

KATHMANDU UNIVERISTY
End Semester Examination
May/June, 2022

Level : B.Sc./B.Tech.
Year : I
Time : 2 hrs. 30 mins.

Course : COMP 117
Semester : II
F.M. : 40

SECTION "B"

[6Q. × 4 = 24 marks]

Attempt *ANY SIX* questions.

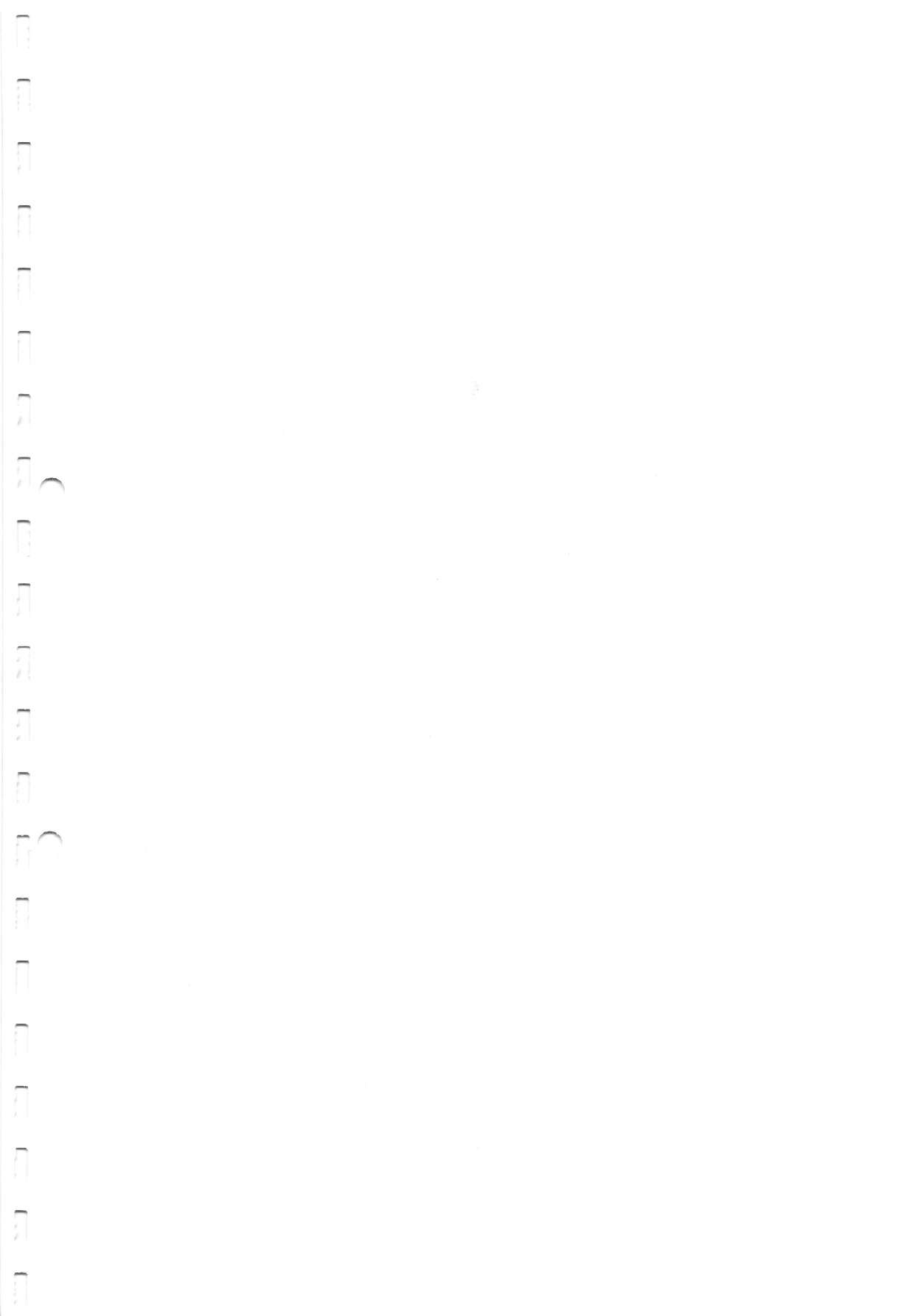
1. What is Python? What are the benefits of using python? Write a python program along with algorithm and flowchart to add numbers from 1 to 100 using for loop. [1+1+2]
2. Differentiate between compiler and interpreter. Also differentiate between local and global variables with examples. [2+2]
3. Explain the "List" in python. Write a code to add two list in python. [2+2]
4. Write a Python program to concatenate three dictionaries into a new one. You can make dictionary of your choice.
5. What do you understand by decision making structure? Explain about if-statement, if-else statement and if-elif-else statement with structure diagram.
6. Define function and modules. State the benefits of using function. [2+2]
7. Write short note with example on (*ANY TWO*): [2+2]
 - a. Slicing of Strings
 - b. Lambda function and its use
 - c. Break statement
 - d. Keywords

SECTION "C"

[2Q. × 8 = 16 marks]

Attempt *ANY TWO* questions.

8.
 - a. Differentiate between built-in functions and user-defined function. Also explain the application of NumPy and SciPy libraries. [4]
 - b. Design a python program to test the eligibility to vote. You have to verify the eligibility by matching the candidate's two profiles: Age and Nationality. If both of the conditions are matched, the candidate is eligible to vote otherwise he/she is not eligible. [4]
9. Design a program that asks the user to enter a series of 20 numbers. The program should store the numbers in a list and then display the following data. [2+2+2+2]
 - a. The lowest number in the list
 - b. The highest number in the list
 - c. The total of the numbers in the list
 - d. The average of the numbers in the list
10. Explain the process of creating a function in Python. Write a simple program by creating a function **Factorial** with argument and no return type. Also state the advantage of using recursion function. [2+4+2]



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Marks Scored:

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Time: 30 mins.

