

CSC 110 Exam #2 Summer 2023

Do not remove the questions, or the question numbers from the exam file you submit.

1.) What is printed after executing this code? Complete the table below UNTIL the **last** iteration.

	i	x
1 st iteration	0	10
2 nd iteration	1	9
3 rd iteration:	2	7
4th iteration:	3	4

```
x=10
for i in range(4):
    x=x-i
    print(i,x)
```

2.) (10 points) Write a function digSum(n), which takes a positive int, n, and returns the sum of the digits of n. For example the digit sum of 125 is 1 + 2 + 5 = 8. (Hint: If n is changed to a string, you can traverse the string with a for loop.)

```
def digSum(n):
    number = str(n)
    length = len(number)
    total = 0
    for i in range(length):
        total += int(number[i])
    return total
```

3.) Consider the string: str = 'THE FORCE'

a) What index should be used to access the last character of str? `str[8]`

b) write the output of `print(string[1:4])`

HE_ (it wouldnt be an underline, but there is a space at the end)

4.) Executing the following code would give an error. Why? Explain.

```
str = "koala"
str[0] = "c"
print(str)
```

strings are immutable, meaning that they cannot be changed like this.
Another string must be created with the change for it to work.

5.) (True/False): The following statement is legal in Python.

(assuming that a, b, c are defined to be of type int, inside the function)

```
return a + b < c
```

true

6.) Explain what is wrong with the following function. Then fix the function so that it works:

```
def add_args(x, y, z):
    return x + y + z
    print('The answer is:', x + y + z)
```

the return ends the function before the print statement is called, so there is no print when the function is called!

```
def addArgs(x, y, z):
    print('The answer is:', x + y + z)
    return x + y + z
```

7.) (Choose only one answer from a-e)

The following code contains a nested loop. How many times will it print the word “Aye” to the console?

```
def print_nums(x, y):  
    for h in range(y):  
        print(“Aye”)  
        for i in range(x):  
            print(“Aye”)
```

```
print_nums(5, 3)
```

a.) 15

b.) 8

c.) 5

d.) 18

e.) 20

8.) Consider the following Python code. Note that line numbers are included on the left.

Which of the following best reflects the order in which these lines of code are processed in Python?

- A. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
- B. 1, 2, 3, 5, 6, 7, 9, 10, 11
- C. 9, 10, 11, 1, 2, 3, 5, 6, 7
- D. 9, 10, 5, 6, 1, 2, 3, 6, 7, 10, 11
- E. 1, 5, 9, 10, 5, 6, 1, 2, 3, 6, 7, 10, 11

```
1  def pow(b, p):
2      y = b ** p
3      return y
4
5  def square(x):
6      a = pow(x, 2)
7      return a
8
9  n = 5
10 result = square(n)
11 print(result)
```

9.) Given the following variable `var="Seattle"`, write Python code that, using a for loop, prints every letter of "Seattle", one letter per line.

```
for i in range(len(var)):
    print(var[i])
```

10.) Which of the following is used to define a block of code in the Python language?

- a) Indentation
- b) Key
- c) Brackets
- d) All of the mentioned

11.) What are the values of the 3 Python expressions, a, b, c. or d?

`2**(3**2)`

`(2**3)**2`

`2**3**2`

a) 512, 64, 512

b) 512, 512, 512

c) 64, 512, 64

d) 64, 64, 64

12.) What arithmetic operators cannot be used with strings in Python?

a) *

b) -

c) +

d) All of the above

13.) What will be the output of the following Python code?

```
x = 'abcd'
```

```
for i in range(len(x)):
```

```
    print(i)
```

a) Error

b) 1 2 3 4

c) a b c d

d) 0 1 2 3

14.) Which of the Python operators have the same precedence level?

a.) Addition and Subtraction

b.) Addition, Subtraction and Multiplication

c.) Exponentiation and Division

d.) Integer Division and Subtraction

15.) (True/False) In Python, a variable must be declared before it is assigned a value.

16.) What Python built-in function returns the unique number assigned to an object?

a.) identity()

b.) ref()

c.) refnum()

d.) id()

17.) Which of the following are valid variable names in Python? Give all that are valid.

a.) home_address

b.) Age

c.) return

d.) var1.3

e.) 4square

f.) route66

18.) Suppose a List is named test and contains 10 elements. How do you access the:

a.) First element of the list `test[0]`

b.) Second to last element of the list `test[-2]`

19.) What does the expression 'abc' == "abc" evaluate to?

a.) True

b.) False

c.) true

d.) false

20.) Is there any difference in the output from these two lines?

```
print("Hello World", end = '\n')
```

```
print("Hello World")
```

NO

21.) (True/False) Any recursive function can alternatively be written using iteration.

22.) (10 points) Write a Python function that takes a positive integer from the user, computes the sum of the integers between one and that number, and prints the result to the screen.

```
def fromOne(n):  
    a = 0  
    for i in range(1, n):  
        a += i  
    print(a)
```