

Gandhi Institute of Engineering and Technology University, Odisha, Gunupur (GIET University)



B. Tech (Fourth Semester – Regular/Supplementary) Examinations, April 2026 23BCMPC24002- Python Programming for Machine Learning (CSE-AIML)

Time: 3 hrs

Maximum: 60 Marks

Answer ALL questions
(The figures in the right hand margin indicate marks)

PART – A**(2 x 5 = 10 Marks)**Q.1. Answer **ALL** questions

	CO #	Blooms Level
a. Define Interactive Mode in Python.	CO1	K1
b. Describe range() function with example	CO1	K2
c. Describe bin() and oct() functions with example.	CO2	K2
d. List out the differences between a List and a Numpy array.	CO2	K1
e. Is it possible for the correlation value (corr()) to be greater than 1? Explain.	CO6	K1

PART – B**(10 x 5 = 50 Marks)**Answer **ALL** the questions

	Marks	CO #	Blooms Level
2. a. Discuss the ord(), hex(), oct(), complex() and float() type conversion functions with examples.	5	CO1	K2
b. Explain the different string formats available in Python with examples.	5	CO2	K2
(OR)			
c. Describe the is and is not operators and type() function. Also, discuss why Python is called as dynamic and strongly typed language.	5	CO2	K2
d. Define Python. Explain its key features and discuss its various applications in different domains.	5	CO1	K2
3.a. Implement a Python program demonstrating positional and keyword arguments in functions. Compare their usage.	5	CO2	K3
b. Implement a Python program using a lambda function with reduce() to find the product of all elements in a given list.	5	CO4	K3
(OR)			
c. Implement a Python program that takes a number and: Prints “Even and Divisible by 4” if applicable Prints “Even but not divisible by 4” Otherwise prints “Odd” Using suitable control statements.	5	CO2	K3
d. Explain the need for continue and break statements. Write a program to check whether a number is prime or not. Prompt the user for input.	5	CO2	K2
4.a. Design a class for a banking system where interest is common for all accounts but balance differs. Identify and justify the types of variables used.	5	CO3	K3
b. Explain the role of the else and finally blocks in exception handling with suitable examples.	5	CO1	K1

(OR)

c.	A class Student has both instance and class variables. Explain how memory is allocated for each when multiple objects are created. Illustrate with an example.	5	CO3	K4
d.	Implement a Python program where an exception is deliberately raised in an inner try block and another exception is raised in the outer try block.	5	CO2	K3
5.a.	Analyze how statistical operations (max(), min(), sum(), prod()) can be applied on multi-dimensional arrays with an example.	5	CO4	K5
b.	Design the plot for the given data x=[2,5,8,15] and y=[2,5,8,10] with following conditions: 1)marker as square 2) line style is dashed 3) markersize=10.	5	CO4	K5
(OR)				
c.	Demonstrate how to save and load NumPy arrays to/from disk. Discuss the importance of persistence in data-driven applications.	5	CO3	K4
d.	Evaluate the use of ones(),zeros(), empty(), shape, and reshape() functions with an example.	5	CO4	K5
6.a.	Discuss the use of Matplotlib for data visualization. Write a program to create a line chart with customized color, line style, and markers.	5	CO4	K3
b.	You are given multidimensional data. Justify which type of plot (scatter, histogram, or box plot) would best represent the data and why.	5	CO6	K5
(OR)				
c.	A dataset contains missing and inconsistent values. Describe how you would load a CSV file and preprocess it using Pandas before performing analysis.	5	CO6	K4
d.	Differentiate between histogram and box plot. How can both be used together to detect outliers?	5	CO6	K5

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