# PYTHON PROGRAMMING

**(Model Question Paper – II)**

**Time: 3 Hours]** **[Maximum Marks: 100**

**Instructions to students:**
**Answer FIVE FULL questions**

| Q.No. | | Questions | Marks | CO | RBT Cognitive Level |
|---|---|---|---|---|---|
| 1. | a) | Explain the concept of scope and lifetime of variables in Python programming language with an example. | 8 | CO1 | L2 |
| | b) | Explain command line arguments and write a program to demonstrate command line arguments. | 6 | CO1 | L2 |
| | c) | Write a Python program to check if a 3 digit number is Armstrong number or not. | 6 | CO1 | L3 |
| | | **OR** | | | |
| 2. | a) | Illustrate ***args** and ****kwargs** parameters in Python programming language with an example. | 7 | CO1 | L2 |
| | b) | Report the Value for sin(x) up to n terms using the series $\sin(x) = \frac{x}{1!} - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \cdots$ where **x** is in degrees | 7 | CO1 | L3 |
| | c) | Write Pythonic code to find the factorial of a number. | 6 | CO1 | L3 |
| 3. | a) | Write Python program to implement Stack operations. | 7 | CO3 | L3 |
| | b) | Write Python program to sort numbers in a list in ascending order using Bubble Sort by passing the list as an argument to the function call. | 7 | CO3 | L3 |
| | c) | Write Python program to perform a linear search for a given Key number in the list and report Success or Failure. | 6 | CO3 | L3 |
| | | **OR** | | | |
| 4. | a) | Write Python program that accepts a sentence and calculate the number of words, digits, uppercase letters and lowercase letters. | 8 | CO2 | L3 |
| | b) | Write Python program to convert uppercase letters to lowercase and vice versa. | 6 | CO2 | L3 |
| | c) | Discuss format specifiers and escape sequences with examples. | 6 | CO2 | L2 |
| 5. | a) | Write Python program to check for the presence of a key in the dictionary and find the sum all its values. | 7 | CO3 | L3 |

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| | b) | Write Python Program to count the number of characters in a string using dictionaries. Display the keys and their values in alphabetical Order. | 7 | CO3 | L3 |
| | c) | Write Python Program to count the number of times an item appears in the list. | 6 | CO3 | L3 |
| | | **OR** | | | |
| 6. | a) | Write a Python Program to input information for n number of students as given below:<br>a. Name<br>b. Registration Number<br>c. Total Marks | 8 | CO3 | L3 |
| | b) | Discuss the following dictionary methods with an example.<br>a) get() b) keys() c) pop() d) update() e) values() f) items() | 6 | CO3 | L2 |
| | c) | Write Python program to generate a dictionary that contains ***(i: i*i)*** such that ***i*** is a number ranging from 1 to n. | 6 | CO3 | L3 |
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| 7. | a) | Write a Python program to check the validity of a password given by the user.<br>The Password should satisfy the following criteria:<br>1. Contain at least 1 letter between a and z<br>2. Contain at least 1 number between 0 and 9<br>3. Contain at least 1 letter between A and Z<br>4. Contain at least 1 character from $, #, @<br>5. Minimum length of password: 6<br>6. Maximum length of password: 12 | 8 | CO4 | L3 |
| | b) | Discuss the fundamental rules that enable an application to create and process valid names for files and directories in Windows and Linux Operating systems. | 6 | CO4 | L2 |
| | c) | Explain the different methods available for manipulating the CSV files. | 6 | CO4 | L2 |
| | | **OR** | | | |
| 8. | a) | Write Python program to change the file extension from .txt to .csv of all the files (including from sub directories) for a given path. | 7 | CO4 | L3 |
| | b) | Explain the need for Pickle module. Write Python program to save dictionary in Python Pickle. | 7 | CO4 | L2 |
| | c) | Illustrate the difference between fully qualified path and relative path with an example. | 6 | CO4 | L2 |
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| 9. | a) | Discuss the need for Method Resolution Order and the steps to follow in construction of C3 linearization MRO for a class. | 10 | CO5 | L2 |
| | b) | Discuss polymorphism as implemented in Python programming language with an example. Write Python Program to Create a Class Called as **Complex** and Implement __add__() Method to Add Two Complex Numbers. Display the result by overloading the + Operator. | 10 | CO5 | L2 |
| | | **OR** | | | |

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| 10. | a) | Write Pythonic code to compute the End Time of an Opera, while Start Time and Duration are Given. | 10 | CO5 | L3 |
| | b) | Given a point(x, y), write Python program to find whether it lies in the First, Second, Third or Fourth Quadrant of x - y Plane. | 10 | CO5 | L3 |

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