**1. Introduction to Web Services**

**1.** **What are Web Services?**

• **Theory**

1. **Definition of web services and their importance in enabling communication between different applications over the internet:-**

**Definition of Web Services**

Web services are standardized methods for **enabling communication** between different applications over the **internet** using **protocols like HTTP, SOAP, and REST**. They allow systems built on different platforms to **interact and share data** seamlessly.

**Importance of Web Services**

1. **Interoperability** – Connects applications across different platforms and languages.
2. **Scalability** – Enables distributed computing and cloud-based services.
3. **Reusability** – Services can be reused in multiple applications.
4. **Platform Independence** – Works across different operating systems and technologies.
5. **Security & Standardization** – Uses protocols like **HTTPS, XML, and JSON** for secure communication.

**Example**: A mobile app fetching weather data from a remote weather API.

1. **Types of Web Services:** ♣ **SOAP (Simple Object Access Protocol)** ♣ **REST (Representational State Transfer):-**

**1.SOAP (Simple Object Access Protocol)**

* Protocol-based web service that uses XML for data exchange.
* Works over HTTP, SMTP, TCP, and more.
* Ensures high security and supports ACID transactions.
* Example: Banking applications where security is crucial.

**2. REST (Representational State Transfer)**

* Lightweight, flexible, and faster web service.
* Uses HTTP methods (GET, POST, PUT, DELETE) and JSON/XML for data exchange.
* Stateless architecture, making it scalable and efficient.
* Example: Social media APIs (Facebook, Twitter, etc.).