# CBCS SCHEME

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**1BPLC105B**

## First Semester B.E./B.Tech. Degree Examination, Dec.2025/Jan.2026
## Python Programming

Time: 3 hrs. Max. Marks: 100

***Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.***
***2. M : Marks , L: Bloom's level , C: Course outcomes.***

| | | Module – 1 | M | L | C |
|---|---|---|---|---|---|
| Q.1 | a. | Explain the salient features of Python. | 6 | L2 | CO1 |
| | b. | Describe the Collatz 3n + 1sequence and explain how iteration and conditional statements are used in its implementation. | 8 | L2 | CO1 |
| | c. | Write a Python program to calculate factorial of a number. | 6 | L3 | CO1 |
| | | **OR** | | | |
| Q.2 | a. | Explain Syntax Error, Runtime Error, and Semantic error with an example. | 6 | L2 | CO1 |
| | b. | Explain break and continue statements with example. | 8 | L2 | CO1 |
| | c. | Write a Python program to print only even Fibonacci numbers up to n terms. | 6 | L3 | CO1 |
| | | **Module – 2** | | | |
| Q.3 | a. | Explain Python string handling method with example : find ( ) , Upper ( ) , isupper ( ) , len ( ). | 8 | L2 | CO2 |
| | b. | Tuples are immutable. Explain with an example. And also differentiate between tuple and list. | 5 | L2 | CO2 |
| | c. | Write a Python program to count occurrences of characters in a string and print the count. | 7 | L3 | CO2 |
| | | **OR** | | | |
| Q.4 | a. | Explain the string operations in Python for slicing, concatenation, repetition and comparison with suitable example. | 8 | L2 | CO2 |
| | b. | What is a list? Explain append ( ), insert ( ), remove ( ), pop () with example. | 5 | L2 | CO2 |
| | c. | Develop a Python program to sort a given list of numbers using Bubble sort from lowest to highest order. | 7 | L3 | CO2 |
| | | **Module – 3** | | | |
| Q.5 | a. | Explain dictionary methods like keys( ), values( ), items( ) with an example. | 6 | L2 | CO2 |
| | b. | What is Broadcasting in NumPy. Develop a program to illustrate Broadcasting array elements. | 6 | L3 | CO3 |

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| | c. | Develop a Python program to count the number of lines and words in the file. | 8 | L3 | CO4 |
| | | **OR** | | | |
| Q.6 | a. | Explain the concept of aliasing and copying in dictionary with an example. | 6 | L2 | CO2 |
| | b. | What is Masking in NumPy. Develop a program to illustrate masking to filter array elements. | 6 | L3 | CO3 |
| | c. | Develop a Python program to sort the contents of a text file in reverse order and write the sorted contents in to a separate file. | 8 | L3 | CO4 |
| | | **Module – 4** | | | |
| Q.7 | a. | Discuss the various methods of importing modules in python program. | 6 | L2 | CO3 |
| | b. | Define class and object. Explain with syntax and an example how to define class in Python. How to initiate a class and how the class members are accessed. | 8 | L2 | CO5 |
| | c. | Develop a Python program to illustrate how variable lookup follows LEGB (Local, Enclosing, Global, Built-in) rule. | 6 | L3 | CO3 |
| | | **OR** | | | |
| Q.8 | a. | Explain how to create user-defined modules in Python with an example. Also discuss the uses of user-defined modules. | 6 | L2 | CO3 |
| | b. | Explain __init__( ) and __str__( ) methods with an example. | 8 | L2 | CO5 |
| | c. | Develop a program that simulates a simple stopwatch that records random time intervals and calculates the average elapsed time. | 6 | L3 | CO3 |
| | | **Module – 5** | | | |
| Q.9 | a. | Briefly explain Assertion and raising an exception. | 4 | L2 | CO5 |
| | b. | What is polymorphism? Develop a program to illustrate polymorphism by defining a common interface method in two different classes. | 8 | L3 | CO5 |
| | c. | Create a Python class Point with attributes x and y. Demonstrate sameness using 'is' operator, deep equality using ==, and show the effect of mutability when modifying one reference. | 8 | L3 | CO5 |
| | | **OR** | | | |
| Q.10 | a. | Explain the term objects are mutable with an example. | 4 | L2 | CO5 |
| | b. | What is operator overloading? Define a Class Complex. Overload the + operator to add two complex numbers. Write a Python program to read N ($N \geq 2$) complex numbers and find their cumulative sum using operator overloading. | 8 | L3 | CO5 |
| | c. | Explain the need for exception handling in Python. Develop a program to illustrate: try, except, else, finally blocks and also show how to raise an exception. | 8 | L3 | CO5 |

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