**Pseudocode Questions 4**

1. a) Add after Line 4

|  |
| --- |
| IF total\_time > 45 then  SEND “Warning” TO DISPLAY  END IF |

* 1 mark for IF (with END IF or equivalent)
* 1 mark for correct condition
* 1 mark for message

b)

|  |
| --- |
| unlocked = true  FOR roller = 1 TO 4  IF usercode[roller] <> passcode[roller] THEN  unlocked = false  ENDIF  NEXT roller  IF unlocked = TRUE THEN  SEND “Unlocked” TO DISPLAY  END IF |

* 1 mark for use of loop
* 1 mark for use of boolean flag
* 1 mark for displaying message

***Or***

|  |
| --- |
| IF usercode[1]=passcode[1] AND  usercode[2]=passcode[2] AND  usercode[3]=passcode[3] AND  usercode[4]=passcode[4] THEN  SEND “Unlocked” TO DISPLAY  ENDIF |

* 1 mark for use of IF
* 1 mark for use of AND in condition
* 1 mark for displaying message

DO NOT ACCEPT MULTIPLE NESTED IF STATEMENTS AS THIS IS INEFFICIENT

2. a)

|  |
| --- |
| Total = 0  FOR EACH study\_time FROM hours  total = total + study\_time  END FOR  average=total/30 |

* 1 mark for initialise total and adding to total in loop
* 1 mark for FOR EACH array element (or similar using index)
* 1 mark for calculating average from total

b)

* Start loop
* The value 15 is entered and stored in study\_time (1 mark)
* Examined in condition and 15 triggers the rule study\_time >12 so the error message is sent to the display. (1 mark)
* Check if we can exit loop, we cannot be cause the value of study\_time is not valid by the rule so the loop returns to the start and attempts to get a new value (1 mark)

3. Line 4 OR should be AND for the logic to be correct as described (1 mark)

Line 5 to 8 the loop will repeat forever as there is no means of reading the temperature sensor again to update the variable temperature. (1 mark)

4. After Line 5: SET max\_position TO counter

After Line 9: SEND max\_position TO DISPLAY

1 mark for each correct response

Max 2 marks

5. a) This is because line 11 (1 mark) should be >= but is just > (1 mark).

Accept: No matching IF statement/ondition for a housevalue of 212000 for 1 mark

b)

|  |
| --- |
| SET taxband TO “-“  IF housevalue < 80000 THEN  SET taxband to “E”  ELSE IF housevalue >= 80000 AND housevalue < 106000 THEN  SET taxband TO “F”  ELSE IF housevalue >= 106000 AND housevalue < 212000 THEN  SET taxband TO “G”  ELSE IF housevalue >= 212000 THEN  SET taxband TO “H”  END IF  RETURN taxband |

* 1 mark for construct nested IF or CASE.
* 1 mark for correct conditions.
* 1 mark for correct variables.

c)

|  |
| --- |
| RECEIVE base\_price FROM KEYBOARD  RECEIVE percentage\_increase FROM KEYBOARD  SET housevalue TO base\_price \* percentage\_increase  band = taxband(housevalue)  SEND band TO DISPLAY |

* 1 mark for input of both variables
* 1 mark for calculation of housevalue
* 1 mark for making use of function with input parameter.
* 1 mark for assignment taxband and subsequent display.

Accept answers which carry out the calculation within the parameter for the function i.e. taxband(base\_price \* percentage\_increase)