1)What are the types of Applications?

Applications are mainly of three types: - Desktop Applications – Installed and run on personal computers (e.g., MS Word). - Web Applications – Accessed via browsers (e.g., Gmail, Amazon). - Mobile Applications – Run on mobile devices (e.g., WhatsApp, Instagram).

2)What is Programming?

Programming is the process of writing instructions (code) that a computer can execute to perform specific tasks or solve problems.

3)What is Python?

Python is a high-level, interpreted programming language known for its simplicity, readability, and broad support for libraries in AI, data analysis, and web development.

7)How memory is managed in Python?

Python uses: - Automatic garbage collection to clean unused memory. - Private heap space where all Python objects and data structures are stored. - Reference counting and cyclic garbage collector to manage object lifecycle.

8)What is the purpose of the `continue` statement in Python?

The `continue` statement skips the current iteration in a loop and jumps to the next one, without executing the remaining code of the current loop body.

17)What are negative indexes and why are they used?

Negative indexes allow access to elements from the end of a list or string. - `-1` refers to the last element, `-2` to second last, etc. Why? To easily access elements from the end without knowing the exact length.

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

A list in Python is an ordered, mutable (changeable) collection of items. To reverse: use list.reverse() or list[::-1].

26)How will you remove last object from a list?

Use list.pop() which removes and returns the last item from the list.

27)Suppose list1 is [2, 33, 222, 14, 25], what is list1[-1]?

list1[-1] will return 25, the last element of the list (negative index).

28)Differentiate between append() and extend() methods?

- append() adds one item to the list. - extend() adds elements from another iterable to the list.

30)How will you compare two lists?

Use the == operator to check if both lists have the same elements in the same order.

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

A tuple is an ordered, immutable (unchangeable) collection of items.

List vs Tuple: | Feature | List | Tuple | |----------|----------|----------| | Mutability | Mutable | Immutable | | Syntax | [ ] | ()|

| Performance | Slower | Faster | | Use Case | Dynamic data | Fixed data |

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

Use a for loop with .items() method: for key, value in dict.items():

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

Use the in keyword: if key in dictionary:

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

There are two basic types: 1. Built-in functions (e.g., len(), type(), print()) 2. User-defined functions (created using def keyword)

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

Use random.choice(list_or_tuple) from the random module.

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

Use random.randrange(start, stop) — picks a random number from the range.

68)How can you get a random number in Python?

Use random.randint(a, b) to get a random integer between a and b.

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

Use random.seed(value) — it initializes the random number generator for reproducible results.

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

Use random.shuffle(list) from the random module — it shuffles the list in place.

71)What is File function in Python? What are keywords to create and write file?

Python uses the open() function for file operations. To create/write a file: use mode 'w' or 'a'. Example: open("file.txt", "w")

83)Explain Exception handling? What is an Error in Python?

- Exception Handling lets you manage errors using try-except blocks to avoid crashes. - Error: An issue in code that causes it to fail. Examples include SyntaxError, ValueError, etc.

84)How many except statements can a try-except block have? Name Some built-in exception classes.

- A try block can have multiple except clauses for different error types. - Built-in Exceptions: ZeroDivisionError, TypeError, ValueError, KeyError, FileNotFoundError.

85)When will the else part of try-except-else be executed?

The else block runs only if no exception occurs in the try block.

86)Can one block of except statements handle multiple exceptions?

Yes. Use a tuple of exceptions: except (TypeError, ValueError):

87)When is the finally block executed?

The finally block always executes, whether an exception occurs or not.

88)What happens when '1' == 1 is executed?

It returns False. Python is strongly typed, so a string '1' is not equal to the integer 1.