Quiz #1

1. An algorithm is:

a) A computer program plus the data the program uses.
b) A solution to a problem that uses artificial intelligence.
c) Instructions written in a high-level programming language like Python.
d) Instructions written a low-level machine language.
e) A description of the steps in a process to compute a solution.

2. In Python, the *print()* function:

a) queues data to be sent to a paper printer
b) tells the computer to put information in ALL CAPS
c) displays a value on the screen
d) prints the current program
e) asks the user to enter data

3. In Python programs, a variable is:

a) a setting that controls how fast the Python interpreter runs.
b) a counter that keeps track of how many times the program has run.
c) a named reference to a value stored by the interpreter.
d) Python doesn't use variables. Variables are only used in Java.
e) the same as a statement.

4. Which of the following is the valid python code to print "Hello World!"?

a) print "Hello World!"
b) print("Hello World!")
c) print["Hello World!"]
d) print(Hello World!)
e) print = "Hello World!"

5. How are negative numbers represented in binary?

a) One bit of the number represents the sign.
b) They aren't. Binary numbers are always positive.
c) The sign of the number is stored in a separate byte.
d) Two bits of the number represent the sign.
e) Binary numbers are stored using a different number system: base 8.

6. What is RAM?

a) It manages programs and interfaces with peripherals.
b) It is volatile storage with faster access usually located off processor chip.
c) It measures the speed at which a processor executes instructions.
d) It displays items to a user.
e) It runs the computer's programs, reading and executing instructions from memory.

7. In python, what data type is all input from the user?

a) float
b) integer
c) boolean
d) byte
e) string

8. Which of the following is the binary equivalent of the decimal number 29?

a) 10110
b) 11000
c) 11110
d) 10101
e) 11101

9. What is the largest number that can be represented with N bits?

a) $2^N - 1$
b) 2^N
c) N
d) N - 1
e) N^2

10. What decimal number does the binary number 01011 equal?

a) 5
b) 13
c) 11
d) 10
e) 12

Quiz #2

1. What is the output of the following code?

```
x = 12
x = x - 1
print(x)
```

a) Error, x cannot equal x - 1.
b) -1
c) 12
d) 13
e) 11

2. Which of the following Python functions would you use to ask users to enter data?

a) print()
b) enter()
c) input()
d) float()
e) int()

3. Which variable names below is *valid* in Python?

a) family-name
b) float
c) 49sanFrancisco
d) ke$ha
e) total

4. Which of the following errors is a syntax error?

a) forgetting a close-parenthesis (')') at the end of a print() statement.
b) attempting to divide by zero.
c) neglecting to divide by 100 when printing a percentage.
d) dividing by 2 when you meant to divide by 3.
e) all of the above.

5. What is the output of the following statement?

```
print(18 % 4)
```

a) 0.5
b) 4
c) 2.25
d) 2
e) 4.5

6. What is the output of the following code?

```
x = 15
y = 5
print(x / y)
```

a) 3
b) 3.14
c) 3.0
d) 0
e) Error!

7. What is the output of the following code if the user enters '19'?

```
age = input("Enter your age: ")
print(age + 50)
```

a) 69
b) Error!
c) 50
d) 19
e) 31

8. What is the value of `i` after evaluating the following expression?

```
i = 16 - 2 * 5 // 3 + 1
```

a) 24
b) 13.667
c) 14
d) 42
e) 3

9. After the following code executes, what are the values of `x` and `y` ?

```
x = 15
y = x
x = 22
```

a) x is 22, y is 15
b) x is 15, y is 15
c) x is 22, y is 22
d) x is 15, y is 22
e) x is 22, y is 37

10. What is the result of typing `(5 + 3 * 2)` in the python interpreter?

a) 13
b) 11
c) 16
d) 30
e) 17

Quiz #3

1. What is the output of the following code?

```
x = -10

if x < 0:

    print(x, " is negative.", end="")

else:

    print(x, " is positive.", end ="")

else:

    print("This is always printed")
```

a) -10 is negative. This is always printed.
b) 10 is a positive number. This is always printed.
c) SyntaxError: invalid syntax
d) This is always printed.
e) -10 is negative.

2. What is the output of the following code?

```
foo = 42

bar = 97

if foo >= bar:

    print("Line 1", end=" ")

else:

    print("Line 2", end=" ")

print("Line 3")
```

a) Line 2 Line 3
b) Line 1 Line 2 Line 3
c) Line 1 Line 3
d) Line 1
e) Error!

3. Which boolean expression checks if x is between 0 and 7, inclusive?

a) 0 <= x => 7
b) 0 <= x and <= 7
c) 0 < x < 7
d) x >= 0 and x <= 7
e) x > 0 or x < 7

4. What is a loop?

a) a piece of code typed in a circle
b) allows code to be executed repeatedly
c) commands for handling decisions.
d) an expression that is either true or false
e) a sequence of data in a particular order

5. Fill in the blank: `if x _____ y`

a) %
b) =
c) =!
d) ==
e) any of these

6. What is the output of the following code?

```
a = 42

b = 65

c = 35

if a > b or a > c:

    print("x", end=" ")

elif a > b or b < c:

    print("y", end=" ")

else:

    print("w", end=" ")

print("z")
```

a) x z
b) w z
c) z
d) x
e) y

7. How many times will this loop run?

```
x = 3

while x >= 1:

    # Do something

    x = x - 1
```

a) 4 times
b) 3 times
c) 2 times
d) 1 time
e) Error!

