what is Internet:-

we can describe this in two ways:

(1) Nuts and Bolts:

↳ Basic hardware and software components to makeup the internet.

(a) Networks

(2) Internet in terms of Networking Infrastructure:

↳ that provides services to distributed applications

Nuts and Bolts:-

→ Internet is a Computer Network that interconnects billions of Computer devices.

→ These Computing device (computer devices) were primarly traditional desktop PCS, Linux, workstation and so called servers that store and transmit Information such as web pages.

→ Now, adays non traditional Internet things such as laptops, smartphone, cars, eyeglasses, traffic signals, home appliances and more. All these are connected to Internet

➡ All traditional & non traditional devices are called hosts (or) Endsystems. ⟿ Network edge

→ End systems are connected together by a network at Communication links and packet switches.

Netw

* Network Edge: → hosts, access network, physical media)
× Network Core → lose, delay throughput

→ There are many types of Communication links,
 i) Coaxial cable (ii) copper wire (iii) optical fiber (iv) Radio spectrum
   These are make up Different types of physical media.

→ Different Communication link can transmit ~~data at different~~
 data at different rates, with the transmission
 rate of a link measured in bits/second

→ when one end system has data to send to another
 end system. The sending end system segments the
 Data and adds header bytes to each segment.
→ The resulting package of information, known as
 packets, in the jargon of Computer Networks.
→ Then they are sent through the network to the
 destination end system, where they are reassembled
 into the original data.

→ A packet switch takes a packet arriving in
 one of its incoming Communication links and
 forwards that packet on one of its ongoing
 Communication links.

→ Two most prominent types of packet switches are
 (i) Routers:- Typically used in network core
 (ii) link-layer switches:- Typically used in access networks

→ The sequence of Communication link and packet switches transversed by a packet from sending end system to receiving end system is known as route (or) path.

→ Packet switched networks: It transports packets like Trucks which transports goods from one place to other. Here Trucks are packet switched Networks and Goods are Networks

→ End Systems access the internet through Internet Service providers (ISP's), including local cable, telephone Companies, Corporate, and cellular data (providing mobile access to our smartphone and other devices

→ Each "Isp" is in itself a network of packet switches and Communication link.

→ Isp provide network access to End systems (like modem,) and mobile wirless access.

→ Isp also provide Internet access to Content providers Connecting websites and video servers directly.

→ Internet is all about connecting Endsystems to each other

→ Isp that provides access to end systems must also be Interconnected.

→ These lower-tier ISP's are interconnected through national and International upper-tier Isp's.
   (Ex:- Level 3 Communications, NTT, AT&T, sprint)

→ upper-tier Isp:-
   ↳ It Consists of high-speed router interconnected with high speed fiber optic links.

→ Each Isp x (whether lower tier (or) upper tier) is managed Independently, runs the <u>Ip protocol</u> and Conforms to certain naming and address Conventions.

→ protocol:-
   That control the sending and receiving of Information within the internet.
   Ex:- TCP, IP, HTTP (for web), SMTP (for e-mail).

→ End systems, packet switches and other pieces of internet run protocols.
   ↳ Two most important protocols in the internet
   (1) Transmission Control protocol (tcp) (2) Internet protocol (IP)

→ Internet principal protocol are collectively known as Tcp/IP

→ Internet protocol:- It specifies the format of the packets that are sent and received among routers and endsystem.

→ Data Centre Network :- It has the data. So, it
provides Data to a Isp to end systems.

→ protocols:

(1) Skype protocol:-
between two laptops!...

(2) HTTP protocol → streaming video.

(3) Tcp protocol:- websaver Bridge to Data Center network.

(4) WIFI protocol:- b/w Laptop & wifi.

(5) Ethernet protocol:- "Lan" cable to end system.

(6) IP protocol:- Local (or regional Isp to national
(or) global Isp.