**1. What is a tuple? Difference between list and tuple.**

A **tuple** is a collection of ordered elements, similar to a list, but it is **immutable**. This means that once a tuple is created, you cannot change its contents (i.e., add, remove, or modify elements). Tuples are defined using parentheses ().

**Difference between List and Tuple:**

* **Mutability**: A list is mutable (its elements can be changed), while a tuple is immutable (its elements cannot be modified after creation).
* **Syntax**: Lists are created with square brackets [], whereas tuples are created with parentheses ().
* **Performance**: Since tuples are immutable, they are faster and use less memory than lists.
* **Methods**: Lists have many built-in methods for modification, such as append(), remove(), etc., while tuples have limited methods because they cannot be altered.

**2. How will you create a dictionary using tuples in Python?**

A dictionary in Python can be created using a list of tuples, where each tuple represents a key-value pair. You can use the dict() function to convert the list of tuples into a dictionary. The first element of each tuple is the key, and the second element is the value. This is useful when you have structured data that fits the key-value pair format.

**3. How Do You Traverse Through A Dictionary Object In Python?**

To traverse a dictionary in Python, you can use a for loop. You can iterate over the keys, values, or both. The .items() method returns both the keys and their associated values, which you can use in the loop. This allows you to access each key-value pair for processing or display.

**4. How Do You Check The Presence Of A Key In A Dictionary?**

To check if a key exists in a dictionary, you can use the in keyword. This checks whether the specified key is present in the dictionary and returns True if it is, or False if it isn't. This method is efficient and works with dictionaries of any size.

**5. How do you perform pattern matching in Python? Explain.**

Pattern matching in Python can be done using regular expressions (regex) or, from Python 3.10 onwards, using the match statement. Regular expressions allow you to search for specific patterns in strings, such as words, numbers, or more complex structures. Python's re module provides functions like search(), match(), and findall() for pattern matching. The match statement in Python 3.10+ is a more structured way to perform conditional pattern matching, similar to a switch statement in other languages, allowing you to match patterns directly in code blocks.

**6. What is a lambda function in Python? What do we call a function which is an incomplete version of a function?**

A **lambda function** in Python is a small, anonymous function that is defined using the lambda keyword. Lambda functions are typically used for short-term tasks where defining a full function might be unnecessary. They can have multiple parameters but only one expression.

A function that is an incomplete version of a function is often called a **partial function**. It refers to a function that is not fully defined yet, typically created using functools.partial(), which pre-defines some arguments and leaves others to be supplied later.

**7. How Many Basic Types Of Functions Are Available In Python?**

In Python, there are three basic types of functions:

1. **Built-in functions**: These are functions that come pre-defined with Python, such as print(), len(), etc.
2. **User-defined functions**: Functions that are created by the user using the def keyword to perform specific tasks.
3. **Lambda functions**: Anonymous functions created using the lambda keyword, typically used for short, simple tasks.

**8. How can you pick a random item from a list or tuple?**

To pick a random item from a list or tuple in Python, you can use the random.choice() function from the random module. This function selects and returns a random element from the given list or tuple. It is commonly used when you want to randomly select an element from a collection.

**9. How can you pick a random item from a range?**

To pick a random item from a range in Python, you can use the random.choice() function combined with a range() object. The range() function generates a sequence of numbers, and random.choice() can select a random value from this sequence. This allows you to randomly choose a number from a specified range.

**10. How can you get a random number in Python?**

In Python, a random number can be generated using the random.randint() function from the random module. This function generates a random integer between two specified values, inclusive of both endpoints. It is commonly used for simulations, games, or any situation requiring random numbers.

**11. How will you set the starting value in generating random numbers?**

You can set the starting value, or **seed**, for the random number generator in Python using the random.seed() function. The seed ensures that the sequence of random numbers generated is reproducible. By providing the same seed value, you will get the same sequence of random numbers every time the program runs.

**12. How will you randomize the items of a list in place?**

To randomize the items of a list in Python, you can use the random.shuffle() function. This function randomly reorders the elements of the list in place, meaning that the original list is changed directly without creating a new list. This is useful when you need to shuffle the elements of a list for tasks like card games or random sampling.