Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

COMPUTER SCIENCE **0478/22**

Paper 2 **May/June 2017**

MARK SCHEME

Maximum Mark: 50

Published

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Question	Answer	Marks
1(a)(i)	**One** variable name **MUST** relate to the cost of the outing in Task 1 - Variable name (1) - Data type to match variable (1) - Description of the use of the given variable (1) Many correct answers, they must be meaningful. This is an example only. - `NoSeniorCitizens` (1), integer (1), number of senior citizens that want to go on the outing (1)	**3**
1(a)(ii)	**Two** constants required, for each constant - Name (1) - Value (1) - Use (1) Many correct answers, they must be meaningful. These are examples only. - `MinNoSeniorCitizens` (1), 10 (1), minimum number of senior citizens that can go on the outing (1) - `MaxNoSeniorCitizens` (1), 36 (1), maximum number of senior citizens that can go on the outing (1) Max 6 marks	**6**
1(b)	- calculate cost of carers // if more than 24 senior citizens on the trip cost is 60 otherwise cost is 40 - add to the cost of the outing	**2**

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Question	Answer	Marks

1(c)	Any **five** from:
	- loop for number of senior citizens on the trip
	- input with prompts name and amount paid
	- store name and amount paid in appropriate place in arrays
	- total the amount paid
	- check if spare places are available
	- if spare place is required remove a spare place//fill spare places
	- add name(s) to list in appropriate place(s)
	- store names of two carers
	- If number of senior citizens > 24 store name of third carer
	Max 5 marks
	
	Example
	`TotalPaid ← 0`
	`FOR Counter ← 1 TO NoSenCit`
	`  PRINT "Please Enter Name"`
	`  INPUT SenCitName[Counter]`
	`  PRINT "Please Enter amount paid"`
	`  INPUT SenCitAmount[Counter]`
	`  TotalPaid ← TotalPaid + Amount`
	`NEXT Counter`
	`Extras ← TRUE`
	`WHILE NoSenCit < 36 and Extras`
	`  PRINT "Do you want to add another person? Y/N"`
	`  INPUT Answer`
	`  IF Answer = "Y"`
	`  THEN`
	`  NoSenCit ← NoSenCit + 1`
	`  PRINT "Please Enter Name"`
	`  INPUT SenCitName[NoSenCit]`
	`  ELSE Extras ← FALSE`
	`  ENDIF`
	`ENDWHILE`
	`PRINT "Please Enter Name of First Carer"`
	`INPUT Carer1`
	`PRINT "Please Enter Name of Second Carer"`
	`INPUT Carer2`
	`IF NoSenCit > 24`
	`  THEN`
	`  PRINT "Please Enter Name of Third Carer"`
	`  INPUT Carer3`
	`ENDIF`
		5

1(d)	**Explanation** (any programming statements must be fully explained) - check total cost - ……against total amount paid - if total cost < total amount paid display/show profit - if total cost = total amount paid display/show break even	**4**

Question	Answer	Marks

2(a)	award full marks for any working solution
	- Input three numbers (1)
	- Attempt to select largest number (1)
	- Working method (1)
	- print out largest number (1)
	
	Sample algorithm
	`INPUT Num1, Num2, Num3`
	`IF (Num1 > Num2) AND (Num1 > Num3) THEN PRINT Num1`
	`ENDIF`
	`IF (Num2 > Num1) AND (Num2 > Num3) THEN PRINT Num2`
	`ENDIF`
	`IF (Num3 > Num1) AND (Num3 > Num2) THEN PRINT Num3`
	`ENDIF`
	or
	
	`INPUT Num1`
	`Big ← Num1`
	`INPUT Num2, Num3`
	`IF Num2 > Big THEN Big ← Num2 ENDIF`
	`IF Num3 > Big THEN Big ← Num3 ENDIF`
	`PRINT Big`
		4

2(b)	1 mark for each data set and 1 mark for the matching reason. There are many possible correct answers, these are examples only. *Test data set 1:* 30, 29, 28 *Reason:* first number is the largest Test data set 2: x, y, z Reason: abnormal data, should be rejected Max 4 marks	**4**

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>3</td><td>
<table>
<tr><th>Weight</th><th>Reject</th><th>Total Weight</th><th>OUTPUT</th></tr>
<tr><td></td><td>0</td><td>0</td><td></td></tr>
<tr><td>13</td><td></td><td>13</td><td></td></tr>
<tr><td>17</td><td></td><td>30</td><td></td></tr>
<tr><td>26</td><td>1</td><td></td><td></td></tr>
<tr><td>25</td><td></td><td>55</td><td></td></tr>
<tr><td>5</td><td></td><td>60</td><td></td></tr>
<tr><td>10</td><td></td><td>70</td><td></td></tr>
<tr><td>15</td><td></td><td>85</td><td></td></tr>
<tr><td>35</td><td>2</td><td></td><td></td></tr>
<tr><td>20</td><td></td><td>105</td><td></td></tr>
<tr><td></td><td></td><td>85</td><td>Weight of items 85 Number of items rejected 2</td></tr>
</table>
(1mark) (1 mark) (1 mark to 1st 85)
(1 mark 105, 85) (1 mark)
</td><td>5</td></tr>
</table>

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>4(a)</td><td>Error - <code>Count ← 0</code>
Correction - <code>Count ← 1</code>
or
Error - <code>UNTIL Count > 100</code>
Correction - <code>UNTIL Count >= 100 or UNTIL Count = 100</code>
or
<code>UNTIL Count > 99</code></td><td>2</td></tr>
<tr><td>4(b)</td><td>- use of <code>FOR</code> with correct start and end values …
- … use of <code>NEXT</code>
- … removal of increment for <code>Count</code>
Sample algorithm
<pre>Sum ← 0
FOR Count ← 1 TO 100
  INPUT Number
  Sum ← Sum + Number
NEXT // NEXT Count
PRINT Sum</pre></td><td>3</td></tr>
<tr><td>5(a)</td><td>for each field name (1), data type and sample (1)

The following are examples there are many different correct answers.
- EarTag (1), text, EAR1011 (1)
- DOB (1), date, 4/3/2017 (1)
- Gender (1), text, M (1)
- Weight (1), number, 5.9 (1)</td><td>8</td></tr>
</table>

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>5(b)</td><td>EarTag</td><td>1</td></tr>
<tr><td>5(c)</td><td>
<table>
<tr><td>Field:</td><td>EarTag</td><td>Gender</td><td>Weight</td><td></td></tr>
<tr><td>Table:</td><td>SHEEP</td><td>SHEEP</td><td>SHEEP</td><td></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></td><td>=’M’</td><td>> 10</td><td></td></tr>
<tr><td>or:</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>(1 mark)</td><td>(1 mark)</td><td>(1 mark)</td><td></td></tr>
</table>
</td><td>3</td></tr>
</table>

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