Python for Data Science
Asg 15.1 Functions & Modules Name _____

You will be emailed a Google Forms Virtual Scantron to use to submit your answers.

1. What is a function in Python?

A. A named sequence of statements.

B. Any sequence of statements.

C. A mathematical expression that calculates a value.

D. A statement of the form x = 5 + 4.

2. What is one main purpose of a function?

A. To improve the speed of execution

B. To help the programmer organize programs into chunks that match how they think about the solution to the problem.

C. All Python programs must be written using functions

D. To calculate values.

3. True or False:

A function can be called several times by placing a function call in the body of a loop.

A. True
B. False

4. What is wrong with the following function definition:

```
def addEm(x, y, z):
    return x + y + z
    print('the answer is', x + y + z)
```

A. You should never use a print statement in a function definition.

B. You should not have any statements in a function after the return statement. Once the function gets to the return statement it will immediately stop executing the function.

C. You must calculate the value of x+y+z before you return it.

D. A function cannot return a number.

5. What will the following function return?

```
def addEm(x, y, z):
    print(x + y + z)

addEm(5, 7, 8)
```

A. 20

B. The string 'x + y + z’

C. None

6. What is a variable’s scope?

A. Its value

B. The range of statements in the code where a variable can be accessed.

C. Its name

7. What is a local variable?

A. A temporary variable that is only used inside a function

B. The same as a parameter

C. Another name for any variable

8. Can you use the same name for a local variable as a global variable?

A. Yes, and there is no reason not to.

B. Yes, but it is considered bad form.

C. No, it will cause an error.

9. Consider the following code:

```
def square(x):
    for counter in range(x):
        runningtotal = 0
        runningtotal = runningtotal + x
    return runningtotal
```

What happens if you put the initialization of runningtotal (the line runningtotal = 0) inside the for loop as the first instruction in the loop?

A. The square function will return x instead of x * x

B. The square function will cause an error

C. The square function will work as expected and return x * x

D. The square function will return 0 instead of x * x

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

```
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)
```

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

11. Consider the following Python code. Note that line numbers are included on the left.What does this function print?

```
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)
```

A. 25

B. 5

C. 125

D. 32

12. In Python a module is:

A. A file containing Python definitions and statements intended for use in other Python programs.
B. A separate block of code within a program.

C. One line of code in a program.

D. A file that contains documentation about functions in Python.

13. Which statement allows you to use the math module in your program?

A. import math
B. include math
C. use math
D. You don't need a statement. You can always use the math module

14. Which of the following is the correct way to reference the value pi within the math module. Assume you have already imported the math module.

A. math.pi

B. math(pi)

C. pi.math

D. math->pi

15. Which module would you most likely use if you were writing a function to simulate rolling dice?

A. the math module

B. the random module

C. the turtle module

D. the game module

16. The correct code to generate a random number between 1 and 100 (inclusive) is:

A. prob = random.randrange(1, 101)

B. prob = random.randrange(1, 100)

C. prob = random.randrange(0, 101)

D. prob = random.randrange(0, 100)

17. One reason that lotteries don't use computers to generate random numbers is:

A. There is no computer on the stage for the drawing.

B. Because computers don't really generate random numbers, they generate pseudo-random numbers.

C. They would just generate the same numbers over and over again.

D. The computer can't tell what values were already selected, so it might generate all 5's instead of 5 unique numbers.

18. A module is another name for …

A. the code inside a function
B. a file containing Python code
C. the comments before a function
D. a small block of Python code

19. Modules are created by ...

A. writing a new function or class
B. placing an import statement at the top of a file
C. placing code in a Python file in the same directory as your other source code
D. creating a comment block at the beginning of a file

20. What determines the name of an import?

A. the first variable name in the module
B. a comment early in the module
C. it's called whatever we name it in the "import" statement
D. the filename of the module

21. What is a Boolean function?

A. A function that returns True or False
B. A function that takes True or False as an argument
C. The same as a Boolean expression

22. Is the following statement legal in a Python function (assuming x, y and z are defined to be numbers)?

```
return x + y < z
```

A. Yes

B. No

23. What is the output of the add() function call?

```
def add(a, b):
    return a+5, b+5

result = add(3, 2)
print(result)
```

A. 15
B. 8
C. (8, 7)
D. Syntax Error

24. Select which true for Python function:

A. A function is a code block that only executes when called and always returns a value.
B. A function only executes when it is called and we can reuse it in a program
C. Python doesn't support nested function
D. Both A and B are true

25. What is the output of the following `displayPerson()` function call?

```
def displayPerson(*args):
    for i in args:
        print(i)

displayPerson(name="Emma", age="25")
```

A. TypeError

B. Emma

25

C. name

age

26. Choose the correct function declaration of `fun1()` so that we can execute the following function call successfully.

fun1(25, 75, 55)

fun1(10, 20)

A. `def fun1(**kwargs)`

B. No, it is not possible in Python

C. `def fun1(args*)`

D. `def fun1(*data)`

27. What is the output of the following code?

```
def outerFun(a, b):
    def innerFun(c, d):
        return c + d
    return innerFun(a, b)

res = outerFun(5, 10)
print(res)
```

A. 15

B. Syntax Error

C. (5, 10)

28. What is the output of the following display() function call?

```
def display(**kwargs):
    for i in kwargs:
        print(i)
display(emp="Kelly", salary=9000)
```

A. TypeError

B. Kelly

9000

C. ('emp', 'Kelly')

('salary', 9000)

D. emp

salary

29. What is the output of the following function call?

```
def fun1(name, age=20):
    print(name, age)

fun1('Emma', 25)
```

A. Emma 25

B. Emma 20

30. What is the output of the following function call?

```
def fun1(num):
    return num + 25

fun1(5)
print(num)
```

A. 25

B. 5

C. NameError

D. 30

31. True or False: A Python function always returns a value.

A. False
B. True

32. Select which is true for Python function.

A. A Python function can return only a single value
B. A function can take an unlimited number of arguments.
C. A Python function can return multiple values
D. Python function doesn't return anything unless and until you add a return statement

33. Given the following function `fun1()` Please select all the correct function calls.

```
def fun1(name, age):
    print(name, age)
```

A. 1. `fun1("Emma", age=23)`

   2.`fun1(age =23, name="Emma")`

B. `fun1(name="Emma", 23)`

C. `fun1(age =23, "Emma")`

34. What is the output of the following function call

```
def outerFun(a, b):
    def innerFun(c, d):
        return c + d
    return innerFun(a, b)
    return a

result = outerFun(5, 10)
print(result)
```

A. 5
B. 15
C. (15, 5)
D. Syntax Error

35. What is the output of the following code?

```
x = 50
def func(x):
    print('x is', x)
    x = 2
    print('Changed local x to', x)
func(x)
print('x is now', x)
```

A. x is 50
Changed local x to 2
x is now 50

B. x is 50
Changed local x to 2
x is now 2

C. x is 50
Changed local x to 2
x is now 100

D. none of the above