

Sample Questions

Q1. Answer the following multiple choice questions by selecting the correct output or the correct explanation for the corresponding code fragments?

- ```
list=[x*x for x in range(10) if x%2==0]
print(list)
```

  - a) [0, 4, 16, 36, 64]
  - b) [0, 2, 4, 6, 8]
  - c) [0, 2, 4, 16, 64]
  - d) [0, 4, 16, 36, 64, 81]
- ```
a = [1, None, 3, {}, [], ]
print(len(a))
```

 - a) syntax error
 - b) 4
 - c) 5
 - d) 6
- ```
value1=20.5
value2=10
print (value1//value2)
```

  - a) 2
  - b) 2.25
  - c) 9.0
  - d) 20.25
- ```
def function(value1, value2):
    pass
```

 - a) defines a list and initializes it
 - b) defines a function, which does nothing
 - c) defines a function, which passes its parameters through
 - d) defines an empty class
- ```
x = True
y = False
z = False

if not x or y:
 print(1)
elif not x or not y and z:
 print(2)
elif not x or y or not y and x:
 print(3)
else:
 print(4)
```

  - a) 1
  - b) 2
  - c) 3
  - d) 4

- `print(type([1,2]))`
  - a) `<type 'tuple'>`
  - b) `<type 'int'>`
  - c) `<type 'set'>`
  - d) `<type 'list'>`

**Q2.** Please specify the output of the code given below.

```
def r2d2(a):
 b = True
 for k in range(len(a)):
 b = b and bb8(a,k)
 return b
```

```
def bb8(a,k):
 a[k] = a[k]-1
 return a[k] >= 0
```

```
a = [1,2,3,4]
print(r2d2(a))
print(a)
print(r2d2(a))
print(a)
```

**Q3.** What does the following program print?

```
def f():
 a = 2
 print(a)
 return a
def g(b):
 b=10
 return b
def h():
 b=f()
 print(g(b))
h()
```

**Q4.** What does the following code print?

```
def f1():
 global x
 x = 1
 print(x)
```

```
def f2():
 x = 2
 print(x)
```

```
def f3():
 global x
 print(x)
```

```
x = 3
f1()
f2()
f3()
```

**Q5.** Please specify the output of the code given below.

```
b = [[9,6],[4,5],[7,7]]
x = b[:2]
x[0] = [1,2]
print(b)
```

**Q6.** Suppose you are given the following function definitions.

```
def first(x): def second(x): def third(x):
 print('S1') print('S2') print('S3')
 try: try: if x < 0:
 second(x) third(x) raise IOError()
 except IOError: except AssertionError: elif x > 0:
 print('C1') print('C2') raise AssertionError()
 print('E1') print('E2') print('E3')
```

- a) What is the output of `first(-1)`?
- b) What is the output of `first(1)`?

**Q7.** Suppose you are given the following function definitions.

```
def female(n):
 if (n == 0):
 return 1
 f = female(n-1)
 return n-male(f)

def male(x):
 if (x == 0):
 return 0
 m = male(x-1)
 return x-female(m)
```

- a) While estimating `male(2)`, how many times the functions `female` and `male` are called? What is the resulting value?
  - i. Number of times `male()` called: \_\_\_\_\_
  - ii. Number of times `female()` called: \_\_\_\_\_
  - iii. Value of `female(3)`: \_\_\_\_\_
- b) While estimating `female(3)`, how many times the functions `female` and `male` are called? What is the resulting value?
  - iv. Number of times `male()` called: \_\_\_\_\_
  - v. Number of times `female()` called: \_\_\_\_\_
  - vi. Value of `female(3)`: \_\_\_\_\_