Python Interview Quiz (Easy, Medium, Hard)

Topic: Introduction to Python

Easy Level Questions:

1. What is Python and who developed it?

2. List any three features of Python.

3. What is the latest stable version of Python you have used?

4. Is Python compiled or interpreted?

Medium Level Questions:

1. How is Python different from other programming languages like Java or C++?

2. Explain the significance of indentation in Python.

3. What are Python's dynamic typing and memory management features?

Hard Level Questions:

1. What are Python's limitations?

2. How does Python handle memory allocation internally?

3. Can you explain how Python's garbage collector works?

Topic: Variables and Data Types

Easy Level Questions:

1. What is a variable in Python?

2. List basic data types in Python.

3. How do you assign values to variables?

Medium Level Questions:

1. What is the difference between mutable and immutable data types in Python?

2. Explain the use of type() and id() functions.

3. How does Python manage type conversion (implicit vs explicit)?

Hard Level Questions:

1. How do variable scopes (local, global, nonlocal) work in Python?

2. What is the difference between 'is' and '=='?

3. How do Python's dynamic typing and late binding affect variable behavior?

Topic: Operators

Easy Level Questions:

1. What are operators in Python? Give examples.

2. What is the difference between '=' and '=='?
3. List different types of operators in Python.

Medium Level Questions:

1. How does operator precedence work in Python?
2. What is the difference between 'and', 'or', and 'not'?
3. Explain the use of bitwise operators with examples.

Hard Level Questions:

1. Explain how short-circuiting works with logical operators.
2. What are identity and membership operators? How are they internally implemented?
3. Can you override Python operators? If yes, how?

Topic: Control Statements

Easy Level Questions:

1. What are control flow statements in Python?
2. Explain the use of if, elif, and else.
3. What is the difference between while and for loops?

Medium Level Questions:

1. What is the purpose of break and continue statements?
2. How does the pass statement work in Python?
3. Explain the use of else with loops.

Hard Level Questions:

1. How does loop control flow differ between Python and other languages?
2. Can you create custom loop control mechanisms?
3. What are generator-based loops and how do they differ from traditional loops?

Topic: Strings

Easy Level Questions:

1. What is a string in Python?
2. How do you declare and print a string?
3. What is string concatenation?

Medium Level Questions:

1. Explain string slicing with examples.
2. What are common string methods like lower(), split(), find(), and replace()?

3. How are strings immutable in Python?

Hard Level Questions:

1. How does Python store and manage Unicode strings?
2. Explain string interning in Python.
3. How would you reverse a string without using built-in methods?

Topic: List

Easy Level Questions:

1. What is a list in Python?
2. How do you create and access list elements?
3. Can lists contain different data types?

Medium Level Questions:

1. What are list methods like append(), insert(), remove(), and pop()?
2. What is list slicing and how does it work?
3. How does list comprehension work?

Hard Level Questions:

1. How are lists implemented internally in Python?
2. What are shallow vs deep copies in context of lists?
3. How would you remove duplicates from a list without using sets?

Topic: Tuples

Easy Level Questions:

1. What is a tuple in Python?
2. How do you create a tuple?
3. What is the difference between a list and a tuple?

Medium Level Questions:

1. Why are tuples immutable and how is this beneficial?
2. How do you convert a list into a tuple and vice versa?
3. Can a tuple contain mutable objects?

Hard Level Questions:

1. How does tuple packing and unpacking work in Python?
2. Can tuples be used as dictionary keys? Why?
3. Explain how tuples support data integrity in multi-threaded programs.