What is computer network? What are it's uses.

A computer network is a system of interconnected computers and devices that communicate with each other to share resources, data, and applications. Networks can range from small local area networks (LANs) to vast wide area networks (WANs), including the internet.

It's uses are:-

Resource Sharing: Enables multiple devices to share hardware resources such as printers and storage devices, and software resources such as applications and data files.

Communication: Facilitates communication through email, instant messaging, video conferencing, and VoIP (Voice over Internet Protocol).

Data Sharing: Allows users to easily share data and files across devices and locations.

Remote Access: Provides access to network resources from remote locations, enabling telecommuting and remote support.

Internet Access: Connects devices to the internet, allowing users to browse the web, access online services, and use cloud-based applications.

Collaboration: Supports collaborative work environments with tools like shared documents, project management software, and team communication platforms.

What are the different layers of OSI model? It's uses?

The OSI (Open Systems Interconnection) model is a conceptual framework used to understand and implement network protocols in seven distinct layers. Each layer serves a specific function and communicates with the layers directly above and below it.

Layers of the OSI Model

Physical Layer (Layer 1):

Function: Transmits raw bit streams over a physical medium. It deals with the physical connection between devices and the transmission and reception of signals.

Examples: Ethernet cables, fiber optics, radio frequencies.

Devices: Hubs, repeaters, network interface cards (NICs).

Data Link Layer (Layer 2):

Function: Provides node-to-node data transfer and handles error detection and correction from the physical layer. It organizes bits into frames and provides MAC (Media Access Control) addresses.

Examples: Ethernet, Wi-Fi (IEEE 802.11).

Devices: Switches, bridges.

Network Layer (Layer 3):

Function: Manages the routing of data packets across the network and handles logical addressing and path determination.

Examples: IP (Internet Protocol).

Devices: Routers.

Transport Layer (Layer 4):

Function: Ensures complete data transfer with error checking, flow control, and data segmentation. It provides reliable or unreliable delivery and manages end-to-end connections.

Examples: TCP (Transmission Control Protocol), UDP (User Datagram Protocol).

Devices: Gateways, firewalls.

Session Layer (Layer 5):

Function: Manages sessions or connections between applications. It handles session establishment, maintenance, and termination.

Examples: NetBIOS, RPC (Remote Procedure Call).

Presentation Layer (Layer 6):

Function: Translates data between the application layer and the network. It handles data encryption, compression, and translation.

Examples: SSL/TLS (Secure Sockets Layer/Transport Layer Security), JPEG, ASCII, EBCDIC.

Application Layer (Layer 7):

Function: Provides network services directly to user applications. It handles high-level protocols and interfaces, enabling software to interact with the network.

Examples: HTTP, FTP, SMTP, DNS, Telnet.

Devices: Application servers, proxies.

Differentiate between OSI model and TCP/IP model.

OSI model	TCP/IP model
OSI stands for Open Systems Interconnection.	TCP/IP stands for Transmission Control Protocol/Internet Protocol.
It has 7 layers.	It has 4 layers.
It is low in usage.	It is mostly used.
It is vertically approached.	It is horizontally approached.
It is less reliable than TCP/IP Model.	It is more reliable than OSI Model.