Ղ Python Interview Questions and Answers Top (1–50)

1. What is Python?

Answer: Python is an interpreted, high-level, dynamically typed programming language known for its readability.

2. What are the key features of Python?

Answer:

- Easy syntax
- Interpreted
- Dynamically typed
- Extensive libraries
- Cross-platform

3. What are Python's data types?

Answer: int, float, str, bool, list, tuple, dict, set, NoneType.

4. What is the difference between list and tuple?

Answer: Lists are mutable; tuples are immutable.

5. What is a dictionary in Python?

Answer: An unordered collection of key-value pairs.

6. What are sets in Python?

Answer: Unordered collections of unique items.

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

Answer: `is` checks identity; `==` checks equality.

8. What is a function in Python?

Answer: A reusable block of code defined using `def`.

9. **What is *args and kwargs?

Answer: `*args` handles variable positional arguments, `**kwargs` handles variable keyword arguments.

10. What is a lambda function?

Answer: An anonymous one-line function defined using `lambda`.

11. What is list comprehension?

Answer: A concise way to create lists:
```
[x for x in range(5)]
```

12. How is memory managed in Python?

Answer: Automatic garbage collection and reference counting.

13. What is the difference between `deepcopy` and `copy`?

Answer: `copy()` copies object references; `deepcopy()` copies full nested objects.

14. What is the difference between `append()` and `extend()`?

Answer: `append()` adds an element; `extend()` adds elements from another list.

15. What is a module in Python?

Answer: A file containing Python definitions and statements.

16. What is a package?

Answer: A collection of modules organized in directories.

17. What is PEP 8?

Answer: Python Enhancement Proposal 8, which provides style guidelines.

18. What is indentation in Python?

Answer: Python uses indentation (usually 4 spaces) to define code blocks.

19. What are Python keywords?

Answer: Reserved words with special meaning, e.g., `if`, `else`, `return`, `while`.

20. What is the use of `pass`?

Answer: A placeholder that does nothing.

21. What is the `range()` function?

Answer: Generates a sequence of numbers.

22. What is slicing in Python?

Answer: Extracting parts of sequences using `[start:end:step]`.

23. What are iterators in Python?

Answer: Objects with a `__next__()` method that returns successive items.

24. What are generators?

Answer: Functions that yield items one by one using `yield`.

25. What is a class?

Answer: A blueprint for creating objects in object-oriented programming.

26. What is an object in Python?

Answer: An instance of a class containing attributes and methods.

27. What is inheritance?

Answer: A class can inherit attributes/methods from another class.

28. What is encapsulation?

Answer: Bundling data and methods into a single unit (class).

29. What is polymorphism?

Answer: Same method name behaving differently depending on context.

30. What is method overloading in Python?

Answer: Python doesn't support true method overloading; can use default args instead.

31. What is method overriding?

Answer: Redefining a method in a subclass.

32. What is a constructor in Python?

Answer: `__init__()` method is called when an object is created.

33. What is `self` in Python?

Answer: Refers to the current instance of the class.

34. What is a decorator?

Answer: A function that modifies another function's behavior.

35. What is recursion?

Answer: A function calling itself to solve a problem.

36. What are exceptions in Python?

Answer: Errors that occur during execution; handled using try-except blocks.

37. What are built-in exceptions?

Answer: Examples: `ZeroDivisionError`, `TypeError`, `ValueError`.

38. How to raise an exception?

Answer: Use the `raise` keyword.

39. How to handle exceptions?

Answer: Using try-except-finally blocks.

40. What is `with` statement?

Answer: Used for resource management (e.g., file handling).

41. How to open a file in Python?

Answer: `open('file.txt', 'r')`

42. What are file modes in Python?

Answer: `'r', 'w', 'a', 'b', 'x'`

43. How to read a file line by line?

Answer: Use `readline()` or a loop over the file object.

44. What is the purpose of `dir()` function?

Answer: Lists all attributes and methods of an object.

45. What is the difference between `del` and `remove()`?

Answer: `del` deletes by index or variable; `remove()` deletes by value.

46. What is the difference between `==` and `is` for None?

Answer: Prefer `is None` for identity comparison with None.

47. What is `map()` function?

Answer: Applies a function to all items in an iterable.

48. What is `filter()` function?

Answer: Filters items in an iterable based on a function.

49. What is `zip()` function?

Answer: Combines multiple iterables into tuples.

50. What is the difference between Python 2 and Python 3?

Answer: Python 3 has improved syntax, unicode support, and print function.