Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

COMPUTER SCIENCE **0478/22**

Paper 2 **October/November 2016**

MARK SCHEME

Maximum Mark: 50

Published

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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
```

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(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]

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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` [8]

3 Trace table for input value 33

X	A	B	OUTPUT
33	4	1	1
4			4

← (1 mark) → (1 mark)

Trace table for input value 75

X	A	B	OUTPUT
75	9	3	3
9	1	1	1
1			1

← (1 mark) → (1 mark)

[4]

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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

[6]

5 **(a)** – 6 [1]

(b)

– Play	text
– No Seats Stalls	number
– Price Stalls Seats $	currency

[3]

(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

[3]

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(d)

Field:	Play	Performance Date	Number Seats Circle	Price Circle Seats $
Table:	PLAYPRODUCTION	PLAYPRODUCTION	PLAYPRODUCTION	PLAYPRODUCTION
Sort:		Ascending/ Descending		
Show:	☑	☑	☐	☑
Criteria:			>=6	
or:				
	(1 mark)	(1 mark)	(2 marks) 1 for Criteria 1 for correct Field & Table & Sort & Show & or	(1 mark)

[5]

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