1. Public and Private Addresses

Public Address	Private Address
Assigned by a central authority	Reserved for private use only
Routable in the Internet	Not routable in the Internet
You have to pay to use	Free to use

2. Classful and Classless Addressing

Classful Addressing	Classless Addressing
An IP address allocation method that allocates IP addresses according to five major classes.	An IP address allocation method that is designed to replace the classful addressing to minimize the rapid exaustion of the IP Addresses.
Less practical and useful.	More practical and useful
Network ID and Host ID changes according to classes	There is no boundary on the network ID and Host ID

3. IPv4 and IPv6

IPv4	IPv6
It has 32 bit adress length	It has 128 bit address length
Address representation is in Decimal	Address representation is in Hexadecimal
Security is dependent on application	IPSec is inbuilt
Encryption and Authentication is not provided	Encryption and Authentication is provided
It supports manual and DHCP configuration	It supports autoconfiguration and renumbering

4. TCP and UDP

TCP	UDP
Connection-oriented protocol.	Connectionless protocol
Reliable Service	Unreliable Service
Segment Sequencing	No Sequencing
Acknowledge segments	No Acknowledgement
Fast transmission speed, but not as that of UDP	Fast transmission speed
Flow Control, Error Control, Congestion Control	No Flow Control, No Error Control, No Congestion Control
Used by HTTP, HTTPs, FTP, SMTP, Telnet protocols	Used by DNS, DHCP, TFTP, SNMP, RIP, VOIP
TCP is suited for applications that require high reliability, and transmission time is relatively less critical.	UDP is suitable for applications that need fast, efficient transmission, such as real time games.
Like: email, web browsing	Like: VOIP, music streaming

5 Client-Server and Peer to Peer Paradigm

Client-Server	Peer-to-Peer
There is a specific server and specific clients connected to the server.	Clients and server are not distinguished; each node act as client and server.
The client request for service and server respond with the service.	Each node can request for services and can also provide the services.
The data is stored in a centralized server.	Each peer has its own data.

When several clients request for the services simultaneously, a server can get bottlenecked.	As the services are provided by several servers distributed in the peer-to-peer system, a server in not bottlenecked.
The client-server are expensive to implement.	Peer-to-peer are less expensive to implement.
Client-Server is more stable and scalable.	Peer-to-Peer suffers if the number of peers increases in the system.

6. Wired LAN and Wireless LAN

Wired LAN	**Wireless LAN**
Wired network uses cables such as Ethernet	Wireless network signal travels through air and is broadcast.
Wired network hosts are stuck in place	Wireless network hosts may move freely
A wired isolated LAN is a set of hosts connected via a link- layer switch	A wireless isolated LAN, called an ad hoc network in wireless LAN terminology, is a set of hosts that communicate directly/freely with each other. (without Link-Layer Switch)
A wired LAN can be connected to another network or an internetwork such as the Internet using a router.	Wireless LAN connection to the wired infrastructure (such as Internet) is done via a device called an Access Point (AP).