
7(b)	<p>Six from:</p> <p>The (bar codes on) goods are scanned at the checkout</p> <p>The item code is searched in the stock database</p> <p>When the item is found...</p> <p>...the number sold of that item is read</p> <p>The number in stock is reduced by this number</p> <p>If the number in stock is lower than the reorder / preset value...</p> <p>...then a message is sent to automatically re-order stock</p> <p>When the new stock arrives database is updated with the new stock</p> <p>Quantity available will be increased when new stock arrives</p> <p>Generates a report on selling trends</p>	6

Question	Answer	Marks
8(a)	<p>Five from:</p> <p>Enter test data</p> <p>Run the formula</p> <p>If actual output does not match expected value...</p> <p>...make corrections to formula</p> <p>Re-test the formula</p>	5
8(b)	<p>One from:</p> <p>Change $A1 > 50$ to $A1 \geq 50$</p> <p>Change $A1 > 50$ to $A1 > 49$</p>	1
8(c)	<p>Two from:</p> <p>Real data relating to tests that have been carried out previously</p> <p>To ensure that the electronic mark book should work with real data</p>	2

Question	Answer	Marks
9(a)	<p>Three from:</p> <p>Audio-conferencing is where two or more people... ...in different locations ...use technology to hold an audio call All the participants dial into a central system that connects them Removes the need to directly call each other</p>	3
9(b)	<p>Three from:</p> <p>Easier to set up Does not need specialist equipment... ...therefore saves money No issue with lip syncing Less bandwidth is needed therefore reduces hanging / freeze More privacy as they do not use cameras</p>	3
9(c)	<p>Max three from:</p> <p>Microphone Speaker Telephone handset</p> <p>Max two from:</p> <p>Audio-conferencing software / app Internet / broadband connection</p>	4

Question	Answer	Marks
10(a)	<p>Four from:</p> <p>CC Cc stands for carbon copy The Headteacher would receive a copy of the message with the teacher knowing All recipients would know who is on the cc list and where it was from</p> <p>BCC Bcc stands for blind carbon copy The Headteacher would receive a copy of the message without the teacher knowing All recipients on bcc would only know where it was from to and the cc list</p> <p>To gain full marks candidates must have correct answers from both cc and bcc.</p>	4

Question	Answer	Marks
10(b)	<p>Five from:</p> <p>In forum posts are in chronological order therefore it makes it easier to find replies / data</p> <p>In forums easier for students to start new topics / sub-topics / forums / ask questions/give answers</p> <p>Topics / sub-topics cannot be created in a blog by the student</p> <p>Forums are moderated by an administrator</p> <p>Forums are checked before they are published</p> <p>In forums students generate the content rather than leaving messages on a named topic</p> <p>Many students develop the direction of the forum rather than one person</p> <p>In forums everyone can contribute // In blogs only the content creator writes the blog whereas the readers / followers can comment on a blog</p> <p>A forum would allow private messaging as well as to all the group</p>	5

Question	Answer	Marks
11	<p>Three from:</p> <p>Used as an extra margin</p> <p>Adds extra space to the inside / top margin</p> <p>Helps to ensure the text is not obscured by the binding</p>	3

Question	Answer	Marks
12	<p>Two from:</p> <p>Inline style attributes have a higher hierarchy than external stylesheets</p> <p>If there is a conflict on an element then the inline style attribute will apply</p> <p>It applies style attributes that do not appear in the external stylesheet</p> <p>Inline style attributes apply to one single web page</p>	2