Name: Class: Mark:

1. (a) Syntax errors are commonly made when writing a program.

Explain what is meant by a syntax error. [2]

(b) Other than a syntax error, explain one other type of error that can be made when programming. [2]

2. The following pseudocode program is designed to calculate the average length of time you live in the same home.

1. moves = int(input("How many times have you moved home in your life? "))
2. age = int(input("How old are you? ))
3. averageTime = age / moves
4. print(averageTime)

(a) State the syntax error in line 2. [1]

(b) A user enters that they have moved 2 times and they are 15 years old.

State the output from the program? [1]

(c) If they have moved twice, they have lived in three houses. Therefore the averageTime they have lived in each house is 5 years.

State the type of error is in this program. [1]

(d) Write or rewrite one line of code to fix the problem. [2]

3. The following pseudocode calculates and outputs two values k and j. It then calculates and outputs two further values t and a. The array x is indexed from 0.

x = [7, 9, 6, 2, 4]

t = x[0]

k = x[0]

j = x[0]

for n = 1 to 4

t = t + x[n]

if x[n] > k then

k = x[n]

endif

if x[n] < j then

j = x[n]

endif

next n

print("k = " + str(k) + "j = " + str(j))

(a) Complete the trace table below. [6]

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **t** | **k** | **j** | **n** | **x[n]** | **a** | **OUTPUT** |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
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|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

(b) Describe what the program does. [2]

(c) List **two** ways in which the program could be made easier to understand and more maintainable. [2]

(d) State **one** technique that has been used in the code that helps to keep   
it maintainable. [1]

[Total 20 marks]