

**M. Sc. DEGREE END SEMESTER EXAMINATION – APRIL 2025****SEMESTER 2: COMPUTER SCIENCE (ARTIFICIAL INTELLIGENCE)****COURSE: 24P2CAIT06: PROGRAMMING IN PYTHON***(For Regular 2024 Admission)*

Time: Three Hours

Max. Weightage: 30

**PART A****Answer any 8 Questions****Weight: 1**

1. Define a variable in Python and also give an example. (U, CO1)
2. Explain the difference between integer and floating-point data types. (U, CO2)
3. List three string methods in Python and describe their function. (R, CO2)
4. Describe the purpose of a while loop. (U, CO3)
5. Define what recursion is and provide a simple example. (U, CO4)
6. Define package in Python and give an example of a common Python package (U, CO5)
7. Explain how to delete a file using Python. (U, CO5)
8. Define what a namespace is in Python. (U, CO4)
9. Describe the use of the pass statement. (U, CO3)
10. Outline the key features and characteristics that make Python a distinct and popular programming language. (R, CO1)

**(1 x 8 = 8)****PART B****Answer any 6 Questions****Weight: 2**

11. Explain different ways to import modules in Python. (U, CO4)
12. Explain the difference between list.append() and list.extend(). (U, CO2)
13. Develop a Python program to print a multiplication table for a given number. (A, CO3)
14. Explain various operators in Python with examples. (U, CO1)
15. Illustrate how nested if statements work. (A, CO3)
16. Develop a Python program to copy the contents of one file to another file. (A, CO5)
17. Explain the difference between set and frozenset in python. (A, CO2)
18. Analyze the following code snippet and predict the output: (An, CO4)

```
x = 10
def my_function():
    global x
    x = 20
print(x)
my_function()
print(x)
```

**(2 x 6 = 12)**

**PART C****Answer any 2 Questions****Weight: 5**

19. Explain the different types of loops (infinite, top-condition, middle-condition, bottom-condition). Develop an algorithm that requires a loop with a condition in the middle. (A, CO3)
20. Explain different types of function arguments with examples. (U, CO4)
21. Discuss the differences between mutable and immutable objects in Python. Justify the use of specific data types based on their mutability. (U, CO2)
22. Describe the attributes of a file object in Python. Write a program that opens a file and prints its name, mode, and whether it is closed. Explain how these attributes can be used in file handling operations. (U, CO5)

**(5 x 2 = 10)****OBE: Questions to Course Outcome Mapping**

CO	Course Outcome Description	CL	Questions	Total Wt.
CO1	Develop fundamental programming skills by understanding program logic, utilizing flowcharts for problem-solving, and implementing basic Python syntax, including data types, operators, input/output functions, and program structure.	A	1,10,14	4
CO2	Effectively utilize various Python data types and their associated operations to manipulate and manage data within programs.	A	2,3,12,17,22	11
CO3	Implement flow control mechanisms in Python using conditional statements and loops to control program execution.	A	4,9,13,15,20	11
CO4	Design and implement modular and reusable code using functions, including various argument types and lambda functions, and effectively utilize built-in and custom modules in Python.	Cr	5,8,11,18,21	11
CO5	Utilize Python's file input/output operations for handling data, including reading, writing, and managing files and directories.	A	6,7,16,23	9

Cognitive Level (CL): Cr - CREATE; E - EVALUATE; An - ANALYZE; A - APPLY; U - UNDERSTAND; R - REMEMBER;