**1. What does the len() function do in Python? Write a code example using len() to find the length of a list.**

The len() function in Python is used to return the number of items in an object, such as a list, string, tuple, etc.

Output; The length of the list is: 5

2. Write a Python function greet(name) that takes a person's name as input and prints "Hello, [name]!".

Output: Hello, John!

3. Write a Python function find\_maximum(numbers) that takes a list of integers and returns the maximum value without using the built-in max() function. Use a loop to iterate through the list and compare values.

Output: The maximum number is: 67

**4. Explain the difference between local and global variables in a Python function. Write a program where a global variable and a local variable have the same name and show how Python differentiates between them.**

* **Global variable**: A variable that is declared outside of any function and can be accessed by all functions in the script.
* **Local variable**: A variable that is declared inside a function and can only be used within that function.

Output; Inside the function, name is: Local Name

Outside the function, name is: Global Name

(Python differentiates between the local and global variables by their scope. The local variable inside the function takes precedence within the function, while the global variable is used outside the function.)

5. Create a function calculate\_area(length, width=5) that calculates the area of a rectangle. If only the length is provided, the function should assume the width is 5. Show how the function behaves when called with and without the width argument.

Output: The area with width 6 is: 60

The area with default width 5 is: 50

**Explanations:**

* **Function calculate\_area** takes two arguments: length and width. The width argument has a default value of 5, so if the caller doesn't specify it, 5 is used as the width.
* **When called with two arguments**, the function uses the provided width value.
* **When called with one argument**, the default width value (5) is used.