**LAB 1 – Introduction to Python**

**Marks = 2**

**Submission =**

* **This lab must be completed in the class. You must show the completion to the Instructor/GA to get the grade. Write your answers in front of each question in bold.**
* **Each student should work individually on this lab.**

**NOTE**: Use Python’s **IDLE** interactive tool. Write your answer beside each command in this sheet in **bold**.

**Part 1 - Lists in Python**: Given the following two lists:

list1 = ["apple", 10, 3.14, [1, 2, 3], "class", 20, [4.5, 6.7], 5.5]

list2 = [8, "list in python", [9.1, 7.2], 15, "MAC", [2, 4, 6], 3.33, 12.5]

***1.1 - Work with list indexing and slicing***:

Indicate the results if you type the following commands in IDLE:

1. list1[2][1]
2. list2[3][0]
3. list1[4][2][1]
4. len(list2)
5. list1[12]
6. list2[-4:-1]
7. list1[2:14]
8. list2+list1
9. list1\*2
10. list2[5][1] = 0
11. del list1[-3]

***1.2 - Work with list methods and data types***:

Type python commands to do the following:

1. append the string 'university' to list1
2. remove the last element of list2
3. insert the item 100 at index 5 in L1
4. add the integers in the list [44, 50] at the end of list2

**Part 2 - Strings in Python:** Given the following two strings:

str1 = "Django allows a rapid web development and creates scalable systems"

str2 = "There are two areas in cloud computing: performance and security"

***2.1 - Work with string indexing, slicing, assignment, and concatenation***: Indicate the results if you type the following commands in IDLE. Indicate the reason for each answer. Ex. The answer is ‘o’ because o is at index [7].

1. str2[-1:-6:-1]
2. str1[9]
3. str2[-2:]
4. str2[0:20:3]
5. s1+" "+s2

***2.2 - Work with string methods***: Use **str** methods to do the following and indicate the corresponding results.

1. Check if the string str1 ends with the word 'systems'
2. Return a list of words from str2
3. Convert str1 and str2 to all uppercase letters
4. Replace the string 'web' of str1 with an empty string
5. Count the number of times ‘e’ occurs in str2

**Part 3- Dictionary in Python:** Define the following *dicts*:

*#dictionary literals*

d1={"name": "Bob", "age": 35, (4, 10):['x', 'y', 'z'], '+1' : "Canada", 44: 99, 19:555}

*#dictionary using sequences*

d2 = dict([("name","Livy"), ('age', 44), ((1, 3, 5), ['a', 'b', 'c']), (0, 'black'), (33, 67)])

*#dictionary using keywords*

d3 = dict(id=2277, name='Michael', siblings=['Janet', 'Martin', 'Richard'])

***Work with dict methods***: Type the following commands at the Python prompt in IDLE interactive mode and indicate the result of each command:

1. d1.keys()
2. d2.values()
3. d3.get('id')
4. d2.get('age')
5. d3.get('age')
6. d3.get('name', 'Tim')
7. d2.items()
8. d3['siblings']
9. d2['siblings']
10. d2.update(d3)
11. d2[0]
12. d1.get((1,2))
13. d2['siblings']**\***
14. d2['name']**\***
15. d1 == d2
16. len(d2)
17. for key in d1.keys():

print(key)

1. for key in d2.keys():

print(d2[key])

**\****means after* update.