Cambridge Assessment International Education

Cambridge IGCSE™

COMPUTER SCIENCE **0478/23**

Paper 2 **May/June 2020**

MARK SCHEME

Maximum Mark: 50

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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[Turn over

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.

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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.

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Question	Answer	Marks

1(a)(i)	Any array related to **Task 1** – **one** mark e.g.
	`ItemCode`
	`Description`
	
	Correct purpose related to **Task 1** - **one** mark e.g.
	…to store the product code of the items in stock
	…to store descriptions/names of the items on sale
		2

1(a)(ii)	Any variable related to **Task 2** – **one** mark e.g.
	`Quantity`
	`HealthyNum`
	
	Correct purpose related to **Task 2** - **one** mark e.g.
	… to allow input of the quantity of a product
	… to store/track the number of healthy items in the order
		2

1(a)(iii)	Any constant related to **Task 3** – **one** mark e.g.
	`Off10`
	`Off20`
	
	Correct purpose related to **Task 3** - **one** mark e.g.
	… to store the 'matching healthy items' option discount rate
	… to store the 'all healthy items' discount rate
		2

1(b)	Any **two** correct statements e.g. • The Healthy? data is not numerical • Boolean	**2**

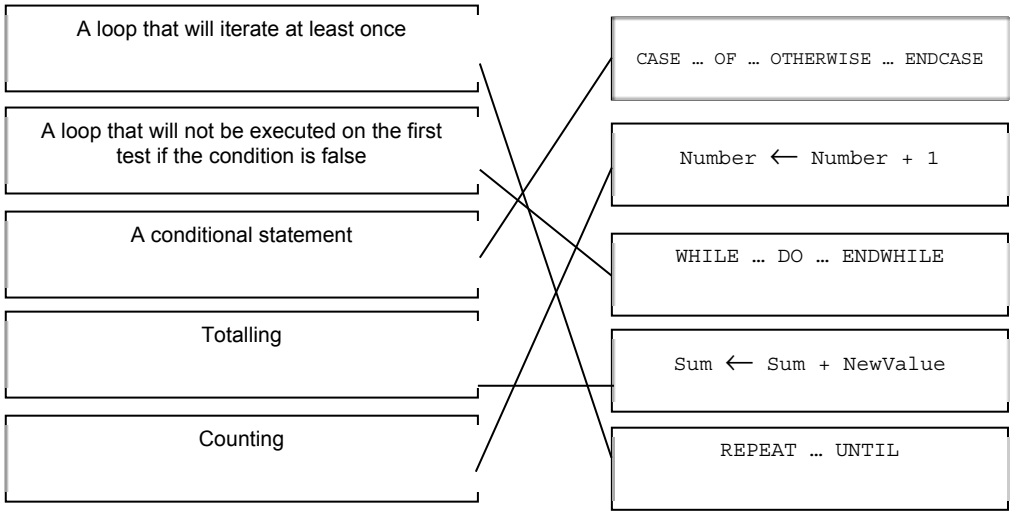
Question	Answer	Marks

1(c)	Any **six** from
	• Input of item/item code (with message)
	• Attempt at use of validation of input for item/item code
	• Fully functional validation of input for item/item code
	• Find location of item/item code in array
	• Retrieve item description, price and whether it is healthy
	• Check if another item is required – message and input
	• Use of loop to repeat purchase option
	• Running total of price
	• Output of description of each item, price and healthy status (with message)
	• Output total price <u>with message</u> (outside final loop)
	
