

# AJAY KUMAR GARG ENGINEERING COLLEGE, GHAZIABAD

## Department of Information Technology

### Pre-University Test

Course: B. Tech.  
Session: 2025-26  
Subject: Python Programming  
Max Marks: 70

Semester: 3<sup>rd</sup>  
Section: ECE/IT/CSIT/CE/EN/ME  
Sub. Code: BCC-302  
Time: 3 hrs.

#### OBE Remarks:

Q.No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
CO No.	1	1	2	2	3	4	5	1	2	1	2	3	3	4	4	5	5
Bloom's Level	L3	L2	L2	L3	L2	L1	L2	L2	L3	L2	L3	L3	L3	L3	L3	L4	L4
Weightage CO3: 16					Weightage CO4: 16					Weightage CO5: 16							

**Note:** Answer all the sections.

#### Section-A

(7 X 2 =14)

A. Attempt all the parts.

- Demonstrate multiple assignment and swapping of variables.
- Illustrate how Python dynamically assigns data types to variables.?
- Describe the use of logical operators (and, or, not) in decision-making statements.
- What is the output of following Python code:  

```
count = 0
while count < 3:
    print("Hi", count)
    count += 1
```
- Distinguish between 'append' and 'extend' in Python?
- State the purpose of with statement in file handling.
- Describe about different functions of matplotlib.

#### Section-B

(3X 7=21)

B. Attempt Any three. (Q. No. 12 is Compulsory)

- Interpret the concept of data types in Python by presenting small coding examples for each.
- Write a program to print a right-angled triangle star pattern of height N using a for loop in Python.  
For example, if N = 5, the pattern should look like:  

```
*
**
***
****
*****
```
- Explain how arithmetic and assignment operators can be used together in a single program.
- Write a Python program to accept marks of 5 subjects, calculate total, average, and display grade using proper decision-making

12. Explain Unpacking Sequences, Mutable Sequences, and List Comprehension with example. Write a program to sort list of dictionaries by values in Python – Using lambda function.

### Section-C

C. Attempt all the parts.

(5 X 7 = 35)

**13. Attempt any one.**

- Demonstrate the use of both keyword arguments and default arguments within the same function in Python. Write the function definition and a function call that clearly shows how both are used together.
- Explain how dictionary methods like keys(), values(), and items() can be used to iterate over data. Write a program to print all keys and values separately.

**14. Attempt any one.**

- Demonstrate the file handling procedure in detail. Write a python code to create a file with 'P.txt' name and write your name and father's name in this file and then read this file to print it.
- Discuss File I/O in python. How to perform open, read, write, and close into a file? Write a Python program to read a file line-by-line store it into a variable.

**15. Attempt any one.**

- Explain how file pointer works in Python. Write a program using seek() and tell() to show how the file pointer moves while reading a file.
- Write a Python program that reads a large file in chunks (using read(size)), counts how many times a particular word appears, and displays the total count.

**16. Attempt any one.**

- Analyze how missing data is handled in Pandas. Write a program that uses fillna() and dropna().
- Create a bar chart using Matplotlib to represent student marks in five subjects.

Subject	Marks
Math	80
Science	70
English	65
History	60
Computer	90

**17. Attempt any one.**

- Explain how NumPy handles multidimensional arrays. Write code to access the diagonal elements of a 2D array.
- Analyze how event-driven programming works in Tkinter. Write a sample event handler.

Faculty Sign

HoD Sign