

CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge Ordinary Level

MARK SCHEME for the May/June 2015 series

2210 COMPUTER SCIENCE

2210/22

Paper 2, maximum raw mark 50

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the May/June 2015 series for most Cambridge IGCSE[®], Cambridge International A and AS Level components and some Cambridge O Level components.

® IGCSE is the registered trademark of Cambridge International Examinations.

Page 2	Mark Scheme	Syllabus	Paper
	Cambridge O Level – May/June 2015	2210	22

Section A

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

– PupilName[1:30]
 or PupilName[0:29]
 or PupilName[30]
 or PupilName[29]
 or PupilName[]

[1]

(ii) **Many correct answers, they must be meaningful. This is an example only.**

– StartWeight[1:30]
 or StartWeight[0:29]
 or StartWeight[30]
 or StartWeight[29]
 or StartWeight[]

[1]

(iii) **Answers, must match (i) and (ii) above and the upper bound should have been changed from 30 to 600 or 29 to 599 or no change if not used.**

– StartWeight[1:600] or StartWeight[600]
 – PupilName[1:600] or PupilName[600]

[1]

(b) any **four** from

- prompt for entry of final weight that includes pupil's name
- input final weight
- validation check for final weight
- calculation of difference in weight
-using the initial weight stored in the array
- store difference in weight

(Max 4 marks)

– loop for 600 pupils

(1 mark)

[5]

sample algorithm:

```
FOR Count ← 1 TO 600
  REPEAT
    PRINT 'Please enter weight for ', PupilName[Count]
    INPUT FinalWeight
  UNTIL FinalWeight < 120 AND FinalWeight > 20
  WeightDifference[Count] ← FinalWeight - StartWeight[Count]
NEXT Count
```

Page 3	Mark Scheme	Syllabus	Paper
	Cambridge O Level – May/June 2015	2210	22

- (c) (i) any **two** from
- check that the weights are within a given range
 - check that the weights are numeric
 - check that the weights are given to one decimal point
 - character/type check on name
 - length check on name
- [2]

- (ii) **1** mark for the data and **1** mark for the matching reason.
There are many possible correct answers this is an example only.
- Weight 1 – 35.2
Reason – normal data that should be accepted
- Weight 2 – twenty
Reason – abnormal data that should be rejected
- [4]

- (d) Maximum 6 marks **in total** for question part
- Explanation (max 6)
- loop 30 or 600 times to check each difference in weight
 - check for a difference in weight
 - less than -2.5 (final weight – start weight) or greater than 2.5 (start weight – final weight)
 - ...If so output pupil's name
 - ...if so output difference in weight
 - ...if so output message that it is a fall in weight

Sample algorithm (max 4)

```
FOR Count ← 1 TO 30
    IF WeightDifference [Count] < -2.5
        THEN PRINT PupilName[Count], 'The weight loss was ',
            WeightDifference [Count]
    ENDIF
NEXT Count
```

If pseudocode or programming only and no explanation, then maximum 4 marks [6]

Page 4	Mark Scheme	Syllabus	Paper
	Cambridge O Level – May/June 2015	2210	22

Section B

- 2 1 mark for each error identified + suggested correction

Line 1 or `Large = 9999`: this should read `Large = 0`

Line 3 or `WHILE`: this should read `WHILE Counter < 30`

line 6 or `IF`: this should read `IF Num > Large THEN Large = Num`

line 7 or `Counter = ...`: this should read `Counter = Counter + 1`

[4]

- 3 (a)

Trace table set 1

A	B	C	D	E	F	Total	Check	Output
5	2	4	3	1	5	38	5	Accept

←------(1 mark)-----→←------(1 mark)-----→

Trace table set 2

A	B	C	D	E	F	Total	Check	Output
3	2	1	0	7	3	45	1	Reject

←------(1 mark)-----→←------(1 mark)-----→

[4]

- (b) – (modulo 11) check digit calculation

[1]

- (c) 1 mark for identifying the problem, 2 marks for the solution

Problem

– doesn't deal correctly with remainder 10/a check digit of X

Solution

– check Z for X as a final digit

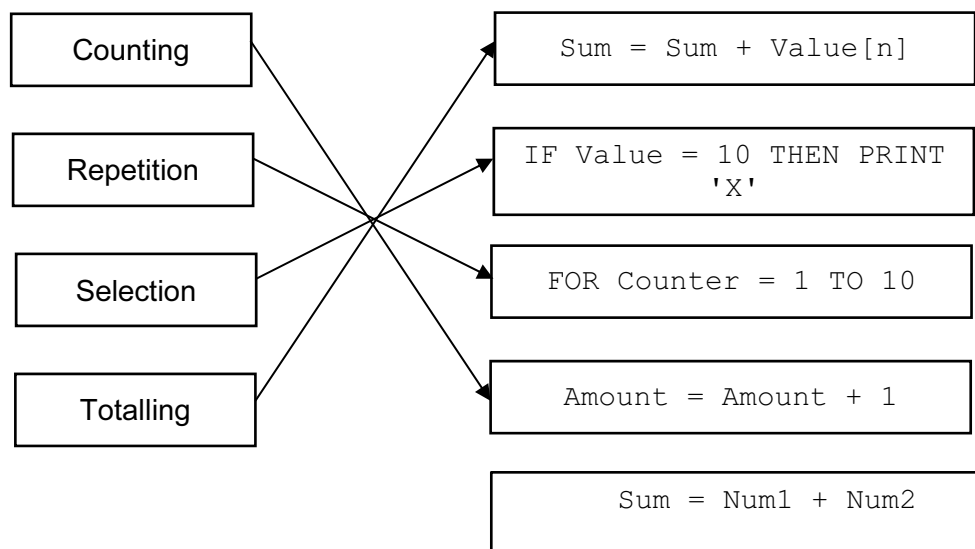
– have a special case where check = 10

– accept where Check = 10 and F = X

[3]

Page 5	Mark Scheme	Syllabus	Paper
	Cambridge O Level – May/June 2015	2210	22

4 1 mark for each correct line, two lines from one box not allowed



[4]

5 (a) 1 mark for FOR ... TO ... NEXT 1 mark for INPUT

```
FOR Count ← 1 TO 1000
  INPUT A[Count]
NEXT (Count)
```

[2]

(b) 4 marks

- initialisation
- start of loop
- update loop counter
- end of loop

Example1

```
Count ← 1 (1 mark)
REPEAT (1 mark)
  INPUT A[Count]
  Count ← Count + 1 (1 mark)
UNTIL Count > 1000 (1 mark)
```

Example2

```
Count ← 0 (1 mark)
WHILE Count < 1000 (1 mark)
  DO
    Count ← Count + 1 (1 mark)
    INPUT A[Count]
  ENDWHILE (1 mark)
```

[4]

Page 6	Mark Scheme	Syllabus	Paper
	Cambridge O Level – May/June 2015	2210	22

6 (a) – 7 [1]

(b) – Class ID
– Uniquely identifies each student [2]

(c) Diana Abur, Paul Smith
– both names
– correct order [2]

(d)

Field:	Student Name	Maths	English
Table:	MARKS	MARKS	MARKS
Sort:			
Show:	☒	☐	☐
Criteria:		<40	<40
or:			

(1 mark)

(1 mark)

(1 mark)

[3]