Course : COMP 117

Semester : II

F. M. : 10

Registration No.:

Date :

SECTION "A"

[20Q. × 0.5 = 10 marks]

Encircle the most appropriate option among the given choices.

- _____ is a python library that is useful in solving many equations and algorithms.
a. NumPy b. SciPy c. Both a and b d. None
- Diamond box in flowchart is used for _____.
a. Connector b. Decision c. Statement d. Controlling loops
- Matplotlib is one of the most popular python packages used for _____.
a. Data visualization b. Solving equations
c. Mathworks d. All of the above
- NumPy or numeric python is a package for computation of homogenous n-dimensional _____. In NumPy dimensions are called as _____.
a. Arrays, axes b. Axes, arrays
c. Axes, multi-dimensional d. Arrays, multi-dimensional
- Which of the following statement is **CORRECT** for variable names in Python language?
a. All variable names must not begin with an underscore
b. Unlimited length
c. The variable name length is a minimum of 2
d. All of the above
- You can get the data type of any object by using the _____ function.
a. type() b. data type() c. datatype() d. return ()
- What is the correct output of this program?

```
def list_sum(list1):  
    if len(list1) == 1:  
        return(list1.pop(0))  
    else:  
        return(list1.pop(0) + list_sum(list1))  
  
list1 = [23, 12]  
print(list_sum(list1))  
print(list1)
```


a. [23, 12] b. 35 c. 23 d. error

8. Select appropriate answer of this program.

```
def list_sum(list1):
    if len(list1) == 0:
        return(0)
    else:
        return(list1[0] + list_sum(list1[0:4]))
list1 = [20,12,43,33]
print(list_sum(list1))
```

- a. 108 b. 75 c. 88 d. error

9. Which of the following precedence order is correct in Python?

- a. Parentheses, Exponential, Multiplication, Division, Addition, Subtraction
- b. Multiplication, Division, Addition, Subtraction, Parentheses, Exponential
- c. Division, Multiplication, Addition, Subtraction, Parentheses, Exponential
- d. Exponential, Parentheses, Multiplication, Division, Addition, Subtraction

10. Figure out the missing operator in the code segment below.

```
def evenOdd(x):
    if (x % 2    0):
        print("even")
    else:
        print("odd")
evenOdd(2)
evenOdd(3)
```

- a. = b. == c. === d. !=

11. Select the correct output!!

```
def swap(x, y):
    temp = x;
    x = y;
    y = temp;
    print(x, y)
x = 2
y = 3
swap(2,3)
print(x)
print(y)
```

- a. 3, 2,3, 2 b. 2, 3,2,3 c. 2,3,3,2 d. 3,2,2,3

12. Which of the options below could possibly be the output of the following program?

Program:

```
D = {1 : [1, 2, 3], 2: (4, 6, 8)}
D[1].append(4)
print(D[1], end = " ")
L = [D[2]]
L.append(10)
D[2] = tuple(L)
print(D[2])
```

- a. [1, 2, 3, 4] [4, 6, 8, 10]
- b. [1, 2, 3, 4] ((4, 6, 8), 10)
- c. [1, 2, 3, 4] TypeError: tuples are immutable
- d. [1, 2, 3, 4] (4, 6, 8, 10)

13. What happens when you execute the statement: **print (list [-10:-1])**?
- it returns the items from the index -10(excluded) to index -1(included)
 - it returns the items from the index -10(included) to index -1(excluded)
 - it returns the items from the index -10(included) to index -1(included)
 - it returns the items from the index -10(excluded) to index -1(excluded)
14. In python whenever you want to change the specific item, refer to the _____.
- print list
 - variable
 - index number
 - loop
15. To make addition to the end of the list, what do you use?
- copy()
 - extend()
 - insert()
 - append()
16. Select correct answer
- ```
dictionary1 = {'Google' : 1,
 'Facebook' : 2,
 'Mic' : 3
 }
dictionary2 = {'GFG' : 1,
 'Mic' : 2,
 'Youtube' : 3
 }
dictionary1.update(dictionary2);
for key, values in dictionary1.items():
 print(key, values)
```
- compile time error
  - runtime error
  - Google 1  
Facebook 2  
Mic 2  
GFG 1  
Youtube 3
  - none of the above
17. Which of the following is the use of function in python?
- Functions are reusable pieces of programs
  - Functions don't provide better modularity for your application
  - you can't also create your own functions
  - Both a and b
18. Find the missing conditional statement in given python code in order:
- ```
def printMax(a, b):
    _____ a > b:
        print(a, 'is maximum')
    _____ a == b:
        print(a, 'is equal to', b)
    _____:
        print(b, 'is maximum')
printMax(3, 4)
```
- if, elif, else
 - if else, elif
 - if, else, else if
 - if else, elif

19. Which of the following is/are open source?

- a. NumPy b. SciPy c. Python d. All

20. Choose best output:

```
def func(a, b=5, c=10):  
    print('a is', a, 'and b is', b, 'and c is', c)  
  
func(3, 7)  
func(25, c = 24)  
func(c = 50, a = 100)
```

- a. a is 3 and b is 7 and c is 10
a is 25 and b is 5 and c is 24
a is 100 and b is 5 and c is 50
- b. a is 7 and b is 3 and c is 10
a is 25 and b is 5 and c is 24
a is 5 and b is 100 and c is 50
- c. a is 3 and b is 7 and c is 70
a is 25 and b is 5 and c is 24
a is 50 and b is 5 and c is 50
- d. a is 7 and b is 5 and c is 24
a is 25 and b is 7 and c is 10
a is 100 and b is 3 and c is 70