② The TCP/IP model consists of five layers: the application layer, transport layer, network layer, data link layer and physical layer.

The first four layers provide physical standards, network interface, internetworking, and transport functions that correspond to the first four layers of the OSI model and there four layers are represented in TCP/IP model by a single layer called the application layer.

TCP/IP is a hierarchical protocol made up of interactive modules, and each of them provides specific functionality.

② TCP/IP Ref. Model ⟩ (Transmission Control Protocol, Internet Protocol)

- It replace ARPANET in Internet
- Has four layer
- In real world combination of both TCP/IP & OSI Model is used.

Layers:

Layers	Same as of OSI
① Host to Network layer	Layer (1,2) P, D
② Internet layer	3, 4 (N, T
③ Transport layer	
④ Application layer	5, 6, 7 (A, P, S)

① Host to network

Responsible for hardware ~~adding~~ adding & allow Physical transmission

② Internet layer

logical transmission of data over network main Protocall :

↳ IP   &   ↳ ICMP

↳ for packet delivery   ↳ internet control message IPVu, IPv6   protocal encabulates message with IP.

③ Transport layer : Works similar to transport layer of OSI model.

uses

TCP	UDP
↓	↓
Connection oriented (byte Stream without error)	used for app^n which don't want Sequence & flow control.

④ Application layer : Responsible for Node to node communication & user interface.

This layer perform function of top 3 layer of OSI.

Difference) OSI v/s TCP/IP

	OSI	TCP/IP
1.	Developed by ISO (International Standard orgination)	By ARPANET
2.	has 7 layers	4
	It provides	

3. provides clear distingutian b/w cnface, service to protocol.	does not
4. In this physical & data link layer are separated	both are carried in single host to network.
5. Session to presentation layer are part of OSI	no such layer

(ii) client sends a FIN segment to the server with FIN bit set to 1. then the ~~client~~ client enters the PIN_WAIT_1 state and waits for acknowledgement from the server.

After that it enter FIN_WAIT_2 state. Now for terminating the

Connecting, server sends a FIN segment to the client with FIN bit set to 1. And finally, client free's up it's buffers and sends acknowledgement to the server And then the client enters the TIN TIME_WAIT State.

* Significance of TIME_WAIT State:-

→ It allowes the client to resend the final acknowlegment if it gets lost.

→ The time spent by the client in TIME_WAIT state depends on the implementation.

→ The typical values are 30 seconds, 1 min and 2 min.

→ After the wait, the Connection gets formally closed.

Significance of 2MSL timeout :-

→ All packets generated during the duration of the connection disappear from the network, that is to ensure that when a TCP connection is established the old duplicate packets from the connection, are already disappered from the network.

(iii) UDP

Client

RTO

Start (A)

Stop (A)

Start (B)

Time-out restart (B)

Stop (C)

Time

Server

Reciver Buffer

Rule 3

Rule 4

Rule 5

Ack1

Ack2

Ack3

→ Lost