

INDIRA UNIVERSITY, Pune

SCHOOL OF INFORMATION TECHNOLOGY-SOIT BSC (DS)

Term End Examination (2025 Pattern) December – 2025 - Semester – I

Subject Name: - Problem Solving using Python Programming
Subject Code: 25BDS101T

Max. Marks: 25
Time: 1:30 Hrs.

Instructions

- All Questions are Compulsory.

CO #	Cognitive Ability	Course Outcome
CO1	Remember	Recall and describe fundamental concepts of problem-solving, algorithms, flowcharts, and Python syntax, including control structures, functions, and data types to build a foundation for program development.
CO2	Understand	Explain and illustrate the use of Python programming constructs, such as loops, conditionals, functions, and OOP principles, to solve computational problems through structured coding.
CO3	Apply	Write and implement Python programs by translating algorithms and flowcharts into executable code, using appropriate functions, loops, and data structures for problem-solving.

Q1.	<p>Attempt any 5 out of 7. (1 mark each) (5 Marks)</p> <p>a. What is an algorithm? Give one disadvantage of algorithm.</p> <p>b. Mention any two advantages of pseudo code.</p> <p>c. Define a variable in Python. Give its example.</p> <p>d. Define a list in Python with example.</p> <p>e. Define multilevel inheritance.</p> <p>f. Write the syntax to create a class in Python.</p> <p>g. What is a package in Python?</p>	CO1
Q2.	<p>Attempt any 2 out of 4. (5 marks each) (10 Marks)</p> <p>a. Write the difference between “IS-A” and “HAS-A” relationships with suitable examples.</p> <p>b. Describe various types of programming languages with examples.</p>	CO2

	<p>c. Explain string slicing and string methods with examples.</p> <p>d. Explain the concept of classes and objects in Python with suitable examples.</p>	
Q.3.	<p>Attempt all questions. (5 marks each) (10 Marks)</p> <p>a. Write a Python program to illustrate hybrid inheritance.</p> <p>b. Write different functions used in datetime module with example.</p>	CO3
Q.3	<p style="text-align: center;">OR</p> <p>a. Explain the steps involved in problem solving with an example. Then, design an algorithm and flowchart for finding the largest of three numbers.</p> <p style="text-align: right;">(10 marks)</p>	CO3
