



## Cambridge IGCSE™ (9–1)

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COMPUTER SCIENCE

0984/21

Paper 2

May/June 2020

MARK SCHEME

Maximum Mark: 50

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**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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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)(i)	<p>Any meaningful array related to <b>Task 1</b> – <b>one</b> mark (max <b>two</b>) e.g.            ItemCode            Description</p> <p>Correct purpose for each array related to <b>Task 1</b> – <b>one</b> mark (max <b>two</b>) e.g.            ...to store the item codes            ...to store the descriptions of the items for sale</p>	<b>4</b>
1(a)(ii)	<p>Any meaningful variable related to <b>Task 1</b> – <b>one</b> mark (max <b>two</b>) e.g.            PurchaseItem            TotalPrice</p> <p>Correct purpose for each variable related to <b>Task 1</b> - <b>one</b> mark (max <b>two</b>) e.g.            ... to allow input of an item/code for purchase            ... to store/calculate the total price of the transaction</p>	<b>4</b>
1(b)	<p>Any <b>one</b> correct statement e.g.</p> <ul style="list-style-type: none"> <li>• The Code data is made up of letters/alphabetic characters/not numbers</li> <li>• Real data must have numerical value/would not be used in calculations</li> </ul> <p><b>One</b> mark for:</p> <ul style="list-style-type: none"> <li>• String</li> </ul>	<b>2</b>

Question	Answer	Marks
1(c)	<p>Any <b>five</b> from</p> <ul style="list-style-type: none"> <li>• Input with message to allow choice of mobile device</li> <li>• Attempt to validate input to check for valid item code</li> <li>• Accurate validation of input to check for valid item code</li> <li>• Determination of whether device is phone or tablet</li> <li>• Restriction to only allow input for SIM card required if mobile device is a phone</li> <li>• Input with message to find out if a SIM card is required</li> </ul> <p><b>Example answer</b></p> <pre> OUTPUT "Which type of phone or tablet would you like? Input the Item Code" DeviceFlag ← False WHILE DeviceFlag = False   INPUT DeviceCode   Count ← 0   WHILE Count &lt; 10 DO     IF DeviceCode = ItemCode[Count]       THEN         IF Count &lt; 6           THEN             DeviceType ← "Phone"           ELSE             DeviceType ← "Tablet"           ENDIF         DeviceFlag ← True         Count ← 10       ENDIF     Count ← Count + 1   ENDWHILE   IF DeviceFlag = False     THEN </pre>	<b>5</b>

Question	Answer	Marks
1(c)	<pre> OUTPUT "Your code doesn't exist, please try again" ENDIF ENDWHILE IF DeviceType ← "Phone" THEN     OUTPUT "Would you like a SIM Card? (Answer Y or N)"     INPUT SimRequired ENDIF </pre>	
1(d)	<p>Any <b>five</b> from</p> <ul style="list-style-type: none"> <li>• Explanation of finding if more than one device is purchased</li> <li>• Explanation of application of device discount</li> <li>• Explanation of calculating the discount(s) and finding the new price</li> <li>• Explanation of outputting new total</li> <li>• Explanation of outputting amount saved</li> <li>• Explanation of messages used</li> </ul>	<b>5</b>

