Example Notes 2

- **IP Address:**
  Numeric identifier assigned to each device on a network so it can send and receive data; works like a digital address.

- **MAC Address:**
  Permanent hardware identifier on a network interface card used for communication inside local networks.

- **Subnet:**
  Logical division of a network to control addressing, reduce congestion, and improve traffic organization.

- **Gateway:**
  Device that acts as an exit point from a local network, allowing communication with external networks or the internet.

- **DNS:**
  Service that translates human-readable domain names into IP addresses so browsers know where to connect.

- **DHCP:**
  Automatic system that assigns IP addresses and network settings to devices so users don't configure them manually.

- **Router:**
  Device that directs data between different networks by choosing the best path for packets to travel.

- **Switch:**
  Network device that connects multiple devices in a LAN and forwards data only to the intended destination device.

- **Hub:**
  Basic device that broadcasts any incoming data to all connected ports, causing unnecessary traffic.

- **LAN:**
  Network covering a limited physical area such as a room, building, or campus, typically privately owned.

- **WAN:**
  Wide-ranging network connecting multiple LANs across cities, regions, or countries, often using public infrastructure.

- **VLAN:**
  Logical group of network devices separated within a switch, improving segmentation and security without physical isolation.

- **Packet:**
  Structured block of data sent over networks containing both user data and routing information.

- **Frame:**
  Data unit at the link layer containing MAC addresses and error checking for delivery within a LAN.

- **Protocol**:
  Formal rules that structure how data is formatted, transmitted, received, and acknowledged in a network.

- **TCP**:
  Reliable transport protocol that establishes a connection, checks for errors, and guarantees ordered data delivery.

- **UDP**:
  Lightweight transport protocol that sends data without connection setup or delivery guarantees, used for speed-dependent tasks.

- **HTTP**:
  Web communication protocol used by browsers and servers to request and deliver web pages and resources.

- **HTTPS**:
  Secure version of HTTP that encrypts traffic with TLS to protect user data and prevent eavesdropping.

- **NAT**:
  Method that translates private internal IP addresses to a public address so multiple devices share one internet connection.

- **Firewall**:
  Traffic filter that enforces security rules to allow or block data between networks based on policies.

- **Port Number:**
  Numerical value that directs incoming network data to the correct application or service on a device.

- **Bandwidth**:
  Maximum data capacity of a network connection measured per second, determining how much information can pass through.

- **Latency**:
  Time delay between sending a request and receiving a response, impacting how fast a network feels.

- **MTU**:
  The largest packet size a network link supports without splitting data into smaller fragments for transmission