



Rollno.....

End Semester Examination, December 2024
B.COM(H)/B.COM PROGRAM/BBA/BBA IN BIA– 3rd Semester
Python for Data Science (UDT103)

Time: 2.5 hrs.

Max Marks: **50**

Note: *All Questions are compulsory. Marks are indicated against each question.*

PART-A

1. Q.1 Answer any five of the following small questions

(a) What is the output of the following code? [CO-1] [L-2]

```
x = [1, 2, 3]
x.append(4)
print(x)
```

(b) What will be the output of the following code? [CO-1] [L-2]

```
my_tuple = (1, 2, 3, 4)
my_tuple[1] = 5
print(my_tuple)
```

(c) Write a Python program to find the factorial of a number using a for loop. [CO-1] [L-2]

(d) What is the output of the following NumPy code? [CO-1] [L-2]

```
import numpy as np
arr = np.array([1, 2, 3])
arr = arr * 3
print(arr)
```

(e) What is the purpose of a dictionary in Python? Write a simple program to create a dictionary and retrieve a value by key. [CO-1] [L-2]

(f) Explain the difference between a list and a tuple in Python. [CO-1] [L-2]

(g) Write a Python program to iterate through a list and print all even numbers. [CO-1] [L-2]
2x5=10marks

PART-B

Q.2(a) Write a Python program that performs the following operations on a list: [CO-2] [L-3]

1. Add an element to the end of the list.
2. Remove an element from the list.
3. Sort the list in ascending order.
4. Reverse the list.

OR

(b) Given the following list, write a Python program to: [CO-2] [L-3]

```
num = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
```

- i. Convert the list into a NumPy array.
- ii. Calculate the mean and standard deviation of the array.

Q.3 (a) What is the output of the following Python code?

[CO-3] [L-3,4]

```
numbers = [10, 20, 30, 40]  
squared_numbers = [x**2 for x in numbers if x > 20]  
print(squared_numbers)
```

OR

(b) Write a Python program to demonstrate how to use a for loop to iterate over a dictionary and print all keys and values.

[CO-3] [L-3,4]

Q.4(a) Write a Python program using while loop to print the Fibonacci sequence up to a given number n.

[CO-4] [L-5]

OR

(b) Write a Python program to check whether a number is prime or not. The program should use a for loop for checking divisibility.

[CO-4] [L-5]

Q.5(a) Write a Python program to find the maximum and minimum value in a NumPy array and explain the output.

[CO-5] [L-4]

OR

(b) Write a Python program that reads a list of numbers from the user, converts it into a NumPy array, and performs the following operations:

- Find the sum of the elements.
- Find the product of the elements.

[CO-5] [L-4]