

**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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Page 2	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2015	0478	21

### 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

```

Page 3	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – October/November 2015	0478	21

- (c) (i) Explanation  
**General marks** award as seen  
 Give **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 taken  
 Maximum of **five** marks overall

**General**

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

**1 check if temperature range  $\leq 1$  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]

**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**

<b>X</b>	<b>Posn</b>	<b>New</b>	<b>T1</b>	<b>T2</b>	<b>Output</b>
5	1	0			
	10	1	2	1	
2	100	1	1	0	
		101			
					101

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

**Number 2 Trace table**

<b>X</b>	<b>Posn</b>	<b>New</b>	<b>T1</b>	<b>T2</b>	<b>Output</b>
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]

<b>Page 5</b>	<b>Mark Scheme</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>Cambridge IGCSE – October/November 2015</b>	<b>0478</b>	<b>21</b>

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:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Criteria:				= 'Twister'	False
or:					

(1 mark) (1 mark) (1 mark) (1 mark) (1 mark)

[5]