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 will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the October/November 2016 series for most Cambridge IGCSE®, Cambridge International A and AS Level components and some Cambridge O Level components.
Section A

1 (a) (i) Many correct answers, they must be meaningful. This is an example only.
   – Choice, integer, choice of charity
   – Cost, real, cost of shopping
   – Donation, real, donation calculated from cost of shopping [3]

   (ii) – Array
   – a set of (similar) variables grouped together// description or array declaration applied to the scenario e.g. DonationTotals[1:3]
   – allows for more efficient programing e.g. use of indices//each charity total can be identified by an index

   or

   – List
   – a set of variables grouped together// description or list declaration applied to the scenario e.g. DonationTotals[]
   – allows for more efficient programing e.g. use of a loop to update each charity

   or

   – Variables
   – storage locations that can be changed// description or declaration applied to the scenario e.g. DonationTotal1, DonationTotal2 and DonationTotal3
   – e.g. as there are only 3 charities so there is no need to use an array [3]

(b) Any five from:
   – Prompt for input of charity choice // prompt for input of value of shopping
   – input charity choice
   – check for input of 1, 2, or 3
   – input value of shopping
   – calculate donation
   – add donation to the appropriate total
   – output name of charity and amount/total amount donated [5]

Sample Answer.
REPEAT
   PRINT 'Please enter choice of charity 1, 2, or 3'
   INPUT Choice
   UNTIL Choice = 1 or Choice = 2 or Choice = 3
   PRINT 'Please enter value of shopping bill'
   INPUT BillValue
   Donation ← BillValue * 0.01
   Total (Choice) ← Total (Choice) + Donation
   PRINT 'Charity ', CharityName (Choice), ' has received a donation of ', Donation
(c) Maximum six marks in total for question part
   Description (may include reference to program statements)
   – when charity choice = -1
   – display total donation for each charity …
   – … with corresponding charity name…
   – description of method for selecting descending order of totals
   – evidence that the method works
   – calculate grand total from 3 totals / sum of all donations
   – output ‘GRAND TOTAL DONATED TO CHARITY’ and grand total

[6]

(d) Any three from:
   – input number of charities
   – store the number of charities as a variable
   – change the upper value of the choice input
   – change the array bounds for total donations etc./ add new variables to hold extra values
   – the need to change the code…
   – … to allow for differing number of charities

[3]
Section B

2 1 mark for identifying each error, 1 mark for the corresponding change

– line 2 or Counter = 100
  – Counter = 0

– line 6 or UNTIL Num < 0
  – UNTIL Num >= 0

– line 7 or Total = Total + 1
  – Total = Total + Num

– line 8 or Counter = Counter + Num
  – Counter = Counter + 1

3 Trace table for input value 33

<table>
<thead>
<tr>
<th>X</th>
<th>A</th>
<th>B</th>
<th>OUTPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>33</td>
<td>4</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

← (1 mark) → (1 mark)

Trace table for input value 75

<table>
<thead>
<tr>
<th>X</th>
<th>A</th>
<th>B</th>
<th>OUTPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>75</td>
<td>9</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

← (1 mark) → (1 mark)
4 For each example: 1 mark for correct structure, 1 mark for appropriate content, 1 mark for the reason. There are many correct answers these are only examples

IF X > 0 AND X <= 10
   THEN PRINT 'In Range'
   ELSE PRINT 'Out of Range'
ENDIF
– e.g. checking a condition that may be complex//uses relational operators// checking for a range of values// only 2 options

CASE X OF
   1 : PRINT 'Option 1'
   2 : PRINT 'Option 2'
   3 : PRINT 'Option 3'
   OTHERWISE PRINT 'Incorrect choice'
ENDCASE
– e.g. checking for discrete/large number/more than 2 of values

5 (a) – 6

(b) – Play text
– No Seats Stalls number
– Price Stalls Seats $ currency

(c) 1 mark for correct plays, 1 mark for correct dates with each play and no extra fields or text, 1 mark for the order
As You Like It 01/07/2016
Julius Caesar 22/07/2016
Macbeth 14/07/2016
(d)

<table>
<thead>
<tr>
<th>Field:</th>
<th>Play</th>
<th>Performance Date</th>
<th>Number Seats Circle</th>
<th>Price Circle Seats $</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table:</td>
<td>PLAYPRODUCTION</td>
<td>PLAYPRODUCTION</td>
<td>PLAYPRODUCTION</td>
<td>PLAYPRODUCTION</td>
</tr>
<tr>
<td>Sort:</td>
<td></td>
<td>ascending/descending</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></td>
<td>&gt;=6</td>
<td></td>
</tr>
<tr>
<td>or:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(1 mark)  (1 mark)  (2 marks)  (1 mark)
1 for Criteria
1 for correct Field & Table & Sort & Show & or

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