**1.What are the types of applications ?**

Python is heavily used for data analysis, data visualization, and statistical modeling. Common libraries include:

• Pandas – For data manipulation and analysis.

• NumPy – For numerical computing and array manipulation.

• Matplotlib, Seaborn – For data visualization.

• SciPy – For scientific and technical computing.

• Jupyter Notebooks – For interactive computing and data analysis.

**2. What is programming?**

Programming, also called coding or software development, is the process of creating software ware applications by wring instructors in a programming language. These instructors allow a computer or other devices to perform speciﬁc tasks or function.

Programming involves:

1.Writing code

2.Debugging

3.Testing

4.Maintaing

**3. What is PYTHON?**

Python is a high-level, easy-to-read, and versatile programming language used for web development, data science, automation, AI, and more. It is known for its simplicity and large community support.

Key features of Python:

Readable syntax

Versale

Interpreted

Extensive Libraries

**7. How memory is managed in Python?**

Memory management in Python is handled automatically using the following mechanisms:

1. Reference Counting – Every object has a reference count, and when it reaches zero, the object is deleted.

2. Garbage Collection (GC) – Python has an automatic garbage collector that removes unused objects to free memory.

3. Dynamic Memory Allocation – Python’s memory manager allocates and manages memory dynamically.

4. Memory Pools (PyMalloc) – Python uses private heaps and memory pools to optimize memory allocation.

**8. What is the purpose continuing statement in python ?**

Purpose of continue

1. Skipping certain values in a loop

2. Avoiding unnecessary computations

3. Improving readability and efficiency

**17. What are negative indexes and why are they used ?**

In Python, negative indexes are a convenient way to access elements from the end of a list, tuple, string, or other sequence types without needing to know the exact length of the sequence.

It is used for following reason:

1. Access elements from the end without needing the length

2. Simplifies code for reverse traversal

3. Useful for slicing lists or strings from the end

**25) What is a List? How will you reverse a List?**

In Python, a list is a mutable ordered collection of elements, which can contain items of diﬀerent data types. Lists are one of the most versatile data structures in Python.

There are several ways to reverse a list in Python:

1. Using the reverse () method
2. Using slicing
3. Using the reversed () function

**26) How Will You Remove the Last Object from a List?**

To remove the last object from a list, you can use the pop() method. This method removes and returns the last element of the list.

 The pop() method modiﬁes the original list and returns the removed element.

 If you want to just remove the last item without using the returned value, you can call pop() without assigning it to a variable.

**28) Diﬀerentiate Between append() and extend() Methods.**

Both append() and extend() are methods used to add elements to a list, but they function diﬀerently:-

append():

 The append() method adds a single element to the end of the list. The element could be an individual value or another object (e.g., another list).

 If you append another list, it will be added as a single element (a nested list).

extend():

 The extend() method adds each element of an iterable (like a list, tuple, or string) to the end of the list. It "unpacks" the iterable and appends its elements individually to the original list.

**30) How Will You Compare Two Lists in Python?**

In Python, you can compare two lists in several ways depending on what kind of comparison you want to perform (e.g., checking if they are equal, checking if one list is a subset of another, etc.).

1. Checking if Two Lists Are Equal
2. Checking if Two Lists Are Identical (Same Object in Memory)
3. Checking if Lists Have the Same Elements (Ignoring Order)
4. Checking if One List is a Sublist of Another
5. Element-wise Comparison

**43) What is tuple? Diﬀerence between list and tuple.**

A tuple is an immutable (unchangeable) collection of ordered elements in Python. Tuples can store elements of different data types, and they are defined by placing the elements inside parentheses ().

Difference Between List and Tuple:-

A **list** in Python is a mutable collection, meaning its contents can be changed after creation. You can add, remove, or modify elements in a list. This makes lists ideal for situations where the data is expected to change throughout the program. Lists are defined using square brackets, like [1, 2, 3], and they can contain elements of different data types. Because they are flexible and dynamic, lists are commonly used in Python for managing and organizing data.

A **tuple**, on the other hand, is an immutable collection, meaning once it is created, its elements cannot be changed, added, or removed. Tuples are defined using parentheses, such as (1, 2, 3). This immutability makes tuples faster and more memory-efficient than lists. Tuples are often used when data should remain constant throughout the program or when the data structure is used as a key in a dictionary. Since tuples cannot be changed, they are considered more secure for storing fixed data.

**47) How will you create a dictionary using tuples in python?**

You can create a dictionary using tuples in Python by using tuples as key-value pairs. Each tuple should contain two elements: the ﬁrst element being the key and the second element being the value.

Example :

1.Using a List of Tuples to Create a Dictionary

2.Using Tuple of Tuples to Create a Dictionary

**51) How Do You Traverse Through a Dictionary Object in Python?**

You can traverse through a dictionary in Python using several methods such as:

1. Using a for loop to iterate over keys
2. Using items() method to iterate over key-value pairs
3. Using keys() method to iterate over keys
4. Using values() method to iterate over values

**52) How Do You Check the Presence of a Key in A Dictionary?**

There are a few ways to check if a key exists in a dictionary:

1. Using the in keyword
2. Using the get() method
3. Using keys() method

**65) How Many Basic Types of Functions Are Available in Python?**

In Python, there are two basic types of functions:

1. Built-in functions:- These are functions that are already deﬁned in Python and can be used without needing to be created.
2. User-deﬁned functions: These are functions that are deﬁned by the user to perform speciﬁc tasks. You deﬁne them using the def keyword.

**66) How can you pick a random item from a list or tuple?**

To pick a random item from a list or tuple, you can use the random.choice() function from the random module. python Copy Edit import random

# List or Tuple my\_list = [1, 2, 3, 4, 5] my\_tuple = ('a', 'b', 'c', 'd')

# Picking a random item from a list random\_item\_list = random.choice(my\_list)

# Picking a random item from a tuple random\_item\_tuple = random.choice(my\_tuple)

print(random\_item\_list) print(random\_item\_tuple) Output (Example): python CopyEdit 3 b

**67) How can you pick a random item from a range?**

You can pick a random item from a range using the random.choice() function, but ﬁrst, you need to convert the range to a list (or tuple). Here's an example: python CopyEdit import random

# Picking a random item from a range random\_item = random.choice(range(10)) # Range from 0 to 9

print(random\_item) Output (Example): python CopyEdit 7

**68) How can you get a random number in python ?**

You can generate random numbers in Python using the random module.

1. Random ﬂoat between 0 and 1
2. Random integer in a given range
3. Random ﬂoat within a range

**69) How will you set the starting value in generating random numbers?**

You can set the starting value (or seed) for generating random numbers using the

random.seed() function. This allows you to generate the same sequence of random numbers for reproducibility. python Copy Edit import random

# Set the seed for reproducibility random.seed(42)

# Generate random numbers random\_number1 = random.randint(1, 100) random\_number2 = random.randint(1, 100)

print(random\_number1) print(random\_number2)

**70) How will you randomize the items of a list in place?**

To randomize the items of a list in place (i.e., shuﬄe the list without creating a new one), you can use the random.shuﬄe() function from the random module. Example:

python Copy Edit import random

# Original list my\_list = [1, 2, 3, 4, 5]

# Randomize the list in place random.shuﬄe(my\_list)

print(my\_list) Output (Example): python Copy Edit [3, 1, 5, 2, 4] Explanaon:

 random.shuﬄe(my\_list) modiﬁes the original list by shuﬄing its elements randomly.

 The list is modiﬁed in place, meaning it doesn't return a new list but changes the order of the elements within the existing list.