QP Code: S253A029 | Reg. No | | | | | | | | | | | AY 23

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

B. Tech (Third Semester - Regular) Examinations, November 2025

23BCSES23001- Fundamentals of Python programming

(Chemical/Mechanical)

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 Extensible and Embedded features.	CO1	K1
b. How do you read multiple values from the keyboard in a single line in Python? Explain with an example.	CO2	K3
c. List out the differences between a List and a Numpy array.	CO2	K1
d. Write a list comprehension to create a list of cubes of numbers from 1 to 10.	CO2	K3
e. Explain the role of the finally block in Python's exception handling mechanism.	CO4	K2

PART – B **(10 x 5 = 50 Marks)**

Answer ***ALL*** the questions	Marks	CO #	Blooms Level
2. a. Illustrate how type conversion works in Python. Differentiate between implicit and explicit type conversion with suitable examples.	5	CO2	K2
b. Write a Python program to find the sum of positive and negative numbers separately from a list without using built-in functions.	5	CO3	K4
(OR)			
c. Write a Python program to find the product of all elements in a list without using built-in functions.	5	CO2	K3
d. Develop a Python program to read two integer values from the user and perform all arithmetic operations.	5	CO1	K4
3.a. Differentiate between for and while loops in Python with examples.	5	CO1	K1
b. Describe different types of function arguments in Python — default, and variable-length with an example.	5	CO2	K2
(OR)			
c. Write a Python program using a for loop to count the number of uppercase and lowercase letters in a given string.	5	CO2	K3
d. Develop a Python program to filter out all even numbers from a given list using filter() and lambda.	5	CO3	K3
4.a. Develop a Python program to handle ZeroDivisionError using try, except, else, and finally blocks.	5	CO3	K3
b. Explain how the seek() and tell() methods are used to manipulate a file pointer in Python with an example.	5	CO1	K1
(OR)			
c. Implement a Python program that reads a text file, counts the number of lines containing a specific word, and prints the count.	5	CO2	K3

d.	Illustrate with an example how the else block works in Python exception handling.	5	CO2	K2
5.a.	Demonstrate how to create a 3×3 NumPy array filled with random integers between 10 and 50, and perform row-wise and column-wise summation.	5	CO3	K3
b.	Describe line and bar plots in Matplotlib with an example.	5	CO4	K1
	(OR)			
c.	Describe the process of saving and loading NumPy arrays from files. Write an example using np.save() and np.load().	5	CO3	K2
d.	Explain with an example how subplots can be used in Matplotlib to represent multiple visualizations in a single figure.	5	CO4	K2
6.a.	"In Python, everything is an object." — Justify this statement with proper explanation and examples.	5	CO1	K5
b.	Write a Python program that defines a class BankAccount with methods to deposit, withdraw, and check balance, demonstrating the use of instance methods.	5	CO2	K3
	(OR)			
c.	Implement a Python program to define a class Student with attributes name, roll_no, and marks. Include instance methods to display student details and calculate grade based on marks.	5	CO3	K3
d.	Demonstrate polymorphism in Python using a base class and two derived classes where each implements the same method differently.	5	CO2	K3

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