Q1. What is IP address? Explain special IP address?

▶ An IP address, or Internet Protocol address, is a numerical label assigned to each device connected to a computer network that uses the Internet Protocol for communication. It serves as a unique identifier for devices, allowing them to send and receive data across the internet.

IP addresses are typically represented as a series of four numbers separated by periods

Special IP addresses are reserved for specific purposes and are not used as regular device identifiers. Here are some examples of special IP addresses:

1. **Private IP addresses**: These are used within private networks and cannot be routed directly on the internet. They are commonly used for home networks, office intranets, or local area networks (LANs)

2. **Loopback address**: The loopback address is used to test network connectivity on a device without sending data over a physical network.

3. **Broadcast address**: The broadcast address is used to send data packets to all devices on a specific network. In IPv4, the broadcast address is the highest address within a network range.

4. **Link-local address**: Link-local addresses are used for communication within a single network segment or link.