



Cambridge IGCSE™

INFORMATION AND COMMUNICATION TECHNOLOGY

0417/13

Paper 1 Theory

October/November 2021

MARK SCHEME

Maximum Mark: 100

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 October/November 2021 series for most Cambridge IGCSE™, Cambridge International A and 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	Mark
1(a)	Two from: Touchscreen Camera Microphone	2
1(b)	Two from: Speakers Screen	2

Question	Answer	Marks																				
2	<table border="1"> <thead> <tr> <th></th> <th>MICR</th> <th>OCR</th> <th>OMR</th> </tr> </thead> <tbody> <tr> <td>This system magnetises the special characters on cheques in order to read them</td> <td>✓</td> <td></td> <td></td> </tr> <tr> <td>This method is used to read car number plates</td> <td></td> <td>✓</td> <td></td> </tr> <tr> <td>A bar code is an example of this system</td> <td></td> <td></td> <td>✓</td> </tr> <tr> <td>If the media from this system is photocopied it cannot be read by the recognition system</td> <td>✓</td> <td></td> <td></td> </tr> </tbody> </table>		MICR	OCR	OMR	This system magnetises the special characters on cheques in order to read them	✓			This method is used to read car number plates		✓		A bar code is an example of this system			✓	If the media from this system is photocopied it cannot be read by the recognition system	✓			4
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Question	Answer	Marks
3(a)	Two from: Mineral prospecting Car engine fault diagnosis Medical diagnosis Chess games	2
3(b)	Three from: Knowledge base Rules base Inference engine Interactive user interface Explanation system	3

Question	Answer	Mark
4(a)	<i>ISBN</i> : Check digit <i>Date_due_back</i> : Format check	2
4(b)(i)	Book_ID	1
4(b)(ii)	Borrower_ID	1
4(c)	Two from: The field is not needed for calculation Number starts with a zero/+ symbol May include a space	2
4(d)	Six from: Books table opened Borrowers table opened First record is read from the books table First record is read from the borrowers table <i>Date_due_back</i> in books table is compared with the current date If the <i>Date_due_back</i> is after the current date then... ...Move to next record If the <i>Date_due_back</i> is before or equal to the current date then... ... <i>Contact_email</i> is located A reminder is generated automatically The reminder is sent to the borrower Process continues with next record	6

Question	Answer	Marks
5(a)	Four from: Scrambling of data Changes the data into a form that is not understandable Requires a decryption key/encryption key to decode Encrypted using a encryption key/code Changes plain text into cypher text	4
5(b)	Four from: Use anti-spyware to prevent key logging Change passwords regularly//Do not repeat the same password Use a different password for each system Avoid common/predictable patterns as they are easier to guess Use longer passwords as they are harder to guess Use strong passwords Use two-factor authentication so that hackers need both parts Use a dropdown list for password entry Use a biometric password Do not use passwords that directly links to the user Do not allow webpages/device to remember the password	4

Question	Answer	Mark
6	<p>Four from:</p> <p>Online discussion forum/social platform/website Do not have an administrator Posts are not controlled/monitored Relies on a voluntary code from its users People write what they want There are no rules//Users cannot be barred for what they write</p>	4

Question	Answer	Marks
7(a)	<p>Four from:</p> <p>The reader checks the amount to pay is less than the contactless limit The seller's bank's computer contacts the customer's bank's computer The card is checked if it is valid An authorisation code is sent to the seller The price of the purchase is deducted from the customer's account Transferred to the seller's account Message sent asking 'do you require a receipt' Receipt is sent to the printer If valid/enough money the transaction continues If not valid/enough money the transaction is terminated</p>	4
7(b)	<p>Six from:</p> <p>Advantages Saves time rather than travelling to the bank/waiting in queues Saves cost of travelling to the bank Customers can use international banks which could have better interest rates Better interest rates than physical banks Safer less likely to get mugged/robbed Operates 24/7 Can be used from any location</p> <p>Disadvantages Easier to press the wrong button and lose money Online security issues more of a concern Cannot deposit/withdraw cash Internet connection is required Mistakes are more difficult to rectify due to the speed of operation The customer may experience internet/network problems</p> <p>To gain full marks there must be at least one advantage and one disadvantage</p>	6

