Ques 1 . What is Python, and why is it popular?

Python is a programming language that's easy to read and write. It looks almost like plain English, so beginners love it. Professionals love it too because it can be used everywhere—like building websites, analyzing data, training AI models, or automating boring tasks.

Ques 2 What is an interpreter in Python?

Think of the interpreter as a translator. You write Python code, and the interpreter translates it into actions your computer understands—line by line. That's why you can run Python code right away without compiling it first.

Ques 3 What are pre-defined keywords in Python?

Keywords are like special reserved words in Python that already have a meaning. For example: `if`, `for`, `while`, `True`, `False`, `class`, `return`. You can't use them for your own variable names, because Python already uses them.

Ques 4 Can keywords be used as variable names?

Nope 🚫. If you try something like:

```
if = 10
```

Python will get confused, because `if` is already used for conditions.

Ques 5 What is mutability in Python?

Mutability is about whether something can change after you create it.

- Mutable things (like lists) can be updated, items added, or removed.
- Immutable things (like strings or tuples) can't be changed once made.

Ques 6 Why are lists mutable, but tuples are immutable?

Lists are meant for situations where you'll be changing stuff often (like a shopping cart). Tuples are made for when you want a fixed collection that shouldn't be touched (like coordinates of a point).

Ques 7 What is the difference between `==` and `is` operators in Python?

- `==` → checks if two things look the same (same value).

- `is` → checks if they are actually the exact same thing in memory.

Example: Two different notebooks may have the same notes (`==`), but they are still two separate notebooks (`is`).

Ques 8 What are logical operators in Python?

They're used to combine conditions:

- `and` → both must be true
- `or` → at least one must be true
- `not` → flips true to false, and false to true

Ques 9 What is type casting in Python?

It's just changing the type of data. Example: turning `"10"` (a string) into `10` (an integer) so you can do math with it.

Ques 10 What is the difference between implicit and explicit type casting?

- Implicit → Python does it for you automatically.
  Example: `5 + 2.5` → Python turns `5` into `5.0` so the math works.
- Explicit → You do it yourself.
  Example: `int("10")` turns `"10"` into `10`.

Ques 11 What is the purpose of conditional statements in Python?

They help your program make decisions.
Like: "If it's raining, take an umbrella. Otherwise, don't."

Ques 12 How does the `elif` statement work?

It's just a way to check more than one condition in order.
Example:

- If marks ≥ 90 → grade A
- Else if marks ≥ 75 → grade B
- Else → grade C

Ques 13 What is the difference between for and while loops?

- for loop → when you know how many times you want to repeat (like going through each item in a shopping list).

- while loop → when you don't know the number of times, but you want to keep looping until a condition changes (like "keep asking for the password until it's correct").

Ques 14 Describe a scenario where a while loop is more suitable than a for loop.

Imagine you're building a login system:

- You don't know how many times the user will enter the wrong password.

- So you use a while loop → "keep asking until they enter the correct one."