

**AJAY KUMAR GARG ENGINEERING COLLEGE, GHAZIABAD**  
**Department of Information Technology**

Pre-University Test

**Course:** B. Tech.

**Semester:** 3<sup>rd</sup>

**Session:** 2025-26

**Section:** ECE/IT/CSIT/CE/EN/ME

**Subject:** Python Programming

**Sub. Code:** BCC-302

**Max Marks:** 70

**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	L4	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.

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

```
count = 0
while count < 3:
    print("Hi", count)
    count += 1
```

5. Distinguish between 'append' and 'extend' in Python?
6. State the purpose of with statement in file handling.
7. Describe about different functions of matplotlib.

**Section-B**

**(3X 7=21)**

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

8. Interpret the concept of data types in Python by presenting small coding examples for each.
9. 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:

```
*
```

```
**
```

```
***
```

```
****
```

```
*****
```

10. Explain how arithmetic and assignment operators can be used together in a single program.
11. 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.**

- a) 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.
- b) 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.**

- a) 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.
- b) 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.**

- a) 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.
- b) 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.**

- a) Analyze how missing data is handled in Pandas. Write a program that usesfillna() and dropna().
- b) 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.**

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

Faculty Sign


  
HOD Sign