## Pergunta 1

Consider the following extract of Python code:

```
def f(1, e):
    1.insert(0, e)
```

How do you classify the function `f()`?

Selecione uma opção de resposta:

○ A pure function

○ A modifier

○ A higher-order function (HOF)

○ A function generator

A resposta correta é: A modifier

## Pergunta 2

Consider the list:

```
1 = [[1, 2], [[3, 4, 5], 6], 7]
```

what is the length of the list?

Selecione uma opção de resposta:

○ 4

◉ 3 ✔

○ 2

○ 7

A resposta correta é: 3

## Pergunta 3

What is the output of the following statements?

```
def f(x): return x > 0
print(f(1) if f(0) else f(-1))
```

Selecione uma opção de resposta:

○ -1

○ It is a *syntax* error

◉ **False** ✔

○ True

A resposta correta é: **False**

## Pergunta 4

Which is a statement and which is an expression?

```
(A)  if a < 7: b = 8; else: b = 10
(B)  8 if a < 7 else 10
```

Selecione uma opção de resposta:

○ (A) is an expression and (B) is a statement

○ (A) is a statement and (B) is an expression

○ Both are expressions

○ Both are statements

A resposta correta é: (A) is a statement and (B) is an expression

## Pergunta 5

What is the output of the following statements?

```
i = 0
while i < 3:
    print(i, end="")
    break
```

Selecione uma opção de resposta:

- ○ 12

- ◉ 0 ✔

- ○ 0123

- ○ 012

A resposta correta é: 0

## Pergunta 6

What is the output of the following statements?

```
def foo():
    while True:
        yield 1
        yield 2
for _ in range(2): print(next(foo()))
```

Selecione uma opção de resposta:

- ○ <generator object f at 0x7f08d906a4c0>

- ○ None, there's a *runtime* error

- ○ 1\n1

- ○ 1\n2

A resposta correta é: 1\n1

## Pergunta 7

Correta   Pontuou 1 de 1   ⚑ Destacar pergunta

What is the scope of an identifier `range` if declared outside any of the script functions?

Selecione uma opção de resposta:

- ◉ `global`   ✔
- ○ `local`
- ○ It is a *syntax* error
- ○ `built-in`

A resposta correta é: `global`

## Pergunta 8

Correta   Pontuou 1 de 1   ⚑ Destacar pergunta

What is the output of the following statements?

```
x = [1, 2, 3]
y = x
x[0] = 0
y[2] = 0
print(x, y)
```

Selecione uma opção de resposta:

- ○ `[0, 2, 3] [0, 2, 0]`
- ○ None, there's a *runtime* error
- ◉ `[0, 2, 0] [0, 2, 0]`   ✔
- ○ `[0, 2, 3] [1, 2, 0]`

A resposta correta é: `[0, 2, 0] [0, 2, 0]`

## Pergunta 9

What is the output of the following statements?

```
foo = ('Brian')
print(type(foo))
```

Selecione uma opção de resposta:

○ There's a *syntax* error

○ `tuple`

◉ `<class 'str'>`    ✔

○ `<class 'tuple'>`

A resposta correta é: `<class 'str'>`

## Pergunta 10

What is the output of the following statements?

```
s = "Always Look"
s[7] = "C"
print(s)
```

Selecione uma opção de resposta:

○ `Always Cook`

○ `C`

◉ None, there's a *runtime* error    ✔

○ `Always Look`

A resposta correta é: None, there's a *runtime* error

# Pergunta 11

What is the output of the following statements?

```
l = [1, 3, 5]
l = l.append(7)
print(l)
```

Selecione uma opção de resposta:

○ [7, 1, 3, 5]

○ None

◉ [1, 3, 5, 7]                                                          ✖

○ 7

A resposta correta é: **None**

# Pergunta 12

Consider x = 3, y = 2, and z = 5 and the following statement:

```
if x < y or x < z:
    print("a")
elif y < x and y < z:
    print("b")
else:
    print("c")
```

What is the output?

