



Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

COMPUTER SCIENCE

0478/21

Paper 2

May/June 2016

MARK SCHEME

Maximum Mark: 50

Published

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This document consists of **6** printed pages.

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Section A

1 (a) (i) Many correct answers, names must be meaningful. This is an example only.

Length, real/integer, length of parcel
 Breadth, real/integer, breadth of parcel
 Height, real/integer, Height of parcel [3]

(ii) Several correct answers, they must be meaningful. These are examples only.

Dimension, 80
 TotalDimension 200
 MaxWeight 10.00 [2]

(b) Any 5 from:

- input length, breadth, height and weight
- check each dimension, not more than 80
- check total of dimensions, not more than 200
- check weight at least 1
- check weight not more than 10
- output parcel accepted (must be in appropriate position)
- output parcel rejected (must be in appropriate position)
- output all reasons for rejecting parcel (reason must follow test) [5]

Max 5 marks

Sample Answer.

```

INPUT Length, Breadth, Height, Weight
IF Length <= 80 AND Breadth <= 80 AND Height <= 80 AND Weight >= 1
AND Weight <=10 AND Length + Breadth + Height <= 200 THEN
  PRINT 'Parcel accepted'
ELSE
  PRINT 'Parcel rejected'
  IF Length > 80 OR Breadth > 80 OR Height > 80 THEN
    PRINT 'At least one dimension too large'
  ENDIF
  IF Weight < 1 THEN
    PRINT 'Parcel too light'
  ENDIF
  IF Weight > 10 THEN
    PRINT 'Parcel too heavy'
  ENDIF
ENDIF
ENDIF

```

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- (c) 1 mark for the data set and 1 mark for the matching reason all, data sets and reasons must be different. There are many possible correct answers these are examples only.

Data set 30, 29, 28, 4

Reason – normal data; parcel should be accepted

Data set 80, 60, 60, 10

Reason – boundary data; parcel should be accepted

Data set – 85, 60, 60, 11

Reason – abnormal data; parcel should be rejected

[6]

- (d) Maximum 4 marks in total, maximum 2 marks if only programming statements used.

Explanation (may include reference to programming statements)

- loop for number of parcels
- parcels 5 kg or less use standard price
- over 5 kg use weight to calculate price
- Correct calculation of price
- keep running total of consignment price

[4]

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Section B

2 (i) 1 mark for each change

Change variable name in every instance as needs to be meaningful e.g. Large

Set this variable to a low value

line 5: change comparison from < to >

[3]

(ii) 3 marks maximum, 1 mark for each change correctly included.

```

1 Large = 0
2 Counter = 0
3 REPEAT
4     INPUT Num
5     IF Num > Large THEN Large = Num
6     Counter = Counter + 1
7 UNTIL Counter = 10
8 PRINT Large

```

[3]

3 (i) Name type – string

Gender type – char/string

Status type – char/string

Fee type – real

Team member type – Boolean

[5]

(ii) Data Structure – several Arrays

.....Reason – to simplify programming/ make programs shorter/index can be used to identify the same member across the arrays etc.

[2]

4

Riders	Reject	Height	Output
0	0		
1		1.4	
2		1.3	
	1	1.1	
3		1.3	
	2	1.0	
4		1.5	
5		1.2	
6		1.3	
7		1.4	
8		1.3	
			Ready to go 2

(1 mark)

(1 mark)

(1 mark)

(1 mark)

[4]

5

- FOR (... TO ... NEXT)...
- ... a set number of iterations
- WHILE (... DO ... ENDWHILE) ...
- ... used where the loop may never be executed/whilst a specified condition exists

[4]

6

- (a)** – all (fields) have (1 mark) duplicate entries (1 mark)
- none (of the fields) (1 mark) have unique entries(1 mark)

[2]

(b) – e.g. StaffNumber

- Uniquely identifies each member of staff//no duplicates//different for each member of staff

[2]

(c)

Field:	Department	Name		
Table:	STAFFPHONE	STAFFPHONE		
Sort:	Ascending	Ascending		
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Criteria:				
or:				

(2 marks)

(2 marks)

(1 mark for correct order and number of fields shown)

[5]