8. Which are types of errors in Python?

a) Syntax
b) Runtime
c) Semantic / Logic
d) none of the above
e) all of the above

9. Which of these ranges will generate every int from 0 to 4?

a) `range(4)`
b) `range(1,4)`
c) `range(1,5)`
d) `range(5)`
e) none of the above

10. What is the final value of `num_items`**?**

```
bonus_val = 11

if bonus_val == 12:

    num_items = 100

else:

    num_items = 200
```

a) 11
b) 100
c) 200
d) 300
e) Error!

1. How many active turtles can a program have at once?

a) 1.
b) 2
c) 10
d) 100
e) There is no limit.

2. What does the following code draw?

```
import turtle
screen = turtle.Screen()
fred = turtle.Turtle()
fred.left(90)
fred.forward(150)
fred.left(90)
fred.forward(75)
```

a) a square 150 pixels wide and tall
b) a line going east 150 pixels, then north 75 pixels
c) a line going west 90 pixels, then north 150 pixels, then west 90 pixels, then north 75 pixels
d) a line going north150 pixels, then west 75 pixels
e) a line going north 150 pixels, then east 75 pixels

3. How many lines does this code print?

```
for number in [5, 4, 3, 2, 1, 0]:
    print(number)
```

a) 0
b) 1
c) 5
d) 6
e) 10

4. What numbers are printed by the following code?

```
for number in range(2,15,2):
    print(number, end=" ")
```

a) 0 5
b) 0 1 2 3 4
c) 2 4 6 8 10 12 14
d) 2 3 4 5 6 7
e) 3 6 9 12 14 18

5. What is a parameter?

a) function input specified in a function definition
b) a value provided to a function during a function call
c) occurs when two variables have a conflict
d) the border of a shape drawn by a turtle
e) a way to measure distance in pixels

6. What is an argument?

a) function input specified in a function definition
b) a value provided to a function during a function call
c) occurs when two variables have a conflict
d) the border of a shape drawn by a turtle
e) a way to measure distance in pixels

7. Fill in the three blanks so the following turtle program makes a square with each side a different color.

```
import turtle

screen = turtle.Screen()

alex = turtle._____()


for aColor in ["yellow", "red", "green", "blue"]:

    alex._____

    alex.forward(50)

    alex.left(____)
```

a) Turtle, color(aColor), 90
b) turtle, changeColor(alex), 90
c) screen, drawSquare(50), 180
d) Turtle, pendown(), penup()
e) createTurtle, moveTurtle(), exitonclick

8. Trace the following code snippet and predict the output.

```
for i in range (1, 10):
    if i % 2 == 0:
        print (i)
```

a) 1 3 5 7 9
b) 0 1 3 5 7
c) 0 2 4 6 8 10
d) 2 4 6 8 10
e) 2 4 6 8

9. What keyword is used to create a new function?

a) define
b) def
c) func
d) function
e) new

10. Complete the following code snippet to print the following pattern of brackets:

```
[][][][]
[][][][]
[][][][]
```

```
for i in range(__):
    for j in range(__):
        print ("[]", end="")
    print ()
```

a) 12 and 1
b) 2 and 3
c) 3 and 3
d) 3 and 4
e) 4 and 3

1. What are the parameters of this function where turtle t draws a square with side-length sz?

```
def drawSquare(t, sz):
   for i in range(4):
       t.forward(sz)
       t.left(90)
```

a) t
b) t, sz, i
c) t, sz
d) 4, 90
e) i

2. For the drawSquare() function in the previous question, which statement would you use to call it with a turtle called `alex`?

a) drawSquare
b) drawSquare(10)
c) alex.drawSquare(alex, 10):
d) def drawSquare(t, sz):
e) drawSquare(alex, 10)

3. What is wrong with this function?

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

a) The print statement is after the return statement and will never be executed.
b) The function must calculate x+y+z before returning it.
c) Functions cannot return numbers; only strings.
d) A function should not contain a print statement.
e) Nothing is wrong with the function.

4. Fill in the blanks to define a function called `myExponent` that takes the base number and the exponent value and returns the result. For example, you would call `myExponent(2,4)` and it would return `16`.

```
_____ myExponent(base, exponent):
    result = base ** exponent
    _____(result)
```

a) def, print
b) function, print
c) myExponent, return
d) define, return
e) def, return

5. Which of the following is a valid function signature (first line of function definition)?

a) def drawCircle(t):
b) def drawCircle:
c) drawCircle(t, sz):
d) def if t == drawCircle():
e) def drawCircle(t, sz)

6. Fix the following code so line 7 prints "10 squared is 100". As it is now, line 7 prints "10 squared is None".

```
1  def square(x):
2      y = x * x
3      print(y)
4
5  toSquare = 10
6  squareResult = square(toSquare)
7  print(toSquare, "squared is", squareResult)
```

a) Replace line 2 with `print(y)`
b) Replace line 3 with `return y`
c) Replace line 5 with `toSquare = 100`
d) Replace line 6 with `squareResult = square(10)`
e) Replace line 7 with `print(square(10))`

7. What is printed by the following code?

```
pi = 3.14159

def f(x):
   pi = 3.1
   return pi - x

print(pi, f(1))
```

a) 3.14159 2.1
b) 3.14159 3.1
c) 3.1
d) 3.1 2.1
e) Error! x is not defined.

8. Which is the proper syntax to make x a default parameter?

a) def myFunction([x]):
b) def myFunction(x?):
c) def myFunction(x = 0):
d) def myFunction(x == 0):
e) def myFunction(x):

9. Following conventions, what kind of code should be inside a `main()` function?

a) getting input from the user
b) calling user-defined functions
c) printing output
d) all of the above
e) no code should go inside a main() function

10. Fill in the blank in the following function so it computes the area of a triangle and returns the area.

```
def triangleArea(base, height):
    area = base * height / 2
    _____
```

a) print(area)
b) print area
c) return triangleArea
d) return base * height
e) return area