Assignment Questions II

Subject :- Computer Network

➜ What is private IP and Public IP ? Explain.

Private IP:

- **Definition**: An IP address used within a private network (e.g., home, office) that is not routable on the public internet.
- **Ranges**:
    - 10.0.0.0 to 10.255.255.255
    - 172.16.0.0 to 172.31.255.255
    - 192.168.0.0 to 192.168.255.255
- **Uses**:
    - Internal communication within a network.
    - Provides security by isolating internal network traffic from the public internet.

Public IP:

- **Definition**: An IP address that is unique across the entire internet, allowing devices to communicate globally.
- **Obtained From**: Internet Service Providers (ISPs).
- **Uses**:
    - Identifying devices on the internet.
    - Facilitating direct communication between devices across different networks.

➔ How do 2 work together to solve the problem of non-enough IP addresser ?

Private and public IP addresses work together using Network Address Translation (NAT) to address the shortage of IP addresses. Here's a brief explanation:

1. **Private IP Addresses**:
   - Used within local networks (e.g., homes, offices).
   - Not routable on the public internet.
   - Examples: 192.168.0.0/16, 10.0.0.0/8.
2. **Public IP Addresses**:
   - Unique across the internet.
   - Assigned by ISPs for global communication.
3. **Network Address Translation (NAT)**:
   - Performed by a router or NAT device.
   - Translates private IP addresses to a public IP address for internet access.
   - Allows multiple devices in a private network to share a single public IP address.
   - Provides additional security by hiding internal IP addresses.

Benefit:

- Conserves public IP addresses by enabling multiple devices to use one public IP for internet communication.