Model Question Paper- I

CBCS SCHEME

First/ Second Semester B.E Degree Examination, 2025-26

PYTHON PROGRAMMING (1BPLC105B/205B)

TIME: 03 Hours **Max. Marks:100**

Notes:

1. *Answer any FIVE full questions, choosing at least ONE question from each MODULE*
2. *M: Marks, L: Bloom's level, C: Course outcomes.*
3.

		Module - 1	M	L	C
Q.1	a	Explain the concept of type conversion in Python. Differentiate between implicit and explicit conversion with examples.	08	L2	CO1
	b	Develop a Python program with a while loop to display the Fibonacci sequence up to n terms entered by the user.	08	L3	CO1
	c	Differentiate between a syntax error and a runtime error with examples.	04	L2	CO1
		OR			
Q.2	a	Describe the Collatz 3n + 1 sequence and explain how iteration and conditional statements are used in its implementation.	08	L2	CO1
	b	Develop a program that prints all numbers from 1 to 100 that are divisible by 3 or 5 but not both. Use continue or break statements wherever suitable.	08	L3	CO1
	c	What is meant by function composition? Illustrate with an example.	04	L2	CO1
		Module – 2			
Q.3	a	Explain the string operations in Python for slicing, concatenation, repetition, and comparison with suitable examples.	8	L2	CO2
	b	Define a list. How is it different from an array? Develop a Python statement to access the third element of a list: nums = [3, 6, 9, 12].	6	L3	CO2
	c	Develop a program to count the number of words in a given line of text.	6	L3	CO2
		OR			
Q.4	a	Explain mutability in lists. Illustrate the difference between modifying a list and creating a clone of it using examples.	8	L2	CO2
	b	Develop a Python program to check if a string is a palindrome using slicing.	6	L3	CO2
	c	Develop a program that takes a list of numbers and returns a new list containing only the even numbers.	6	L3	CO2
		Module – 3			
Q5	a	Develop a Python program that counts the frequency of words in a paragraph using a dictionary and displays the top three most frequent words.	8	L3	CO2
	b	What is masking in NumPy? Develop a program to illustrate masking to filter array elements.	6	L3	CO3
	c	Explain the use of the 'with' statement in file handling with a program.	6	L2	CO4
		OR			
	a	Explain the key features and operations of Python dictionaries. How are they different from lists? Develop suitable program to illustrate insertion, deletion, and lookup.	8	L3	CO2
	b	Develop a NumPy program to: Create a 3×3 matrix of random integers. Display its shape, transpose, and mean of all elements.	6	L3	CO3

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	c	Explain how binary files differ from text files in terms of content and operations. Illustrate with suitable program segments.	6	L2	CO4
Module – 4					
Q.7	a	Explain the use of random and time modules in Python. Develop a program that simulates a simple stopwatch that records random time intervals and calculates the average elapsed time.	8	L3	CO3
	b	Explain the concept of namespaces in Python. Develop program to illustrate how variable lookup follows the LEGB (Local, Enclosing, Global, Built-in) rule.	8	L3	CO3
	c	Differentiate between class attribute and instance attribute with suitable program segments.	4	L2	CO5
OR					
Q.8	a	Develop python script to create a module utilities.py with functions for square, cube, and factorial of a number. Import it in another file using all three import variants. Demonstrates the usage of each of the imported function.	8	L3	CO3
	b	Develop a custom module having function which calculates factorial of a number. Import this custom module to a program to calculate binomial coefficient.	8	L3	CO3
	c	Explain the difference between ‘is’ and ‘==’ operators using immutable objects.	4	L2	CO5
Module – 5					
Q.9	a	Create a Python class Point with attributes x and y. Demonstrate sameness using ‘is’ operator, and show the effect of mutability when modifying one reference.	8	L3	CO5
	b	Explain the need for exception handling in Python. Develop a program to illustrate: try, except, else, and finally blocks.	8	L3	CO5
	c	What is operator overloading? Illustrate with example using __add__().	4	L2	CO5
OR					
Q.10	a	Develop a program to illustrate polymorphism by defining a common interface method in two different classes.	8	L3	CO5
	b	Outline the difference between pure functions and modifiers. Develop a program code illustrating both using a class BankAccount.	8	L3	CO5
	c	Explain the role of finally clause with an example.	4	L2	CO5