**Que 1: Defining and calling functions in Python.**

**What is a Function?**

A **function** is a block of code that you give a name to. You can **call** (use) it whenever you want, instead of writing the same code again and again.

Code:

def say\_hello():

print(“Hello!")

def ➝ means you are defining a function.

say\_hello ➝ the name of the function.

() ➝ empty brackets (means no input).

: ➝ start of the function body.

print("Hello!") ➝ what the function does.

**How to Call a Function:**

Just write the function name with brackets:

say\_hello()

**Que 2: Function arguments (positional, keyword, default).**

**What are Function Arguments?**

When you call a function, you can **pass values** inside the brackets () — these are called **arguments**.

There are 3 main types:

1. **Positional arguments**
2. **Keyword arguments**
3. **Default arguments**

**Positional Arguments**

You pass values **in order**, and Python matches them by **position**.

**Keyword Arguments**

You give values using **name = value** format, so order doesn’t matter.

**Default Arguments**

You set a **default value** in the function definition. If the caller doesn't give a value, the default is used.

Que 3 : Scope of variables in Python.

**What is Scope?**

**Scope** means **where a variable can be used** or **seen** in your code.

There are 2 main types of scope:

1. **Local Scope** (inside a function)
2. **Global Scope** (outside any function)

**Local Variable (Local Scope)**

A variable declared **inside a function** — you can use it **only inside that function**.

**Global Variable (Global Scope)**

A variable declared **outside all functions** — you can use it **anywhere**.

**Que 4 : Built-in methods for strings, lists, etc.**

String:

|  |  |  |
| --- | --- | --- |
| **Method** | **Description** | **Example** |
| .lower() | Makes all letters lowercase | "HELLO".lower() → 'hello' |
| .upper() | Makes all letters uppercase | "hello".upper() → 'HELLO' |
| .strip() | Removes spaces | " hi ".strip() → 'hi' |
| .replace(a,b) | Replace text | "cat".replace("c","b") → 'bat' |
| .split() | Splits into list | "a,b,c".split(",") → ['a','b','c'] |
| .find() | Finds index of substring | "apple".find("p") → 1 |
| .startswith() | Checks start | "hello".startswith("he") → True |
| .isdigit() | Checks if all are digits | "123".isdigit() → True |

List:

|  |  |  |
| --- | --- | --- |
| **Method** | **Description** | **Example** |
| .append(x) | Adds item at the end | lst.append(5) |
| .insert(i, x) | Inserts at position | lst.insert(1, "hi") |
| .remove(x) | Removes first match | lst.remove(3) |
| .pop(i) | Removes & returns item at index | lst.pop(2) |
| .sort() | Sorts the list | lst.sort() |
| .reverse() | Reverses the list | lst.reverse() |
| .index(x) | Finds index of item | lst.index("a") |
| .count(x) | Counts item occurrences | lst.count(2) |

Other Useful Built-in Functions (Not methods)

|  |  |  |
| --- | --- | --- |
| **Function** | **Use** | **Example** |
| len() | Length of string/list | len("hello") → 5 |
| type() | Shows type of value | type(5) → <class 'int'> |
| max() | Largest item | max([1, 3, 2]) → 3 |
| min() | Smallest item | min([1, 3, 2]) → 1 |
| sum() | Adds numbers | sum([1, 2, 3]) → 6 |
| sorted() | Returns a sorted list | sorted([3,1,2]) → [1,2,3] |