Name: Class:

**Task 1**

1. Examine the pseudo-code program given below.

(a) Which lines show an example of a sequence?

(b) Which lines show an example of the ‘Selection’ programming construct?

(c) There are two examples of iteration statements in the program. On which lines do each of the ‘Iteration’ programming construct begin and end?

(d) If the user enters 1 and 10 for the lowNumber and highNumber, what will be printed out at line 13?

1. OUTPUT "This program prints selected numbers in a given range"
2. AnotherGo ← "Y"
3. WHILE AnotherGo = "Y"
4. OUTPUT "Please enter first number in your chosen range: "
5. INPUT LowNumber
6. OUTPUT "Please enter last number in your chosen range: "
7. INPUT HighNumber
8. TotalNum ← 0
9. FOR i ← lowNumber TO highNumber
10. IF i MOD 5 <> 0 AND i MOD 7 <> 0
11. THEN
12. OUTPUT i
13. TotalNum ← TotalNum + 1
14. ENDIF
15. NEXT i
16. OUTPUT TotalNum
17. OUTPUT "Another go? (Y or N)"
18. INPUT Answer
19. AnotherGo ← UPPER(Answer)
20. ENDWHILE

Task 2

1. Write a pseudo-code algorithm which inputs numeric scores and outputs how many of them are over 100. The end of the data is signalled by a user input of -1.

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2. Write a pseudo-code algorithm which inputs numeric scores and outputs the average score. The end of the data is signalled by a user input of -1.

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Task 3

A floor turtle uses these instructions.

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| **Instruction** | **Meaning** |
| forward(n) | Move *n* cm forward |
| backward(n) | Move *n* cm backwards |
| left(d) | Turn left *d* degrees |
| right(d) | Turn right*d* degrees |
| penup() | Raise the pen |
| pendown() | Lower the pen |

(Each square in the drawing is 10cm by 10cm.)

(a) Complete the set of instructions to draw the shape shown below in bold lines, starting at the point marked X.

|  |  |  |
| --- | --- | --- |
| **X** |  |  |
|  |  |

pendown()  
FOR i ← 1 TO 4

(b) Complete the set of instructions to draw the shape shown below in bold lines, starting at the point marked X.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **X** |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

pendown()  
FOR i ← 1 TO 3  
 FOR j ← 1 TO 4

(c) Complete the set of instructions to draw the shape shown below in bold lines, starting at the point marked X.

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| --- | --- | --- | --- | --- | --- | --- |
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|  |  |  | X |  |  |  |
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|  |  |  |  |  |  |  |

pendown()

Distance ← 10

FOR i ← 1 TO 7

NEXT i

Task 4

An email address must contain an ‘@’ symbol. Write a program in pseudo-code that will:

* ask a user to enter their email address
* if they enter an email address without an @ symbol it will ask them to enter it again
* to check if the email address contains an @ symbol, a for loop should be used to check each character entered
* a REPEAT…UNTIL loop must be used as part of the program

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