



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 programming 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 programming 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]

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:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:			>=6	
or:				
	(1 mark)	(1 mark)	(2 marks) 1 for Criteria 1 for correct Field & Table & Sort & Show & or	(1 mark)

[5]