

Key Network Protocols and Their Functions

TCP (Transmission Control Protocol)

- Reliable data transfer between devices. Used in: web browsing, email, FTP.

UDP (User Datagram Protocol)

- Fast but unreliable data transfer. Used in: live streaming, gaming, VoIP.

IP (Internet Protocol)

- Assigns IP addresses and routes data. Includes IPv4 and IPv6.

ICMP (Internet Control Message Protocol)

- Sends error messages and diagnostics, e.g., ping.

SMTP

- Sends emails from client to server.

POP3

- Downloads emails to a device and deletes them from the server.

IMAP

- Accesses emails on the server without deleting them.

HTTP

- Transfers web pages (not encrypted).

HTTPS

- Secure version of HTTP using SSL/TLS.

FTP

- Transfers files between client and server.

SFTP

- Secure file transfer over SSH.

SMB

- Shares files and printers on local networks.

SSH

- Secure remote access to servers.

TLS/SSL

- Encrypts internet communication, used in HTTPS.

DNS

- Translates domain names to IP addresses.

DHCP

- Automatically assigns IP addresses to devices on a network.