### *Q1: What is the difference between tuples and lists in Python?*

Answer: Tuples are immutable, meaning their elements cannot be changed after creation, while lists are mutable and allow modification. Tuples are defined using parentheses () and lists using square brackets []. Tuples are generally faster and used for fixed data, while lists are best for dynamic data.

### *Q2: What do you understand by lambda function? Create a lambda function which will print the sum of all the elements in this list [5, 8, 10, 20, 50, 100].*

Answer: A lambda function is an anonymous, small inline function defined using the lambda keyword without a name. It can take any number of arguments but has only one expression. Example: nums = [5,8,10,20,50,100]; result = (lambda x: sum(x))(nums) which gives 193.

### *Q3: What is a string and explain slicing of string?*

Answer: A string is a sequence of characters enclosed in single, double, or triple quotes. Slicing means accessing a substring using index ranges. Syntax: string[start:end:step]. Example: 'Python'[1:4] results in 'yth'.

### *Q4: What are *args and **kwargs in Python functions?*

Answer: *args allows a function to accept variable number of non-keyword arguments as a tuple, while **kwargs allows variable number of keyword arguments as a dictionary.

### *Q5: Explain the difference between pivot table and cross table.*

Answer: A pivot table summarizes data with aggregation such as sum, mean, or count, while a cross table (crosstab) displays frequency distribution between two categorical variables, mainly showing counts.

### *Q6: How can you get a random number in Python?*

Answer: You can use the random module. Example: import random; random.randint(1,10) generates a random integer between 1 and 10.

### *Q7: What are map and reduce functions in Python?*

Answer: map() applies a given function to all items in an iterable and returns a map object. reduce() from functools applies a function cumulatively to elements to reduce them to a single value.

### *Q8: How is vstack() different from hstack() in NumPy?*

Answer: vstack() stacks arrays vertically (row-wise), while hstack() stacks arrays horizontally (column-wise).

### *Q9: How sorted() and sort() can be used with list in Python? Give an example.*

Answer: sorted() returns a new sorted list without changing the original list, while sort() sorts the list in-place. Example: a=[3,1,2]; sorted(a) returns [1,2,3]; a.sort() changes a to [1,2,3].