**CISC 160 FA 2019**

**Data Structures**

**Programming Assessment Test**

**Instructions:** Assume that all the lines of code have been written to the Python interpreter in order from top to bottom for each question. Any lines of code you see in this booklet will be represented in this font for the text and will be highlighted in grey.

**NOTE:** This test is not being graded as part of your class grade. This is simply a way to gauge your level of comfort and ability with Python. Attempt each question honestly. If you don’t know but have a guess, take a guess. If you honestly don’t know the answer to the question, **do not leave it blank**. Instead, write “I don’t know.”

1. Assume the following lines of code have been written into the Python Interpreter. Identify what the data type of each of the following lines is.
   1. >>> 1
   2. >>> 3.2
   3. >>> “This is your assessment test”
   4. >>> [“CISC680”, 50.1, 102]
   5. >>> (2, 3, 4, 5)
   6. >>> {"Key1":"Value1", "Key2":"Value2", "Key3":"Value3"}
2. Integer
3. Float
4. String
5. Array
6. List
7. Sorted Array
8. If somefunction’s definition contains no return statement, what is printed from the execution of the code below? Explain your answer.

>>> x = somefunction()

>>> print(x)

It would print out a syntax error because the function has no return statement so the program would have nothing to print out so it would show up as an error.

1. What will the interpreter print back to the user? Explain your answer.

>>> x = [1, “B”, 4.5]

>>> for i in x:

print(i\*3)

it would print out an error message because the array is only 3 long and when it iterates again it will not be able to pull a value from the array since it doesn’t exist.

1. Assume the following lines of code have been written into the Python interpreter in order from top to bottom. What will the final line “print(y)” print out to the console window? Explain your answer.

>>> y = 105

>>> Function1(param):

param = param \* 100

return param

>>> Function1(y)

>>> print(y)

The print(y) line would print out 105 since the function never changed the value of y and only used it as an input value.

>>> class X:

def \_\_init\_\_(self):

Instance\_var1 = 1

Instance\_var2 = 2

def get\_1(self):

return 1

def get\_1(self):

return 10

If the code shown above has just been ran, what would the lines of code (shown below) print to the console? Explain your answer.

>>> obj = X()

>>> print(obj.get\_1())

It would print out the value of 1 since obj is put as the function X the print line asks for the function to call get\_1.

1. Write a recursive function in Python syntax that takes an integer as a parameter and returns the factorial of that integer.

Def factorial(x):

If x==1:

Return 1

Else:

Fact = x\* factorial(x-1))

Return fact

1. How would you access the number 7 in the list below using Python syntax? Explain your answer.

>>> x = [1,2,3,5,8,6,7,8]

I would use x[6] since the value of 7 is in the 6th position due to python starting at 0 with arrays.

1. What data type would result from the following operation? Explain your answer.

>>> 50 + 103.76

It would output a float since it would have a decimal.

1. Explain how the following loop works in as much detail as you can provide.

>>> i = 5

>>> while i < 15:

print(i)

i+=1

How this loop works is that the value of i is set to 5 and then a while loop is set up to run as long as i is less than 15. It then prints out whatever value that i is set at and then adds the value of i by 1 then does that until i is 15.

1. Write a program below in Python syntax that prints the numbers 1 to 200. But for multiples of 4 prints “Fizz” instead of the number and for the multiples of 6 prints “Buzz” instead of the number. For numbers which are multiples of both 4 and 6 the program should print “Fizzbuzz” instead of the number.

i=0

while i=<200:

fb=False

i+=1

if (i/4 == int() && i/6 == int()):

fb=True

if (fb==True):

print(“Fizzbuzz”)

else:

if (i/4 == int()):

print(“Fizz”)

elif (i/6 == int()):

print (“Fuzz”)

else:

print(i)

1. How do you rate your own ability in Python on a scale of 1 to 5 where 1 is novice and 5 is expert? Do you code in any other programming languages? If so, list them and rate your level of understanding for each on the same 1 to 5 scale.

I would say that my ability in python a solid 3 because it has things that I don’t know but I am somewhat comfortable with it. Another language I am familiar with is java but I haven’t played with it since high school.