Question	Answer	Marks															
2	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th data-bbox="383 914 1664 1013" style="text-align: center;">Statement</th> <th data-bbox="1664 914 1778 1013" style="text-align: center;">True (✓)</th> <th data-bbox="1778 914 1892 1013" style="text-align: center;">False (✓)</th> </tr> </thead> <tbody> <tr> <td data-bbox="383 1013 1664 1082">A structure diagram is a piece of code that is available throughout the structure of a program.</td> <td data-bbox="1664 1013 1778 1082"></td> <td data-bbox="1778 1013 1892 1082" style="text-align: center;">✓</td> </tr> <tr> <td data-bbox="383 1082 1664 1150">A structure diagram shows the hierarchy of a system.</td> <td data-bbox="1664 1082 1778 1150" style="text-align: center;">✓</td> <td data-bbox="1778 1082 1892 1150"></td> </tr> <tr> <td data-bbox="383 1150 1664 1219">A structure diagram is another name for an array.</td> <td data-bbox="1664 1150 1778 1219"></td> <td data-bbox="1778 1150 1892 1219" style="text-align: center;">✓</td> </tr> <tr> <td data-bbox="383 1219 1664 1287">A structure diagram shows the relationship between different components of a system.</td> <td data-bbox="1664 1219 1778 1287" style="text-align: center;">✓</td> <td data-bbox="1778 1219 1892 1287"></td> </tr> </tbody> </table> <p data-bbox="320 1329 745 1393"><b>Two</b> marks for four correct rows. <b>One</b> mark for three correct rows.</p>	Statement	True (✓)	False (✓)	A structure diagram is a piece of code that is available throughout the structure of a program.		✓	A structure diagram shows the hierarchy of a system.	✓		A structure diagram is another name for an array.		✓	A structure diagram shows the relationship between different components of a system.	✓		<b>2</b>
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3(a)	<p><b>One</b> mark for each correct validation check (max <b>two</b>)</p> <ul style="list-style-type: none"> <li>• Range</li> <li>• Length</li> <li>• Type</li> <li>• Check Digit</li> </ul> <p><b>One</b> mark for each correct related purpose (max <b>two</b>) e.g.</p> <ul style="list-style-type: none"> <li>• To make sure the data entered falls within a specific set of values</li> <li>• To make sure the data entered is no longer than specified</li> <li>• To make sure the data entered follows rules related to whether it is numbers or letters</li> <li>• To make sure an identification code entered is genuine or possible</li> </ul>	<b>4</b>
3(b)	<p><b>One</b> mark for correct verification check (max <b>one</b>)</p> <ul style="list-style-type: none"> <li>• Double (data) entry</li> <li>• Visual check</li> </ul>	<b>1</b>
3(c)	<p>Any <b>two</b> correct statements (max <b>two</b>) e.g.</p> <ul style="list-style-type: none"> <li>• Validation checks if the data entered is possible/it cannot check if data has been entered correctly.</li> <li>• Verification checks if the data entered matches the data submitted for entry/ it does not check if data matches set criteria.</li> </ul>	<b>2</b>

Question	Answer	Marks
4(a)	<p>Any <b>two</b> correct statements (max <b>two</b>) e.g.</p> <ul style="list-style-type: none"> <li>• The value of the variable Count begins as 0 ...</li> <li>• ... and is incremented by 1 before it is tested by the loop condition</li> <li>• Count will never be 0 at the end of the loop</li> </ul>	<b>2</b>

Question	Answer	Marks
4(b)	<pre> Count ← 0 REPEAT   INPUT Number   IF Number &gt;= 100     THEN       Values[Count] ← Number     ENDIF Count ← Count + 1 UNTIL Count = 50 </pre> <p> <b>One</b> mark – separate INPUT statement  <b>One</b> mark – IF statement attempted  <b>One</b> mark – IF statement completely correct  <b>One</b> mark – termination of loop updated </p>	<b>4</b>
4(c)	<p>Any <b>two</b> correct statements (max <b>two</b>) e.g.</p> <ul style="list-style-type: none"> <li>• Alter the IF statement/add a second IF statement/comparison that's already there ...</li> <li>• ... so that additional criteria set an upper limit of <math>\leq 200</math></li> </ul>	<b>2</b>

