**ISAT 252—Analytical Methods IV—Programming and Problem Solving**

**Worksheet #5: Loops**

**True or False (1 Point each)**

1. \_\_\_T\_\_A condition-controlled loop always repeats a specific number of times.

2. \_\_\_T\_\_The while loop is a pretest loop.

3. \_\_\_F\_\_It is not necessary to initialize accumulator variables.

4.\_\_\_T\_\_ In a nested loop, the inner loop goes through all of its iterations for every single iteration of the outer loop.

5.\_\_\_F\_\_To calculate the total number of iterations of a nested loop, add the number of iterations of all the loops.

6. \_\_F\_\_\_The process of input validation works as follows: when the user of a program enters invalid data, the program should ask the user "Are you sure you meant to enter that?" If the user answers "yes," the program should accept the data.

**Algorithm Workbench (2 points each)**

1. Write a for loop that displays the following set of numbers:

0, 10, 20, 30, 40, 50 . . . 1000

for i in range (0, 1001, 10):

print (i, end=' ')

print()

1. Write code that prompts the user to enter a number in the range of 1 through 100 **and validates the input**.

num = 0.0

num = float(input("Enter a number between 1 and 100: "))

while num < 1:

print("Please enter a value between 1 and 100")

num = float(input("Enter a number between 1 and 100: "))

while num > 100:

print("Please enter a value between 1 and 100")

num = float(input("Enter a number between 1 and 100: "))

print("Your value is: ", format(num, '.2f'))