OSI Model:

1. Physical Layer:

- Functions: Handles the physical transmission of data over the network medium.

- Protocols: Ethernet, Fast Ethernet, Gigabit Ethernet, USB, HDMI.

2. Data Link Layer:

- Functions: Provides error-free transmission of data frames between nodes on the same network.

- Protocols: Ethernet, Wi-Fi (802.11), Point-to-Point Protocol (PPP), Asynchronous Transfer Mode (ATM).

3. Network Layer:

- Functions: Manages logical addressing and routing of data packets between different networks.

- Protocols: IP (Internet Protocol), ICMP (Internet Control Message Protocol), ARP (Address Resolution Protocol), OSPF (Open Shortest Path First), BGP (Border Gateway Protocol).

4. Transport Layer:

- Functions: Provides reliable and transparent transfer of data between end systems (source and destination).

- Protocols: TCP (Transmission Control Protocol), UDP (User Datagram Protocol), SCTP (Stream Control Transmission Protocol).

5. Session Layer:

- Functions: Establishes, manages, and terminates communication sessions between applications on different devices.

- Protocols: Not applicable (functions implemented in the application layer).

6. Presentation Layer:

- Functions: Handles data representation, encryption, and compression for application layer data.

- Protocols: SSL (Secure Sockets Layer), TLS (Transport Layer Security).

7. Application Layer:

- Functions: Provides network services directly to user applications.

- Protocols: HTTP (Hypertext Transfer Protocol), FTP (File Transfer Protocol), DNS (Domain Name System), SMTP (Simple Mail Transfer Protocol), POP3 (Post Office Protocol version 3), IMAP (Internet Message Access Protocol).

TCP/IP Model:

1. Network Interface Layer:

- Functions: Transmits raw data packets over the physical network medium.

- Protocols: Ethernet, Wi-Fi, PPP, ATM.

2. Internet Layer:

- Functions: Handles packet routing, logical addressing, and fragmentation/reassembly of data packets.

- Protocols: IP (Internet Protocol), ICMP, ARP.

3. Transport Layer:

- Functions: Provides reliable end-to-end data transport between source and destination hosts.

- Protocols: TCP, UDP, SCTP.

4. Application Layer:

- Functions: Supports communication between networked applications.

- Protocols: HTTP, FTP, DNS, SMTP, POP3, IMAP.