

## 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)  $0 \leq x \Rightarrow 7$
- b)  $0 \leq x$  and  $\leq 7$
- c)  $0 < x < 7$
- d)  **$x \geq 0$  and  $x \leq 7$**
- 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 north 150 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`