Question	Answer				Marks																																												
5(a)	<table border="1" data-bbox="846 217 1429 938"> <thead> <tr> <th data-bbox="846 217 990 277">Value</th> <th data-bbox="990 217 1137 277">Calc1</th> <th data-bbox="1137 217 1285 277">Calc2</th> <th data-bbox="1285 217 1429 277">OUTPUT</th> </tr> </thead> <tbody> <tr> <td data-bbox="846 277 990 347">50</td> <td data-bbox="990 277 1137 347">25</td> <td data-bbox="1137 277 1285 347">16</td> <td data-bbox="1285 277 1429 347"></td> </tr> <tr> <td data-bbox="846 347 990 418">33</td> <td data-bbox="990 347 1137 418">16</td> <td data-bbox="1137 347 1285 418">11</td> <td data-bbox="1285 347 1429 418"></td> </tr> <tr> <td data-bbox="846 418 990 488">18</td> <td data-bbox="990 418 1137 488">9</td> <td data-bbox="1137 418 1285 488">6</td> <td data-bbox="1285 418 1429 488">18</td> </tr> <tr> <td data-bbox="846 488 990 558">15</td> <td data-bbox="990 488 1137 558">7</td> <td data-bbox="1137 488 1285 558">5</td> <td data-bbox="1285 488 1429 558"></td> </tr> <tr> <td data-bbox="846 558 990 628">30</td> <td data-bbox="990 558 1137 628">15</td> <td data-bbox="1137 558 1285 628">10</td> <td data-bbox="1285 558 1429 628">30</td> </tr> <tr> <td data-bbox="846 628 990 699">-1</td> <td data-bbox="990 628 1137 699"></td> <td data-bbox="1137 628 1285 699"></td> <td data-bbox="1285 628 1429 699"></td> </tr> <tr> <td data-bbox="846 699 990 769"></td> <td data-bbox="990 699 1137 769"></td> <td data-bbox="1137 699 1285 769"></td> <td data-bbox="1285 699 1429 769"></td> </tr> <tr> <td data-bbox="846 769 990 839"></td> <td data-bbox="990 769 1137 839"></td> <td data-bbox="1137 769 1285 839"></td> <td data-bbox="1285 769 1429 839"></td> </tr> <tr> <td data-bbox="846 839 990 909"></td> <td data-bbox="990 839 1137 909"></td> <td data-bbox="1137 839 1285 909"></td> <td data-bbox="1285 839 1429 909"></td> </tr> <tr> <td data-bbox="846 909 990 979"></td> <td data-bbox="990 909 1137 979"></td> <td data-bbox="1137 909 1285 979"></td> <td data-bbox="1285 909 1429 979"></td> </tr> </tbody> </table> <p data-bbox="322 975 918 1007"><b>One</b> mark for each correct column (max <b>four</b>)</p>				Value	Calc1	Calc2	OUTPUT	50	25	16		33	16	11		18	9	6	18	15	7	5		30	15	10	30	-1																				<b>4</b>
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5(b)	<p data-bbox="322 1042 739 1074">Any <b>two</b> correct statements e.g.</p> <ul data-bbox="376 1078 833 1145" style="list-style-type: none"> <li>• The program outputs a value</li> <li>• That is divisible by 6 // 2 and 3</li> </ul>				<b>2</b>																																												

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6(a)	To uniquely identify a product (in TOOLS)	1																																				
6(b)	<table border="1" data-bbox="322 277 943 395"> <tr> <td>HS50</td> <td>Hose (50 metres)</td> <td>60</td> </tr> <tr> <td>GFLG</td> <td>Garden Fork</td> <td>50</td> </tr> <tr> <td>LMPT</td> <td>Lawn Mower (Petrol)</td> <td>25</td> </tr> </table> <p data-bbox="322 427 763 528"> <b>One</b> mark for correct data  <b>One</b> mark for correct format  <b>One</b> mark for data in correct order         </p>	HS50	Hose (50 metres)	60	GFLG	Garden Fork	50	LMPT	Lawn Mower (Petrol)	25	3																											
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6(c)	<table border="1" data-bbox="322 563 1872 983"> <tr> <td>Field:</td> <td>Code</td> <td>Description</td> <td>Quantity_Stock</td> <td></td> <td></td> </tr> <tr> <td>Table:</td> <td>TOOLS</td> <td>TOOLS</td> <td>TOOLS</td> <td></td> <td></td> </tr> <tr> <td>Sort:</td> <td>Ascending</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Show:</td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Criteria:</td> <td></td> <td></td> <td>&lt;25</td> <td></td> <td></td> </tr> <tr> <td>or:</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <p data-bbox="322 1018 1077 1050"><b>One</b> mark for each completely correct column (max <b>three</b>)</p>	Field:	Code	Description	Quantity_Stock			Table:	TOOLS	TOOLS	TOOLS			Sort:	Ascending					Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Criteria:			<25			or:						3
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