

## Functions Assignment

### 1. What is the difference between a function and a method in Python?

A function is a block of code called independently. A method is a function bound to an object or class.

### 2. Explain the concept of function arguments and parameters in Python.

Parameters are defined in functions; arguments are the values passed to those parameters.

### 3. What are the different ways to define and call a function in Python?

Define with `def` or `lambda`; call with `function()` or `object.method()`.

### 4. What is the purpose of the `return` statement in a Python function?

It sends a value back to the caller and ends the function.

### 5. What are iterators in Python and how do they differ from iterables?

Iterables can be looped over; iterators use `next()` to get items one by one.

### 6. Explain the concept of generators in Python and how they are defined.

A generator yields values one at a time using `yield`, saving memory.

### 7. What are the advantages of using generators over regular functions.

Less memory use, faster performance, and supports lazy evaluation.

### 8. What is a lambda function in Python and when is it typically used?

An anonymous one-line function, e.g., `lambda x: x*2`.

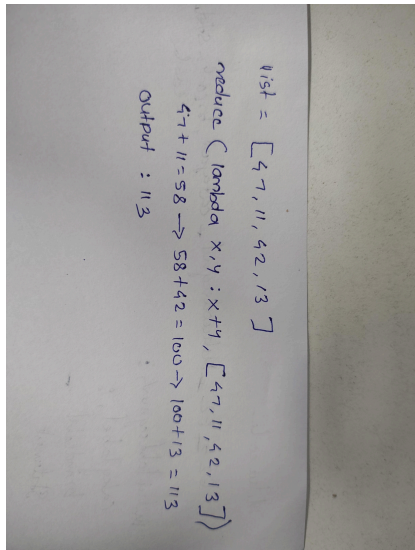
### 9. Explain the purpose and usage of the `map()` function in Python.

Applies a function to all items in an iterable.

### 10. What is the difference between `map()`, `reduce()`, and `filter()` functions in Python?

`map()` transforms, `filter()` selects, `reduce()` combines to a single value.

11. Using pen & Paper write the internal mechanism for sum operation using reduce function on this given list: [47, 11, 42, 13]



list = [47, 11, 42, 13]  
reduce (lambda x, y : x + y, [47, 11, 42, 13])  
47 + 11 = 58 → 58 + 42 = 100 → 100 + 13 = 113  
Output : 113