

1. Difference between Hardware and Software

Hardware	Software
Physical components of a computer	Programs and applications
Can be touched	Cannot be touched
Examples: CPU, Keyboard, Mouse	Examples: Windows, Linux, MS Word
Wears out over time	Does not wear out

2. Define IP Address Range and Private Address Range

IP Address Range

An **IP address** is a unique number used to identify a device on a network.

In IPv4, the address range is:

- **0.0.0.0 to 255.255.255.255**

Private IP Address Range

Private IP addresses are used **inside local networks** and are not routable on the internet.

Class Private Range

Class A 10.0.0.0 – 10.255.255.255

Class B 172.16.0.0 – 172.31.255.255

Class C 192.168.0.0 – 192.168.255.255

3. Explain Network Protocol and Port Number

Network Protocol

A **network protocol** is a set of rules that allows devices to communicate over a network.

Examples:

- TCP/IP
- HTTP
- FTP
- SMTP

Port Number

A **port number** identifies a specific service or application on a device.

Service Port Number

HTTP 80

HTTPS 443

FTP 21

SSH 22

SMTP 25

4. Explain Types of Network Devices

1. Router

- Connects different networks
- Routes data packets

2. Switch

- Connects devices within a network
- Works using MAC addresses

3. Hub

- Broadcasts data to all devices
- Less secure

4. Modem

- Connects network to the internet

5. Firewall

- Protects network from unauthorized access

6. Access Point

- Provides wireless connectivity

5. Which Tools Are Used for Data Backup and Recovery

Backup Tools

- Acronis
- Veeam
- Windows Backup

- Google Drive / OneDrive

Recovery Tools

- EaseUS Data Recovery
 - Recuva
 - TestDisk
-

6. Explain HTTP and HTTPS Protocols

HTTP (HyperText Transfer Protocol)

- Transfers data between browser and server
- **Not secure**
- Uses port **80**

HTTPS (HyperText Transfer Protocol Secure)

- Secure version of HTTP
 - Uses encryption
 - Uses port **443**
-

7. What is SSL and TLS Security?

SSL (Secure Sockets Layer)

- Encryption technology
- Secures data during transmission
- Now mostly replaced

TLS (Transport Layer Security)

- Updated and more secure version of SSL
- Used in HTTPS connections

Purpose:

- Prevents data theft
 - Ensures privacy and integrity
-

8. Explain the MAC Address

A **MAC (Media Access Control) Address** is a **unique physical address** assigned to a network device.

Features:

- 48-bit address
- Written in hexadecimal format
Example: 00:1A:2B:3C:4D:5E
- Used by switches to identify devices
- Cannot be changed easily