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

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Section A

1 (a) (i) Many correct answers, they must be meaningful. These are examples only.

- MiddayTemperature[1:30]
  or MiddayTemperature[0:29]
  or MiddayTemperature[30]
  or MiddayTemperature[29]
  or MiddayTemperature[]

(1 mark)

- MidnightTemperature[1:30]
  or MidnightTemperature[0:29]
  or MidnightTemperature[30]
  or MidnightTemperature[29]
  or MidnightTemperature[]

(1 mark)

(ii) Answers, must match above and the upper bound should have been changed from
30 to 7 or 29 to 6 or no change if not used. These are examples only.


(1 mark)

(iii) Any two variables with matching reasons, 1 mark for the variable and 1 mark
for the matching reason. The variables and the matching reasons must relate to
the tasks in the pre-release. There are many possible correct answers these are
examples only.

Variable  – Counter: (Integer)
Reason    – to use as a loop counter when entering the temperature

Variable  – HighNoon: (Real)
Reason    – to store the highest midday temperature

[4]
(b) **If loop used**
- initialisation before loop
- loop
- running total inside loop
- calculation of average outside loop
- output of average with message outside loop

(Max 4 marks)

- completion of at least 3 of initialisation, running total, calculation of average and output of average with message for both midday and midnight

(1 mark) [5]

**sample algorithm:**

```plaintext
MiddayTotal ← 0; MidnightTotal ← 0
FOR Count ← 1 TO 7
    MiddayTotal ← MiddayTotal + MiddayTemperature[Count]
    MidnightTotal ← MidnightTotal + MidnightTemperature[Count]
NEXT Count
MiddayAverage ← MiddayTotal/7
MidnightAverage ← MidnightTotal/7
PRINT 'The average midday temperature is ', MiddayAverage
PRINT 'The average midnight temperature is ', MidnightAverage
```

**If loop not used**
- total of 7 midday temperatures
- calculation of midday average (*Note could be combined as one calculation, see example below*)
- total of 7 midnight temperatures
- calculation of midnight average (*Note could be combined as one calculation, see example below*)
- output of both averages with suitable messages [5]

**sample algorithm:**

```plaintext

PRINT 'The average midday temperature is ', MiddayAverage
PRINT 'The average midnight temperature is ', MidnightAverage
```
(c) 1 mark for the data set and 1 mark for the matching reason.
There are many possible correct answers, these are examples only.

Data set – 30, 29, 28, 31.5, 32.3, 33, 29.7
Reason – normal data that should be accepted

Data set – twenty, 23.99, seventeen, 501, –273, @#@, seventy seven
Reason – abnormal data that should be rejected [2]

(d) Maximum 6 marks in total for question part
Explanation (max 6)
– set variable called HighestMidday to a large minus number
– loop (30 or 7) times to check each midday temperature in turn
– check midday temperature against HighestMidday / midday temperature > HighestMidday
– …replace value in HighestMidday by midday temperature
– …store array index in MiddayMonthDay/MiddayWeekday
– output HighestMidday outside the loop
– output MiddayMonthDay/MiddayWeekday outside the loop

Sample algorithm (max 4):
HighestMidday ← -999
FOR Count ← 1 TO 7
    IF MiddayTemperature [Count] > HighestMidday
    THEN HighestMidday ← MiddayTemperature[Count]
           MiddayMonthDay/MiddayWeekday ← Count
ENDIF
NEXT Count
PRINT 'The highest midday temperature was ',HighestMidday, ' on day ', Count

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

2 1 mark for each error identified + suggested correction
   Line 1 or Small = 0: this should read Small = 999
   line 5 or IF...: this should read IF Num < Small THEN Small = Num
   line 8 or UNTIL: this should read UNTIL Counter = 10 or
                    UNTIL Counter >= 10 or
                    UNTIL Counter > 9
   line 7 or PRINT...: PRINT Small should come after the end of the repeat loop
                       or
   line 8 or UNTIL: this should come before line 7

3

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(2 marks) (1 mark) 1 mark) (1 mark)
(–1 for each error) (allow follow through) (from Total and Reject)
(then follow though)
4 1 mark for each correct link, up to maximum of 4 marks

![Diagram showing the classification of data types: Integer, Real, Char, String, Boolean, 'a', 2, 2.0, 'Twelve'.]

5 Any two points from
– a variable is used to store data that can change during the running of a program
– a constant is used to store data that will not be changed during the running of a program

6
– FOR (... TO ... NEXT)
– REPEAT (... UNTIL)
– WHILE (... DO ... ENDWHILE)

7 (a)  –  7

(b)  –  Brochure No
– Uniquely identifies each property

(c) Garage
  Number of Bedrooms – Boolean
  Price in $ – Number/Integer/Single

(d) 399000 H13
    450000 H10
(e)

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or

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