Cambridge Assessment International Education

Cambridge IGCSE™

COMPUTER SCIENCE **0478/22**

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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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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Section A

Question	Answer	Marks
1(a)	For **two** variables **One** mark for identification of a variable with a suitable data type and **one** mark for its use Variable `hourArrived` Data type integer Use to calculate the price based on the number of hours parking Variable `priceToPay` Data type real Use store result of price calculation Many correct answers, these are examples only.	**4**
1(b)	For **each** validation check **One** mark for identification of a check and **one** mark for the justification Day Check presence check Justification need to enter day to be able to calculate price Hour Check range check Justification need to check hour is between 8 and 23 Many correct answers, these are examples only.	**4**

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Question	Answer	Marks
1(c)	Any **four** from: • All 5 digits input • Each of the first 4 digits is multiplied by a weight based on its position • Specific method of individualising the digits described • Added together divided by 11 • Remainder used to calculate correct 5th digit • Checked against 5th digit input • If the same, then valid	**4**

1(d)	Any **four** from:
	• Input amount
	• Check amount greater than or equal to the price to pay …
	• … True – add amount to daily total
	• … False – ask for payment to be re-entered
	• … Until valid amount input
	Sample answer
	`PRINT "Please Enter Payment"`
	`INPUT amount`
	`WHILE amount < priceToPay DO`
	`  PRINT "Insufficient payment, please enter new Payment"`
	`  INPUT amount`
	`ENDWHILE`
	`totalPayment ← totalPayment + amount`
		4

1(e)	Explanation Any **four** from: • Add number of hours selected to arrival hour • Check if this is greater than 16 • True – calculate price up to 16 … • … using current price in force • … and add in evening charge • False – calculate price as usual Programming statements can be used but must be explained.	**4**

Section B

Question	Answer	Marks
2	Real Integer Char/String String Boolean	**5**

Question	Answer	Marks
3(a)	**One** mark for error and correction Line 1 `HighestMark ← 0` Line 7 `INPUT Mark[Count]` Line 10 `HighestMarkStudents ← HighestMarkStudents + 1` Line 14 `HighestMark ← Mark[Count]`	**4**
3(b)	Any **six** from: Add variable `LowestMark` … … Set this to a high value for example 100 Add variable `LowestMarkStudents` … … Set this to zero Check if `Mark[Count] = LowestMark` … … `True` – add 1 to `LowestMarkStudents` Check if `Mark[Count] < LowestMark` … … True – set `LowestMarkStudenta to 1` and set `LowestMark` to `Mark[Count]` Add extra output statement	**6**

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<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>4(a)</td><td>One mark for correct input (<code>PointsWon</code> and <code>PointsLost</code>)
One mark for correct calculations (<code>Difference</code>)
One mark for correct output

<table>
<tr><th>PointsWon</th><th>PointsLost</th><th>Difference</th><th>OUTPUT</th></tr>
<tr><td>5000</td><td>4474</td><td>526</td><td>Keep on trying</td></tr>
<tr><td>6055</td><td>2000</td><td>4055</td><td>Well done move up</td></tr>
<tr><td>7900</td><td>9800</td><td>-1900</td><td>Sorry move down</td></tr>
<tr><td>3000</td><td>2150</td><td>850</td><td>Keep on trying</td></tr>
<tr><td>-1</td><td>6700</td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
</table></td><td>3</td></tr>
<tr><td>4(b)</td><td>Any three from:
• Add extra decision box …
• … before checking for difference greater than or equal to 1000
// change Is difference >= 1000 to >= 1000 and <= 5000
• Check for difference greater than 5000
• Add extra Output ‘Fantastic leap up two levels’…
• … before flowline returns to input</td><td>3</td></tr>
</table>

Question	Answer	Marks
5	**One** mark for explanation of dimension **One** mark for explanation of index **One** mark for inclusion of an example The dimension is the number of indexes required to access an element. The index is the position of the element in an array For example A[25] is the 25th element of a one-dimensional array.	**3**

Question	Answer	Marks
6(a)	**One** mark for field and **one** mark for reason Field Juice code Reason only unique identifier	**2**
6(b)	<table><tr><td>Field:</td><td>Fruit 1</td><td>Fruit 2</td><td>Size</td><td>Stock level</td></tr><tr><td>Table:</td><td>JUICE</td><td>JUICE</td><td>JUICE</td><td>JUICE</td></tr><tr><td>Sort:</td><td></td><td></td><td></td><td></td></tr><tr><td>Show:</td><td>☐</td><td>☐</td><td>☑</td><td>☑</td></tr><tr><td>Criteria:</td><td>="Apple"</td><td>="Apple"</td><td></td><td></td></tr><tr><td>or:</td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table> One mark for each correct column	**4**