Assignment 4

1. What will the output of the following code:

```
class Employee:
   name = "Arjun"
   emp_id = 1

emp = Employee ()
emp.name = "Abhay"

emp = Employee ()
print(emp.name)
```

   a. Arjun
   b. Abhay
   c. Error
   d. No output

Correct option: a

2. What will be the output of the following code?

```
class Employee:
    def __init__(me,name,empid):
        self.name = name
        self.empid = empid

    def __str__(self):
        return f"{self.name} has Employee id {self.empid}"

Emp = Employee("Abhay", 1)
print(Emp)
```

a. The code will cause an error.
b. Abhay has Employee id 1
c. No output
d. Employee has Employee id

Correct option: a

3. What will be the output of the following code?

```
%%writefile function.py
def pow(a,b):
    return a**(a*b)

import function
print(function.pow(2,3))
```

a. 6
b. 8
c. 12
d. 64

Correct option: d
Explanation: function.pow(2,3) = 2^(2*3) = 2^6 = 64

4. What will be the output of the following code?

```
x = 5; y = x;
print(id(x)==id(y),end=", ")
x = x**2
print(id(x)==id(y))
```

a. False, False
b. False, True
c. True, False
d. True, True

Correct option: c

5. What will be the output of the following code?

```
import numpy as np
x = np.array([1,2,3]); old_id=id(x)
x = x**2; new_id = id(x)
print(old_id==new_id ,end=", ")
old_id=id(x)
x *= x; new_id = id(x)
print(old_id==new_id)
```

a. False, False
b. False, True

c. True, False
d. True, True

Correct option: b

6. What will be the output of the following code?

```
import numpy as np
x = np.array([1,2,3]); old_id=id(x)
x = x+2; new_id = id(x)
print(old_id==new_id ,end=", ")
old_id=id(x)
x += 2; new_id = id(x)
print(old_id==new_id)
```

a. False, False
b. False, True
c. True, False
d. True, True

Correct option: b

7. Which of the following is mutable in Python?

a. Array
b. String
c. Integer
d. Float

Correct option: a

8. What will be the output of the following code?

```
int x = 10; int* old_id = &x;
x = x*x; int* new_id = &x;
printf("%d, ",old_id==new_id);
old_id = &x;
x *= x; new_id = &x;
printf("%d",old_id==new_id);
```

a. 0, 0
b. 0, 1
c. 1, 0
d. 1, 1

Correct option: d

9. What will be the address of A[6] if A is an array of floats (4 bytes) in C and &A = 500?

a. 506
b. 524
c. 528
d. 532

Correct option: b

10. Suppose A is an array with 6 rows and 4 columns, and &A = a. How will we access the 5th element of the 4th row (in C)?

a. *(a+19)
b. *(a+20)
c. *(a+24)
d. *(a+27)

Correct option: a

Explanation: We need to access the 5th element of the 4th row. In C, arrays are zero-indexed, so the 5th element of the 4th row corresponds to A[4][3].

The general formula to access A[i][j] is a + (i*(number of columns) + j)

Address of A[3][2] = a+(4*4+3) = a+19