Selecione uma opção de resposta:

○ None, it gives a *syntax* error

◉ a                                                                     ✔

○ c

○ b

A resposta correta é: **a**

What happens if we run the following code?

```
round = 2
print(round)
```

Selecione uma opção de resposta:

◉ Nothing extraordinary happens, but it is considered bad practice    ✔

○ We'll get a *syntax* error

○ It outputs `2`

○ We'll get a *runtime* error

Respostas corretas: It outputs `2`, Nothing extraordinary happens, but it is considered bad practice

What is the output of the following statement?

```
l = [1, 2, 3]
print(type(sum(l)))
```

Selecione uma opção de resposta:

○ `6`

○ `<class 'builtin_function_or_method'>`

◉ `<class 'int'>`    ✔

○ None, there's a *runtime* error

A resposta correta é: `<class 'int'>`

# Pergunta 15

What is the output of the following statements?

```
mydict = {"Apple": 6, "Banana": 6, "Cherry": 12}
result = mydict.get("Cherry", 0) // mydict.get("Date", 1)
print(result)
```

Selecione uma opção de resposta:

○ 12   ✔

○ A *runtime* error, as division is not a valid operation on dictionaries

○ 0

○ A *runtime* error, as there's no entry with `Date` as the key

A resposta correta é: 12

# Pergunta 16

For `x = 1`, how many lines does the following code print?

```
if x < 0:
    print(x)
    if x >= 0:
        print(x)
    if x >= 1:
        print(x-1)
    else:
        print(x+1)
```

Selecione uma opção de resposta:

○ 0   ✔

○ 3

○ 2

○ 1

A resposta correta é: 0

# Pergunta 17

What is the output of the following statements?

```
fridge = {"Lager": 6, "Pilsner": 6, "Carlsberg": 24}
fridge["sum"] = fridge["Lager"] + fridge["Pilsner"]
print(fridge["sum"])
```

Selecione uma opção de resposta:

◉ 12    ✔

○ None, there's a *runtime* error

○ 36

○ 18

A resposta correta é: 12

# Pergunta 18

How many lines are outputted by the following statements?

```
for i in "Sgt."+"Pepper's"+"Lonely"+"Hearts"+"Club"+"Band":
    print(i)
```

Selecione uma opção de resposta:

○ 6

◉ 32    ✔

○ It gives a *syntax* error

○ 1

A resposta correta é: 32

# Pergunta 19

What is the output of the following statements?

```
fn = lambda x: x*x+1
print(fn(fn(2)))
```

Selecione uma opção de resposta:

- ○ It is a *syntax* error

- ○ 5

- ◉ **26**                ✔

- ○ None, there's a *runtime* error

A resposta correta é: **26**

# Pergunta 20

What is the output of the following statements?

```
l = list(enumerate(range(0, 8, 2)))
print(l)
```

Selecione uma opção de resposta:

- ○ `[(0, 0), (1, 2), (2, 4), (3, 6), (4, 8)]`

- ○ `[(0, 0), (2, 2), (4, 4), (6, 6), (8, 8)]`

- ○ `[(0, 0), (2, 2), (4, 4), (6, 6)]`

- ◉ `[(0, 0), (1, 2), (2, 4), (3, 6)]`        ✔

A resposta correta é: `[(0, 0), (1, 2), (2, 4), (3, 6)]`

What is the output of the following statements?

```
l = [5, 4, 3, 2, 1, 0]
res = []
for i in l:
    if i % 2 == 0:
        res += [i*2]
print("res =", res)
```

Selecione uma opção de resposta:

○ res = [10, 6, 2]

◉ res = [8, 4, 0]   ✔

○ res = [[10], [6], [2]]

○ res = [[8], [4], [0]]

A resposta correta é: res = [8, 4, 0]

What is the output of the following statements?

```
s1 = "Always Look"
print(s1[:-6])
```

Selecione uma opção de resposta:

○ Always

○ None, there's a *runtime* error

◉ Alway   ✔

○ Look

A resposta correta é: Alway

## Pergunta 23

How much time will the following expression take?

```
[time.sleep(x) for x in range(3)]
```

Selecione uma opção de resposta:

- ○ It will run indefinitely
- ○ 6 seconds
- ○ less than 10 ms
- ⦿ 3 seconds ✔

A resposta correta é: 3 seconds

## Pergunta 24

What is the output of the following statements?

```
s = "hello world!"
s = s.split()
s = ''.join(s)
print(s)
```

Selecione uma opção de resposta:

- ○ ['hello world!']
- ○ ['hello', 'world!']
- ⦿ hello world! ✖
- ○ helloworld!

A resposta correta é: helloworld!

What is the output of the following statements?

```
t = ('dog', 1, 2, 3, [1, 2])
t[4][1] = 0
print(t)
```

Selecione uma opção de resposta:

○  ('dog', 1, 2, 3, 2)

○  ('dog', 1, 2, 3, [1, 0])

◉  None, there's a *runtime* error as tuples are immutable                                      ✗

○  ('dog', 1, 2, 3, [1, 2])

A resposta correta é: ('dog', 1, 2, 3, [1, 0])

Consider the following code:

```
def rec_sum(nlist):
    total = 0
    print('+ ', end='')
    for element in nlist:
        if type(element) == list:
            total += rec_sum(element)
        else:
            total += element
    return total
```

```
rec_sum([1, [3, 5], [7, 11], 13])
```

To compute the sum of the integers of the given list, how many recursive calls are made by `rec_sum`?

