**MODULE 3 – FUNDAMENTALS OF IT**

**Q-1: Explain in your own words what a program is and how it functions.**

**Ans:-** A program is a set of instructions written in a programming language that tells a computer what to do. It works by being either compiled or interpreted into machine code, which the computer's processor executes step by step. Programs help automate tasks like calculations, displaying messages, or interacting with users.

**Q-2: What are the key steps involved in the programming process?**

**Ans:-**

1. **Problem Analysis –** Understand what needs to be done.
2. **Planning –** Decide how to solve the problem (using logic or algorithms).
3. **Coding –** Write the actual program using a programming language.
4. **Compilation/Interpretation –** Convert code into machine-readable form.
5. **Testing –** Run the program and fix any errors (bugs).
6. **Debugging –** Identify and correct mistakes in the code.
7. **Documentation –** Add comments and explanations for future reference.
8. **Maintenance –** Update and improve the program as needed.

**Q-3: What are the main differences between high-level and low-level programming languages?**

**Ans**:-

| **Feature** | **High-Level Language** | **Low-Level Language** |
| --- | --- | --- |
| **Ease of Use** | Easy to read, write, and understand. | Hard to read and write. |
| **Syntax** | Similar to human language (e.g., Python, Java). | Closer to machine code (e.g., Assembly). |
| **Portability** | Can run on different machines (platform-independent). | Machine-specific. |
| **Abstraction** | Hides hardware details. | Directly interacts with hardware. |
| **Execution Speed** | Slower (needs compiler/interpreter) | Faster and more efficient |
| **Examples** | C, C++, Python, Java | Assembly language, Machine code |

**Q-4: Describe the roles of the client and server in web communication.**

**Ans:- 1. Client:**

* The client is typically a web browser such as Chrome, Firefox, or Safari.
* It initiates communication by sending a request to the server, asking for web content or services.
* Once the server responds, the client receives the data and displays it to the user.
* The client handles the **user interface** and interactions.

**Example:**

When a user types a website address into the browser and presses Enter, the browser sends a request to the server to load that website.

**2. Server:**

* The server is a powerful computer or system that stores websites, applications, databases, and other services.
* It listens for incoming requests from clients and sends appropriate responses back.
* The server may process data, handle user authentication, or serve files and media.
* It manages back-end operations that the user does not see directly.

**Example:**

When the server receives a login request, it checks the username and password and then responds with access or an error message.

**Q-5: Explain the function of the TCP/IP model and its layers.**

**Ans:-**