QP Code: R252G041 | Reg. No | | | | | | | | | | | AY 24

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

M.Sc. (Second Semester - Regular) Examinations, July – 2025

24MPEMA12004 – Programming Using Python

(Mathematics)

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. What are Python modules? Name some commonly used built-in modules in Python?	CO1	K2
b. What are Tuples? Give an example.	CO2	K3
c. Define Object and class.	CO2	K3
d. What is broadcasting in NumPy? Explain with example.	CO3	K2
e. plot the output : categories =[“a” , “ b” , “ c” , “d”] values = [10 , 7 , 15 , 20] plt.bar(categories , values , color = ‘orange’) plt.title(“ Bar plot”) plt.show()	CO4	K2

PART – B **(10 x 5 = 50 Marks)**

Answer ***ALL*** the questions	Marks	CO #	Blooms Level
2. a. Explain Conditional Statement briefly with suitable example.	5	CO1	K2
b. Explain Inheritance and its types.	5	CO1	K2
(OR)			
c. Write a short note on string and String function.	5	CO1	K1
d. Explain polymorphism and its types with suitable example.	5	CO2	K2
3.a. Describe how Stack and Queue are represented and used within Object-Oriented Programming.	10	CO2	K2
(OR)			
b. Explain any two Sorting Technique with suitable example.	10	CO2	K3
4.a. Describe the different kinds of control flow statements in Python with the help of flowcharts.	10	CO2	K2
(OR)			
b. Create a NumPy array with numbers from 1 to 10. Print the first five elements using slicing.	5	CO3	K3
c. Explain different types of ADT briefly.	5	CO2	K2
5.a. Create a scatter plot using two NumPy arrays x and y, label the axes and add a title.	5	CO3	K3
b. Write a program using two functions - one that calculates the square of a number and another that calculates the cube using the square function.	5	CO2	K2
(OR)			

c.	Write separate Python functions to calculate Simple Interest and Compound Interest based on user inputs for principal amount, rate of interest, and time period.	10	CO2	K3
6.a.	Generate a histogram in Python using Matplotlib to visualize the distribution of a dataset.	5	CO3	K1
b.	Explain the application of Matplotlib.	5	CO4	K1
	(OR)			
c.	Find the area and perimeter of a circle using functions. Prompt the user for input.	5	CO2	K2
d.	Create a Python program that solves a linear equations using NumPy's method.	5	CO5	K3

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