	Example answer
	`AnotherItem ← "Y"`
	`While AnotherItem = "Y"`
	`  SnackCodeFlag ← False`
	`  OUTPUT "Input an Item Code"`
	`  WHILE SnackCodeFlag = False`
	`    INPUT SnackCode`
	`    Count ← 0`
	`    WHILE Count < 22 DO`
	`      IF SnackCode = ItemCode[Count]`
	`        THEN`
	`          SnackCodeFlag ← True`
	`          OUTPUT "Item Description ", Description[Count], " Item Price ",`
	`          Price[Count], " Item is Healthy? ", Healthy[Count]`
	`          TotalPrice ← TotalPrice + Price[Count]`
	`          Count ← 22`
	`      ENDIF`
	`      Count ← Count + 1`
	`    ENDWHILE`
	`    IF SnackCodeFlag = False`
	`      THEN`
		6

Question	Answer	Marks

1(c)	<pre> OUTPUT "Your Item Code doesn't exist, please try again"
	    ENDIF
	  ENDWHILE
	  OUTPUT "Would you like another item? (Answer Y or N)"
	  INPUT AnotherItem
	ENDWHILE
	OUTPUT "The total price is ", TotalPrice</pre>	

1(d)	Any **four** from • Explanation of comparing numbers of healthy and non-healthy items • Explanation of checking for zero unhealthy items • Explanation of applying the 10% discount rule • Explanation of applying the 20% discount rule • Explanation of calculating the new total price and money saved • Explanation of output	**4**
1(e)	**One** for each correct statement (max **two**) • Use a loop structure when making purchases… / introduce a count of items when making purchases … /modify the existing loop structure • … that terminates after six iterations	**2**

Question	Answer	Marks
2	**Description** / **Pseudocode example**  **One** mark – **one** correct link **Two** marks – **two** correct links **Three** marks – **three** correct links **Four** marks – **four/five** correct links	**4**

Question	Answer	Marks
3	Line 2 and Line 4 errors - **One** mark for each correct identification **and** correction of error Error 1 line number: Line 2 Correction: `REPEAT` Error 2 line number: Line 4 Correction: `IF Number < 0 OR Number > 499` Line 8 error - **One** mark for correct identification of error and **one** mark for **each** correction of error Error 2 line number: Line 8 Correction: `UNTIL Number >= 0 AND Number <= 499`	**6**

Question	Answer	Marks
4(a)	**One** mark for each correct check (max **two**) • Length (check) • Type Check • Format Check	**2**
4(b)	**One** mark for each suitable piece of test data and **one** mark for each relevant reason (max **four**) • LL9999LL999 • Too long • 5678987 • All numeric • CB12EU • No space is present	**4**

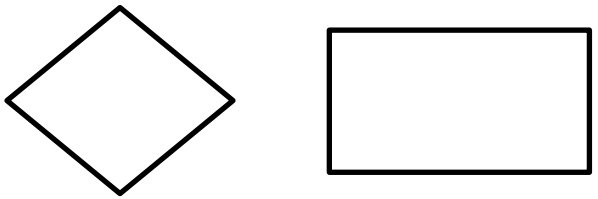
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Question	Answer	Marks
5		**5**

Flag	Number	Divisor	Value	OUTPUT
False	5	2	2	
		3		
				5 is prime
False	6	2	3	
True		3	2	
True		4		
False	8	2	4	
True		3	2	
True		4	2	
		5		
False	0			

One mark for each correct column

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Question	Answer	Marks
6	**Decision** **Process**  **One** mark for each correct symbol	**2**

Question	Answer	Marks
7(a)	<table><tr><th>Fieldname</th><th>Purpose of field contents</th></tr><tr><td>CodeNo</td><td>Primary key to identify products</td></tr><tr><td>Product</td><td>To describe the product</td></tr><tr><td>Price</td><td>The price of individual item</td></tr><tr><td>NumInStock</td><td>How many are in stock</td></tr></table> **One** mark for each correct fieldname and description pair	**4**

Question	Answer	Marks
7(b)		3

Field:	CodeNo	Product	NumInStock	
Table:	STOCK	STOCK	STOCK	
Sort:				
Show:	☑	☑	☐	☐
Criteria:			<20	
or:				

One mark for each completely correct column (max **three**)