



Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

COMPUTER SCIENCE

0478/21

Paper 2

October/November 2016

MARK SCHEME

Maximum Mark: 50

Published

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Section A

- 1 (a) Many correct answers, the identifiers must be meaningful. These are examples only. There are two marks available for each identifier:
- 1 mark for suitable name
 - 1 mark for a suitable data structure, data type and use
 - MaxVotes, constant, integer, maximum number of votes that can be cast
 - CandidateName, array, string, name of candidate
 - NoCandidates, variable, integer, number of candidates
 - TotalNoCandidateVotes, array, integer, total number of votes cast [8]
- (b) Any **four** from:
- prompt for input of candidate number
 - input of candidate number
 - check for candidate number of 1, 2 or 3
 - output 'invalid vote' if input not 1, 2, or 3
 - otherwise add 1 to appropriate total and ...
 - ... output name of candidate voted for [4]
- (c) **Description** (may include reference to programming statements) any **six** marks from
- output total and ...
 - ... corresponding candidate name...
 - description of method for selecting descending order of totals
 - evidence that the method works
 - check if highest number of votes is a unique value
 - if unique output the candidate name and 'NEW CLASS CAPTAIN'
 - otherwise output 'NO OVERALL WINNER' [6]
- (d) Accept any reasonable suggestion(s), two marks can be awarded for either a suggestion with an accompanying description e.g.
- re run the voting (1) without the least popular candidate (1)
- or accept two different suggestions e.g.
- re run the voting
 - give the teacher the casting vote. [2]

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Section B**2 (a)** 1 mark for each change

- Line 2: `OutRange = 0`
- Line 6: should be `OutRange = OutRange + 1`
- Line 7: not needed
- Line 8: `NEXT X` should be `NEXT Count` / Line 3: `FOR Count = 1 TO 10` should be `FOR X = 1 TO 10`

[4]

(b)

Number	Within range (✓)	Outside range (✓)	Reason
10		✓	Range greater than 10, so 10 not included
20		✓	Range less than 20, so 20 not included

[4]

3

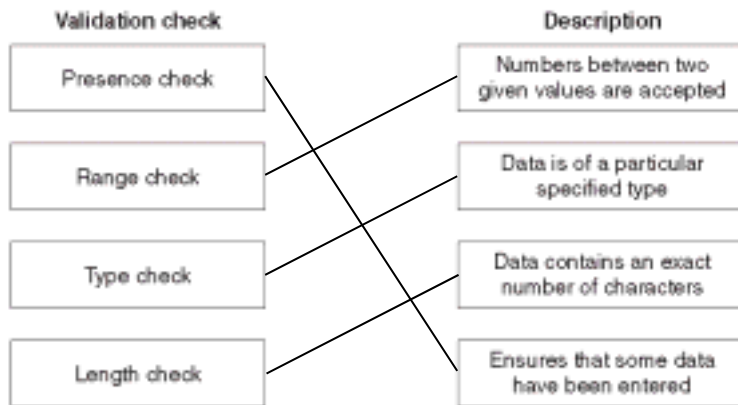
Price	Change	Dollars	TenCents	OUTPUT
6.29				
	3.71			
		3		
	0.71			3 dollars
	0.21			One 50 cent coin
			2	2 ten cent coins
				One 5 cent coin

(1 mark per correct column)

[5]

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- 4 1 mark for each correct link up to maximum of 3 marks



[3]

- 5 For each example **1 mark** for **correct structure**, **1 mark** for **appropriate content** inside loop and **1 mark** for **reason**. There are many correct answers these are only samples

```
REPEAT
  ..INPUT Number
  Total ← Total + Number
UNTIL Number = 0
  – at least one repeat is required
```

```
WHILE Number <> -1 DO
  ..INPUT Number
  Total ← Total + Number
ENDWHILE
  – the loop may never be executed
```

[6]

- 6 (a) – Town has duplicate entries/all fields can have duplicate entries
– fields other than Town not suitable identifiers

[2]

- (b) – Performance number ...
– ... uniquely identifies each performance

[2]

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(c)

Field:	Town	Tour Date	Price Local Currency	
Table:	THEATRETOURS	THEATRETOURS	THEATRETOURS	
Sort:	Ascending			
Show:	☒	☒	☒	☐
Criteria:				
or:				

1 mark for each column + 1 mark for correct fields only

[4]