Python

1. What is file handling in Python? Name different file modes.

File handling in Python refers to the process of storing data permanently in files and accessing or modifying that data when required. Python provides built-in functions to open, read, write, and close files.

File modes:
r – Opens a file for reading
w – Opens a file for writing (overwrites existing data)
a – Opens a file for appending data
x – Creates a new file
rb – Reads file in binary mode
wb – Writes file in binary mode

2. What is the difference between read(), readline(), and readlines()?

read() reads the entire content of the file at once
readline() reads one line at a time from the file
readlines() reads all lines and stores them as a list

3. What is exception hierarchy in Python?
Exception hierarchy is the parent-child structure of exceptions in Python. All exceptions are derived from the base class BaseException, which helps programmers catch specific or general errors efficiently.

4. Difference between try-except and try-except-finally.

try-except is used to catch and handle runtime errors
try-except-finally ensures that the finally block is always executed, whether an exception occurs or not

5. What is the purpose of the with statement?

The with statement is used to simplify exception handling and resource management. It automatically closes files or releases resources after use, even if an error occurs.

6. What are iterators in Python?

Iterators are objects that allow sequential access to elements of a collection. They use the methods __iter__() and __next__() to fetch elements one by one.

7. What are generators and how are they different from functions?

Generators are special functions that generate values one at a time using the yield keyword.
Difference:
Normal functions return a value and terminate
Generators yield values and resume execution from where they stopped

8. What is *args and **kwargs?
*args allows a function to accept any number of positional arguments
**kwargs allows a function to accept any number of keyword arguments

9. What is type casting? Give examples.
Type casting is the process of converting one data type into another to perform operations correctly.

Examples:
int("25") converts string to integer
float(10) converts integer to float

10. What are built-in functions in Python? Name any five.

Built-in functions are predefined functions provided by Python that can be used directly without importing any module. They help perform common operations easily.
Examples with functions:

print() – Displays output on the screen.
len() – Returns the number of elements in a string, list, or tuple.
type() – Returns the data type of a variable or value.
input() – Takes input from the user.
range() – Generates a sequence of numbers.