

CAMBRIDGE INTERNATIONAL EXAMINATIONS**Cambridge International General Certificate of Secondary Education****MARK SCHEME for the October/November 2015 series****0478 COMPUTER SCIENCE****0478/21**

Paper 2, maximum raw mark 50

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Section A

- 1 (a) (i) Any **two** variables with matching uses, **one** mark for the variable name and **one** mark for the matching use. The variables and the matching uses must relate to the tasks on the exam paper. There are many possible correct answers these are examples only.
- Variable 1 – Counter(: INTEGER)
 Use – to use as a loop counter when entering the temperatures
- Variable 2 – BabyTemperature(: REAL)
 Use – to store the baby's temperature [4]
- (ii) Any **two** constants with matching uses, **one** mark for the constant (name and value) and **one** mark for the matching use. The constants and the matching uses must relate to the tasks on the exam paper. There are several possible correct answers these are examples only.
- Constant 1 – MinBabyTemperature = 36.0
 Use – to keep the lowest acceptable baby temperature
- Constant 2 – MaxBabyTemperature = 37.5
 Use – to keep the highest acceptable baby temperature [4]
- (b) Any **five** from
- prompt for baby's temperature
 - input baby's temperature
 - test for > 37.5
 - ... then output suitable message if this is the case
 - test for < 36.0
 - ... then output suitable message if this is the case
 - output suitable message if temperature between those values [5]

Sample algorithm:

```

PRINT 'Please enter temperature of baby '
INPUT BabyTemperature
IF BabyTemperature > MaxBabyTemperature or 37.5
    THEN Print 'Temperature too high'
    ELSE
        IF BabyTemperature < MinBabyTemperature or 36.0
            THEN Print 'Temperature too low'
            ELSE Print 'Temperature OK'
        ENDIF
    ENDIF
ENDIF

```

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(c) (i) Explanation

General marks award as seenGive **one** mark for a mention of any one of the **4** checks below**If a mark is given for a check then** mark the corresponding action takenMaximum of **five** marks overall**General**

- check all recorded temperatures (loop 18 times)
- update counter for those out of range
- output suitable message if counter ≥ 2

1 check if temperature range ≤ 1 and highest recorded not out of range and lowest recorded not out of range

– ... exit

2 check if temperature range > 1 ...

– ... output suitable message e.g. "Temperature range greater than one degree"

3 check if highest recorded temperature out of range...

– ... output a suitable message if at least two recorded temperatures out of range
e.g. "Temperature too high on more than one occasion"

4 check if lowest recorded temperature out of range...

– ... output a suitable message if at least two recorded temperatures out of range
e.g. "Temperature too low on more than one occasion" [5]

(ii) Any **two** from

- only checks necessary conditions
- uses results from task 2
- checks for normal values first [2]

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Section B**2 One mark for each error identified + suggested correction**

line 4 or $(Total =) Total + 1$: this should read $(Total =) Total + Num$

line 5 or $Counter = Counter + 1$: delete this line

line 6 or $(Average =) Total / Counter$: swap lines 6 and 7

line 6 or $(Average =) Total / Counter$: this should read $(Average =) Total / 50$

[4]

3 (a)**Number 1 Trace table**

X	Posn	New	T1	T2	Output
5	1	0			
	10	1	2	1	
2	100	1	1	0	
		101			
					101

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

Number 2 Trace table

X	Posn	New	T1	T2	Output
12	1	0			
	10	0	6	0	
6	100	0	3	0	
3	1000	100	1	1	
		1100			
					1100

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

[6]

(b) Converts a (denary) number to binary

[1]

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4 There are many possible correct answers this is an example only.

Normal e.g. 1.7

Extreme 0.5 or 2.0 only

Abnormal e.g. one

[3]

5 – IF (... THEN ... ELSE ... ENDIF)

– CASE (... OF ... OTHERWISE ... ENDCASE)

[2]

6 (a) (i) One mark for every **two** correct types

Title – text

Artist – text

Description – text/memo

Catalogue Number – text/(auto)number

Size – number

Price – currency/number

Arrived – date

Sold – “yes/no”/text/Boolean

0, 1 no marks

2, 3 one mark

4, 5 two marks

6, 7 three marks

8 four marks

[4]

(ii) Catalogue Number

[1]

(b) One mark for each correct **different** check

Catalogue Number Format check/Presence Check/Check Digit/Length check/uniqueness check

Size Type check/Presence Check/Range Check

Price Type check/Presence Check/Range Check

Arrived Type check/Presence Check/Range Check/Format check/Select from calendar length check

[4]

(c)

Field:	Catalogue Number	Title	Price	Artist	Sold
Table:	PICTURE	PICTURE	PICTURE	PICTURE	PICTURE
Sort:					
Show:	☒	☒	☒	☐	☐
Criteria:				= 'Twister'	False
or:					
	(1 mark)	(1 mark)	(1 mark)	(1 mark)	(1 mark)

[5]