

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 $3n + 1$ sequence 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

	c.	Develop a Python program to count the number of lines and words in the file.	8	L3	C04
OR					
Q.6	a.	Explain the concept of aliasing and copying in dictionary with an example.	6	L2	C02
	b.	What is Masking in NumPy. Develop a program to illustrate masking to filter array elements.	6	L3	C03
	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	C04
Module – 4					
Q.7	a.	Discuss the various methods of importing modules in python program.	6	L2	C03
	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	C05
	c.	Develop a Python program to illustrate how variable lookup follows LEGB (Local, Enclosing, Global, Built-in) rule.	6	L3	C03
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	C03
	b.	Explain <code>__init__()</code> and <code>__str__()</code> methods with an example.	8	L2	C05
	c.	Develop a program that simulates a simple stopwatch that records random time intervals and calculates the average elapsed time.	6	L3	C03
Module – 5					
Q.9	a.	Briefly explain Assertion and raising an exception.	4	L2	C05
	b.	What is polymorphism? Develop a program to illustrate polymorphism by defining a common interface method in two different classes.	8	L3	C05
	c.	Create a Python class Point with attributes x and y. Demonstrate sameness using 'is' operator, deep equality using <code>==</code> , and show the effect of mutability when modifying one reference.	8	L3	C05
OR					
Q.10	a.	Explain the term objects are mutable with an example.	4	L2	C05
	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	C05
	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	C05