Hand your completed quiz in before the due date. Do not forget to write down your name and student ID number. Marks will be awarded for this quiz based on the clarity of your answers. The marker will pay close attention to the logic of your answers. Please show all your working.

Q.1 Translate the following for loops to equivalent while loops.

a. for count in range(100):
   print(count)
b. for count in range(1, 101):
   print(count)
c. for count in range(100, 0, -1):
   print(count)

Q.2 The factorial of an integer \( N \) is the product of the integers between 1 and \( N \), inclusive. Write a while loop that computes the factorial of a given integer \( N \).

Q.3 (optional) The \( \log_2 \) of a given number \( N \) is given by \( M \) in the equation \( N = 2^M \). Using integer arithmetic, the value of \( M \) is approximately equal to the number of times \( N \) can be evenly divided by 2 until it becomes 0. Write a loop that computes this approximation of the \( \log_2 \) of a given number \( N \). You can check your code by importing the math.log function and evaluating the expression \( \text{round(math.log}(N, 2)) \)(note that the math.log function returns a floating-point value).

Q.4 What value does the following code print?

a. 
   x = 5
   y = 4
   if x > y:
      print(y)
   else:
      print(x)
b. count = 5
   while count > 1:
      print(count, end = ' ')
   count -= 1

Q.5 Write a program that accepts the length of three sides of a triangle as inputs. The program output should indicate whether or not the triangle is a right triangle. Recall from the Pythagorean theorem that in a right triangle, the square of one side equals the sum of the squares of the other two sides.