

TK-Tips: Python Interview Questions – Part 1 (25 Q&A;)



SECTION 1 — PYTHON BASICS

Q1. What is Python?

Python is a high-level, interpreted, dynamically typed programming language known for readability.

Q2. Why is Python easy to learn?

Because of simple syntax, indentation structure, and large ecosystem.

Q3. What is PEP 8?

The official style guide for writing clean and readable Python code.

Q4. What are Python's built-in data types?

int, float, str, list, tuple, set, dict, bool, bytes.

Q5. What is the difference between list and tuple?

List is mutable; Tuple is immutable.

SECTION 2 — FUNCTIONS & OOP

Q6. What are *args and **kwargs?

*args = variable positional args; **kwargs = variable keyword args.

Q7. What is lambda function?

A small anonymous function using syntax: lambda x: x+1.

Q8. What is inheritance in Python?

One class can inherit attributes and methods of another.

Q9. What is polymorphism?

Same method behaving differently based on object.

Q10. What is `__init__` method?

Constructor method called when object is created.

SECTION 3 — PYTHON MEMORY & MANAGEMENT

Q11. What is GIL?

Global Interpreter Lock that allows only one thread to execute Python bytecode at once.

Q12. What is garbage collection in Python?

Automatic memory cleanup using reference counting + cyclic GC.

Q13. What is shallow copy vs deep copy?

Shallow: references copied; Deep: entire object copied.

Q14. What is Python's memory model?

Uses private heap managed by Python interpreter.

Q15. What are decorators?

Functions that modify behavior of other functions using @ syntax.

SECTION 4 — ADVANCED PYTHON

Q16. What is list comprehension?

A compact way to create lists: `[x*x for x in range(5)]`.

Q17. What is a generator?

Function using yield that returns values lazily.

Q18. What is the difference between iterator and iterable?

Iterable returns iterator; iterator implements `__next__`.

Q19. What is virtual environment?

Isolated Python environment using venv.

Q20. What is pip?

Python package manager.

SECTION 5 — PYTHON FOR INTERVIEWS

Q21. What is the difference between `==` and `'is'`?

`==` compares values; `'is'` compares memory address.

Q22. What is monkey patching?

Modifying code behavior at runtime.

Q23. What is multithreading in Python?

Due to GIL, used mainly for I/O tasks, not CPU tasks.

Q24. What is multiprocessing?

Uses multiple processes to achieve true parallelism.

Q25. What is exception handling syntax?

try-except-else-finally blocks.