Selecione uma opção de resposta:

○  6

○  4

○  1

◉  2                                      ✓

A resposta correta é: 2

# Pergunta 27

Which of the following logical expressions tests whether both `p1` and `p2` are negative:

Selecione uma opção de resposta:

○ `p1 + p2 <= 0`

○ `p1 < 0 or p2 < 0`

○ `(p1 and p2) < 0`

◉ `not (p1 >= 0 or p2 >= 0)`   ✔

A resposta correta é: `not (p1 >= 0 or p2 >= 0)`

# Pergunta 28

What is the value of the following expression?

`(lambda n: n)(2) * (lambda n: -n)(10)`

Selecione uma opção de resposta:

○ `(2, 10)`

◉ `-20`   ✔

○ `'2 * -10'`

○ `'2 * 10'`

A resposta correta é: `-20`

# Pergunta 29

What is the output of the following statements?

```python
for i in range(2, 5):
    for j in range(i+1, 5):
        print(j, end=" ")
        break
    print(i, end=" ")
```

Selecione uma opção de resposta:

○ 2 3 4 5

○ 2 3 4 3 4 3 4

○ 2 3 4

◉ 3 2 4 3 4 ✔

A resposta correta é: **3 2 4 3 4**

# Pergunta 30

Which of the following statements will be terminated by the `break`?

```python
(A) while True:
(B)    for i in range(10):
(C)        if i % 2 == 0:
(D)            if i > 5:
                   break
```

Selecione uma opção de resposta:

○ (C)

○ (A)

◉ (B) ✔

○ (D)

A resposta correta é: (B)

# Pergunta 31

What is the output of the following statements?

```
a = (1, 2, 3)
b = a
a += a
print(b)
```

Selecione uma opção de resposta:

- ◉ None, there's a *runtime* error as tuples are immutable    ✖

- ○ (1, 2, 3)

- ○ ((1, 2, 3), (1, 2, 3))

- ○ (1, 2, 3, 1, 2, 3)

A resposta correta é: (1, 2, 3)

# Pergunta 32

How many prints are made in the following code?

```
def bar(n):
    print(f"{0}")
    bar(n + 1)
bar(3)
```

Selecione uma opção de resposta:

- ○ 0

- ○ 4

- ○ As many as the maximum recursion depth allows

- ○ 2

A resposta correta é: As many as the maximum recursion depth allows

Consider the following code:

```
with open("file.txt", "r") as f:
    content = f.readlines()
```

What happens if the interpreter succeeds to open the file `file.txt`?

Selecione uma opção de resposta:

◉ All content of the file is bound to the `list` variable `content` ✔

◯ All content of the file is bound to the `string` variable `content`

◯ The content of the first line is bound to the `string` variable `content`

◯ There's a *syntax* error because `readlines()` is not a method of handler `f`

A resposta correta é: All content of the file is bound to the `list` variable `content`

What is the output of the following code?

```
def f():
    return
    print("x", end="")
def g():
    f()
    print("y", end="")
g()
```

Selecione uma opção de resposta:

◉ y ✔

◯ None, there will be a *runtime* error due to dead code

◯ xy

◯ x

A resposta correta é: y

What is the output of the following statements?

```
1 = [1, 3, 5]
1.append(7)
print(1)
```

Selecione uma opção de resposta:

○ [7]

○ 7

○ [7, 1, 3, 5]

◉ [1, 3, 5, 7]    ✔

A resposta correta é: [1, 3, 5, 7]

What is the output of the following statements?

```
1 = ['A', 'fox']
1[1] = 'nice'
print(1)
```

Selecione uma opção de resposta:

○ ['nice', 'fox']

◉ ['A', 'nice']    ✔

○ ['nice', 'A', 'fox']

○ ['A', 'nice', 'fox']

A resposta correta é: ['A', 'nice']

## Pergunta 37

Consider the following code:

```
with open("file.txt") as f:
    f.write("My first file written in Python\n")
```

What happens after the interpreter succeeds to open the file `file.txt`?

Selecione uma opção de resposta:

○ The string shown is read from the disk

○ An exception is raised

◉ The string shown is written to the disk and appended to the file                    ✗

○ The string shown is written to the disk

A resposta correta é: An exception is raised

## Pergunta 38

Which statement Python programmers use to *throw* a *runtime* exceptions to signal a *runtime* error?

