1. Write a pseudocode algorithm using a **for … next** loop to read five lowercase letters   
and output the largest and smallest. (a is less than b). [6]

2. Write a pseudocode algorithm that asks a user for a password. They are allowed three attempts to type the correct password, which is “Tues1212”.

If they type the correct password, output “Password accepted”, otherwise output   
“Password rejected”. [6]

# 3. (a) Complete the trace table below with the values supplied. [4]

sunshine = 0

maxHours = 0

minHours = 100

totalSunshine = 0

repeat

sunshine = input(“Input hours of sunshine: ”)

if sunshine > maxHours then

maxHours = sunshine

endif

if sunshine < minHours then

minHours = sunshine

endif

totalSunshine = totalSunshine + sunshine

until sunshine = -1

print(“Max sunshine hours: ”, maxHours)

print(“Min sunshine hours: ”, minHours)

print(“Total sunshine hours: ”, totalSunshine)

Test Data: 2 7 3 8 -1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **sunshine** | **maxHours** | **minHours** | **totalSunshine** | **Output** |
| 0 | 0 | 100 | 0 |  |
|  |  |  |  |  |
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|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

# (b) What is the problem with the algorithm above? [2]

# (c) This time the algorithm uses an entry condition WHILE loop.

# Complete the trace table to see the difference between the two. [2]

sunshine = 0

maxHours = 0

minHours = 100

totalSunshine = 0

sunshine = input(“Input hours of sunshine: ”)

while sunshine <> -1

if sunshine > maxHours then

maxHours =sunshine

endif

if sunshine < minHours then

minHours = sunshine

endif

totalSunshine =sunshine + totalSunshine

sunshine =INPUT

endwhile

print(“Max sunshine hours: ”, maxHours)

print(“Min sunshine hours: ”, minHours)

print(“Total sunshine hours: ”, totalSunshine)

Input data: 2 7 3 8 -1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **sunshine** | **maxHours** | **minHours** | **totalSunshine** | **Output** |
| 0 | 0 | 100 | 0 |  |
|  |  |  |  |  |
|  |  |  |  |  |
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[Total 20 Marks]