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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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
```

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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]

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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]

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(c)

Field:	Department	Name		
Table:	STAFFPHONE	STAFFPHONE		
Sort:	Ascending	Ascending		
Show:	☑	☑	☐	☐
Criteria:				
or:				

(2 marks) (2 marks) (1 mark for correct order and number of fields shown) [5]

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