Selecione uma opção de resposta:

○ `except ...`

◉ `raise ...`                    ✔

○ `throw ...`

○ `try ...`

A resposta correta é: `raise ...`

Não respondida    Pontuação 1    ⚑ Destacar pergunta

What is the output of the following statements?

```
print(f())
def f():
    return 4
```

Selecione uma opção de resposta:

○ None, it gives a *runtime* error

○ 4

○ It is a *syntax* error

○ `<function f at 0x7f0987631c80>`

---

A resposta correta é: None, it gives a *runtime* error

---

Pergunta 40    Incorreta    Pontuou 0 de 1    ⚑ Destacar pergunta

For `1 = [1, 2, 3]`, which of the following expressions returns a list with the first element of `1`?

Selecione uma opção de resposta:

○ `1[0]`

○ `1[:1]`

○ `1[1]`

◉ `next(iter(1))`    ✗

---

A resposta correta é: `1[:1]`

## Pergunta 41

What is the output of the following statements?

```
a = 'b'
a += a
print('aa', end="")
```

Selecione uma opção de resposta:

- ○ ba

- ○ None, there's a *runtime* error

- ○ bb

- ◉ aa     ✔

A resposta correta é: `aa`

## Pergunta 42

When is it possible to re-write a `for` as a `while`?

Selecione uma opção de resposta:

- ○ Always, except for iterating collections

- ○ Always, except when iterating finite generators

- ○ Always, no exceptions

- ○ Always, except when iterating infinite generators

A resposta correta é: Always, no exceptions

## Pergunta 43

What is the output of the following statement?

```
print('py' not in 'Python')
```

Selecione uma opção de resposta:

- ◯ `py not in Python`

- ◉ `True`  ✔

- ◯ It is a *syntax* error

- ◯ `False`

A resposta correta é: `True`

## Pergunta 44

Consider the following statement:

```
for number in [[4, 3], 2, [1], 0, []]:
    print("I have", number, "cookies and I'm going to eat one.")
```

How many lines does this code print?

Selecione uma opção de resposta:

- ◯ `6`

- ◯ `4`

- ◉ `5`  ✔

- ◯ `0`

A resposta correta é: `5`

What command correctly generates the sequence -2, -4, -6, -8?

Selecione uma opção de resposta:

○ `for i in range(-2, -10, 2): print(i)`

⦿ `for i in range(-2, -10, -2): print(i)` ✔

○ `for i in range(-8, -2, 2): print(i)`

○ `for i in range(-8, -1, -2): print(i)`

A resposta correta é: `for i in range(-2, -10, -2): print(i)`

Given the following statements, what is its Big-O running time?

```
acc = 0
for _ in range(n):
    acc += 1
for _ in range(n):
    acc -= 1
```

Selecione uma opção de resposta:

○ O(n^2)

○ O(n log n)

○ O(n)

○ O(log n)

A resposta correta é: O(n)

## Pergunta 47

Which algorithm do you choose to find a number in a sorted list of numbers?

Selecione uma opção de resposta:

○ Binary search

○ Bubble sort

◉ Linear search ✖

○ Merge sorted lists

A resposta correta é: Binary search

## Pergunta 48

What is the output of the following statements?

```
months = {"Sep", "Oct", "Nov", "Dec", "Jan"}
print(months[1])
```

Selecione uma opção de resposta:

○ `['Oct', 'Nov', 'Dec', 'Jan']`

○ `'Sep'`

◉ `'Oct'` ✖

○ None, there's a *runtime* error (one cannot index a set)

A resposta correta é: None, there's a *runtime* error (one cannot index a set)

## Pergunta 49

Correta    Pontuou 1 de 1    ⚑ Destacar pergunta

What is the output of the following statements?

```
temperature = [(0,8), (5,9), (10,0), (15,1), (20,2)]
print(list(filter(lambda x: x[1] == 0, temperature)))
```

Selecione uma opção de resposta:

○ `[(0, 8)]`

○ `[(0, 0), (5, 0), (10, 0), (15, 0), (20, 0)]`

◉ `[(10, 0)]`    ✔

○ `1`

## Pergunta 50

Incorreta    Pontuou 0 de 1    ⚑ Destacar pergunta

Consider the following comprehension:

```
ns = (x+1 for x in range(10))
for x in ns: print(x)
for x in ns: print(x)
```

What is the output when it is submitted to the interpreter?

Selecione uma opção de resposta:

○ None, it gives a *runtime* error

○ It prints the numbers from 1 to 10

◉ It prints twice the numbers from 1 to 10    ✖

○ It prints twice the numbers from 0 to 9