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

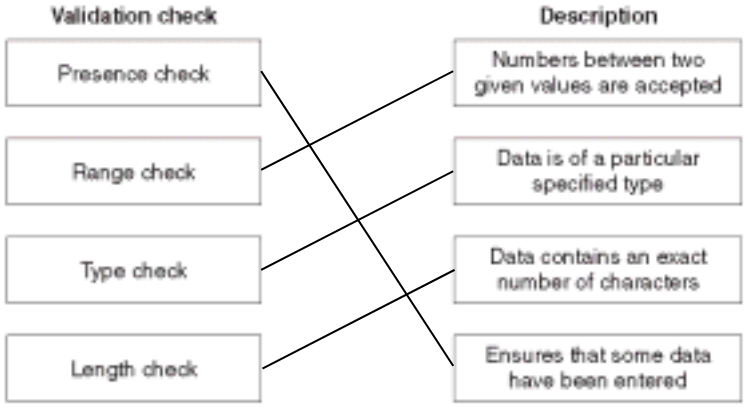
Price	Change	Dollars	TenCents	OUTPUT
6.29				
	3.71			
		3		
	0.71			3 dollars
	0.21			One 50 cent coin
			2	2 ten cent coins
				One 5 cent coin

(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]

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