Question	Answer	Mark
7(c)	<p>Two from:</p> <p>Secure Socket Layer Communication protocol Security technology Encrypted link... ...between the server and the client</p> <p>Ensures all data remains private – 1 mark</p>	3
7(d)	<p>https://</p> <p>One from:</p> <p>This is the hypertext transfer protocol secure // ensures site is secure Set of rules//protocol</p> <p>tawarabank This shows the domain name/company name that the company have purchased</p> <p>.com The company/domain is registered in multiple countries/USA</p>	3

Question	Answer	Marks
8	<p>Six from:</p> <p>Quicker method of answering the questions for questionnaires Questionnaires can be completed in the respondents own time whereas interviews have to be undertaken at a set time In interviews need to pay for time off work/employing an interviewer which is expensive Respondents can remain anonymous on questionnaires whereas interview they cannot Analysis of the results can be quicker with questionnaires With interviews the interviewer can direct the questions to give answers they want People tend not to hand questionnaires back as they can be anonymous Inflexible in the answers on questionnaires whereas interviews allow for expansion on the answers from the previous question If the respondent gets stuck with a question, there is no easy way to ask for clarification in questionnaires If they do not understand the question then they may answer differently to what was needed in questionnaires In questionnaires questions cannot be modified whereas interviews can add extra questions or go into more depth The analysis of the data in a questionnaire can be displayed easier/graphed Both can gather information that can be used for later analysis Both methods may not be answered honestly</p>	6

Question	Answer	Mark
9(a)	Two from: Headset/head mounted displays/HMD Data goggles Steering wheel Large monitor/screen/projector Surround Speakers	2
9(b)	Three from: A computer-generated simulation Uses a three-dimensional environment Can be interacted within a real or physical way The equipment is fitted with sensors	3
9(c)	Four from: Ensures consistency across all documents Lets people know that the stationery/documents belong to the same Motor company Easier to recognise documents from the same company To reduce the time spent in setting up and formatting documents To reduce cost of setting up and formatting documents To reduce the risk of errors e.g. misspellings, logos omitted, etc.	4

Question	Answer	Mark
10	<p>Problem:</p> <p>Award a mark for each problem identified Max four from:</p> <ul style="list-style-type: none"> If I receive requests from unwanted users/people I do not know If I get approached from people I do not know If I receive unwanted and abusive messages If I wish to post images of myself on the social media site When talking to people on social media If someone tells me private and personal information about themselves <p>Strategies Max five from:</p> <ul style="list-style-type: none"> I never arrange to meet them alone/take a chaperone I always tell a responsible adult if I plan to meet someone I always meet in a public place I always chat to them in the main room I avoid giving away personal information I block them and report them I report the sender of the messages I avoid publishing inappropriate images/videos I avoid showing images of myself in school uniform I always use appropriate language/content I respect other people's confidentiality Make your account private I only follow friends I do not post my location until I have left it 	6

Question	Answer	Marks
11(a)	<p>One from:</p> <ul style="list-style-type: none"> Can cause pixelation Lose some of the resolution/image quality reduced 	1
11(b)	<p>Five from:</p> <ul style="list-style-type: none"> Open graphics/image editing software Load/import the image Select the image Click crop Click an edge/crop handle of the image Click and drag the edge/crop handle inwardsuntil cropped area appears Click done/finish Save the image 	5

Question	Answer	Mark
12(a)	Five from: Highlight Column D Select Conditional Formatting Select Highlight Cell Rules Select Equal to Type in the Equal to box... Severe/Low Click on Format Select/Set the red font on light red background Repeat the process for Low/Severe	5
12(b)	Three from: Removes the confusion over absolute and relative referencing Reduces the issues involved in changing the range Easier to understand the formula Easier to check for errors in the formula Easier to enter the formula//Less errors in entering the formula Faster to write the name than to select the range	3
12(c)	Looks up the value of B3 Looks in the named range Bloodpressure Returns the corresponding value from the 3rd column	4
12(d)	Two from: Highlight A2 to C9 Click Insert Select table...Click Chart Select 2D line chart/select type of graph One from: Add a chart title Add axis title Remove 09-Feb/17-Feb as not needed	3
12(e)	Five from: Include Name, Date of birth Include Patient Number Graph is displayed Must look like a hard copy report Fills the report Suitable title at the top of the page title must relate to blood pressure readings	5