1. What is file? Explain the need of file in Python.

A. A **file** in Python is a collection of data stored on a computer's storage device. Files allow programs to store information permanently, even after the program ends. Python provides built-in functions to create, read, write, and modify files.
The **need for files** arises because variables store data only temporarily in memory (RAM). Once the program stops, the data is lost. Files help store data **permanently**, making it available for future use. They are used for tasks such as storing user details, saving logs, reading configuration settings, or processing large datasets. Python supports different file types like text files (`.txt`), CSV files, binary files, and more.

2. State and Explain the different modes of opening a file in Python.

A. Python uses the `open()` function to open a file in various modes:

- **"r" (read mode):** Opens file for reading only. File must exist.
- **"w" (write mode):** Creates a new file or overwrites an existing one.
- **"a" (append mode):** Opens file for writing but adds content at the end without deleting existing data.
- **"r+" (read & write):** Allows both reading and writing.
- **"w+" (write & read):** Writes first (overwrites file), then allows reading.
- **"a+" (append & read):** Appends to the file while still allowing reading.

3. State the difference between Write and Append mode in opening a file in Python.

A. Write mode ("w") deletes the existing contents of the file before writing new data.

- **Append mode ("a")** keeps the existing data and adds new content at the end of the file.

Thus, **"w" overwrites**, while **"a" preserves and appends**.