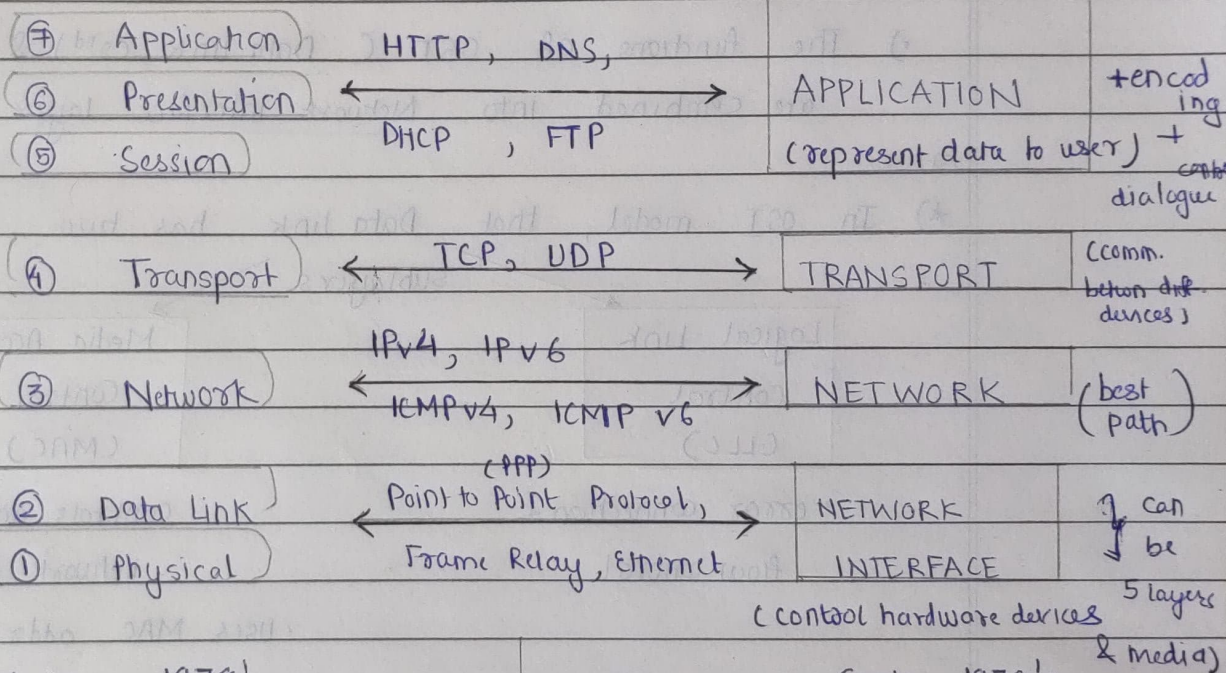U19CS012

TUTORIAL - 1

1.> How do the layers of the internet model correlate to the layers of the OSI layers.

1.>

OSI Reference Model		Internet Model (TCP/IP)	
⑦ Application	HTTP, DNS,	APPLICATION	+ encoding +
⑥ Presentation	← →		
⑤ Session	DHCP , FTP	(represent data to user) + dialogue	
④ Transport	← TCP, UDP →	TRANSPORT	(comm. betwn diff. devices)
③ Network	IPv4, IPv6 ← ICMPv4, ICMP v6 →	NETWORK	(best path)
② Data Link	(PPP) Point to Point Protocol, ← →	NETWORK	⎤ can
① Physical	Frame Relay, Ethernet	INTERFACE	⎦ be 5 layers

(control hardware devices & media)

(a) Developed in 1978's

(b) it has 7 layers

(c) correlate more accurately to actual process of communication over network

(d) OSI uses the network layer to define routing standards & protocols

(e) OSI model use two separate layers physical and data link to define the functionality of the bottom layers.

(f) Transport layer → Only connection oreinted

(a)   Early 1970's

(b)   it has 4 layers

(c) TCP/IP doesn't offer any clear distinguishing points between services, interfaces and protocols

(d) IP uses only the internet layer.

(e) IP uses only one layer.(link)

(f) Layer → connection-oreinted and connectionless.

•) The functions of all processes involved in top 3 OSI model layers (7.) Application   6.) Presentation   5.) Session) are combined into IP model (Application Layer)

•) The function of Transport ④ and Network ③ layers in OSI model is more likely as 3rd & 2nd layer of IP

•) The functions of OSI (Data Link (2nd) & Physical layer (1st)) are combined into Network interface layer

*) In OSI model, that Data link has two sublayers

Logical Link Control (LLC)	Media Access Control (MAC)
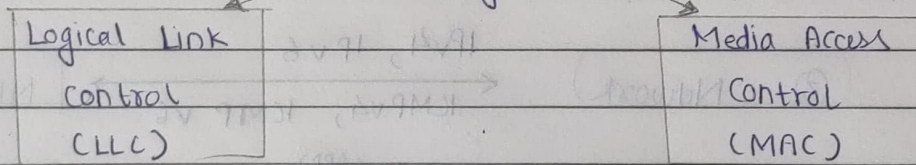
• error connection & flow control

• controls access to network media
• uses MAC addr of NIC

Therefore, we can say both model are correlated to each other.

2.> How does information get passed from one layer to the next in the internet model ?

2.> ① At the Physical layer, communication is direct between devices.
② At higher layers levels, communication must move down through the layers on sending devices, over to receiving device, and then back up through these layers.
③ Each layer in the sending device adds its own information to the message it receives from the layers just above it and passes the whole package to the layer just below it.

④ At layer 1, the entire package is converted to a form that can be transmitted to the received device.

⑤ At the receiving machine, the message is unwrapped layer by layer, with each process receiving and removing the data meant for it.

3.> How are OSI and ISO related to each other?

3.> ISO stands for International standard Organization which is a multinational organization that tries to standarize network communication protocols at the international levels.

OSI (open system Inter connection) is a model that ISO put toghether as a networking communication standard.

{ ISO ⟶ Organization   OSI ⟶ model }

4> Compare OSI and TCP/IP model.

OSI (7 layers)	TCP/IP (4 Layer)
	Internet Protocol
① OSI refers to open system Interconnection	① TCP/IP = Transmission Control Protocol
② OSI has 7 layers	② TCP/IP has 4 layers
③ OSI is developed by ISO (International standard organization)	③ Developed by ARPANET (Advanced Research Project Agency Network)
④ OSI model provides clear distinction between interfaces, services & protocols	④ TCP/IP doesn't have clear distinction between services, interface & protocols.
⑤ OSI uses Network layer to define routing standards and proto-cols	⑤ TCP/IP uses only Internet layer.
⑥ OSI → Transport layer is only connection-oreinted	⑥ Layer of TCP/IP both connection-oreinted & conechonless.
⑦ Minimum size of OSI header is 5 bytes.	⑦ Minimum header size is 20 bytes
⑧ Model is used very rarely.	⑧ Model is highly used.

5.> What are headers and trailers, and how do they get added and removed?

5.> 1) Each layer in the sending machine adds its own information to the message it receives from the layer just above it and passes the whole package to the layer just below it.

2) The information is added in the form of headers or trailers.
→ Headers are information structures which identifies the information that follows, such as a block of bytes in communication.
→ Trailers is the information which occupies several bytes at the end of block of data being transmitted. They contain error-checking data which is useful for confirming the accuracy and status of transmission.

3) During communication of data, the sender appends the header and passes it to lower layer while receiver removes the header and passes it to upper layer.
Headers are added at 6, 5, 4, 3, 2 layer and trailer at layer 2.

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