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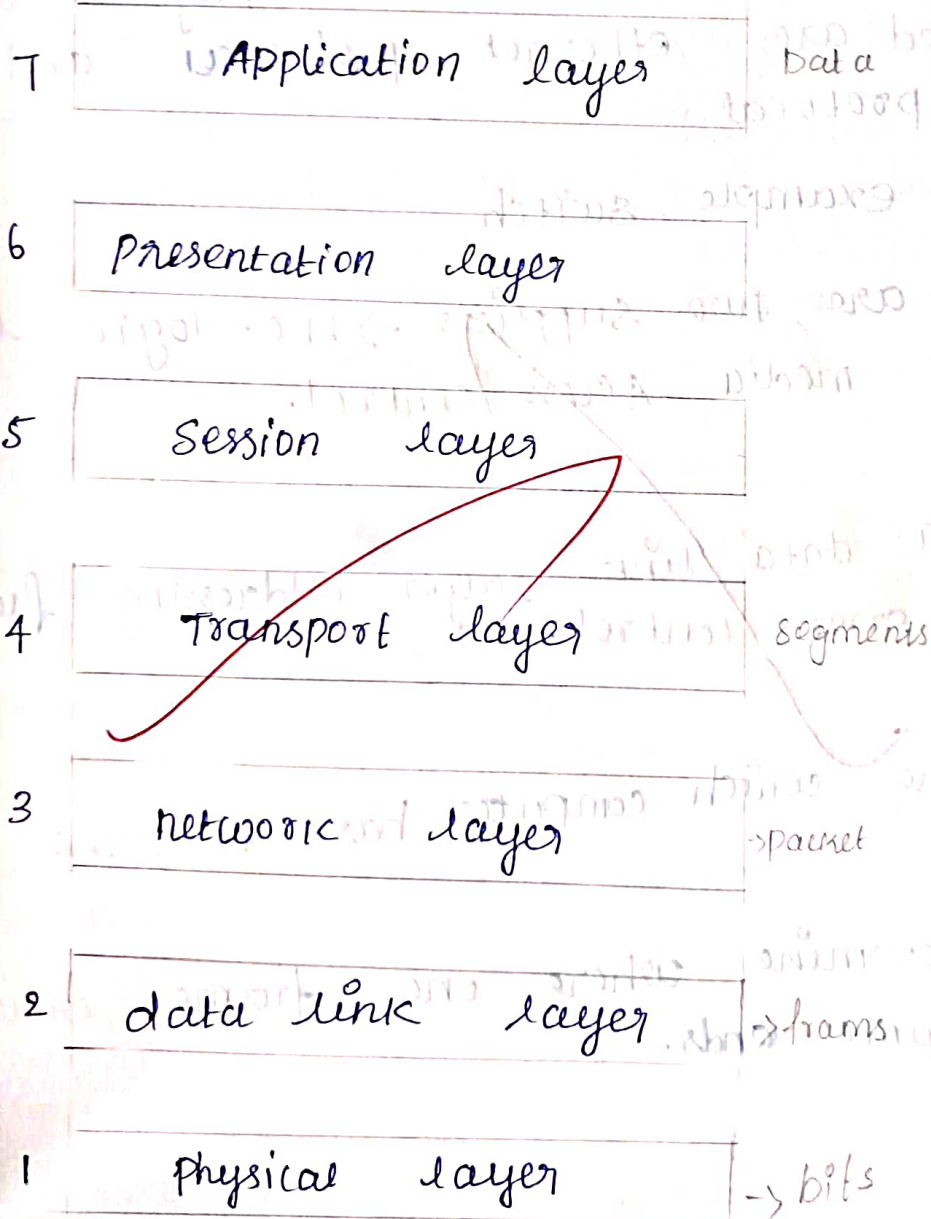
Sub : Network & security

Sub code : EC3401

Assignment : I

20

OSI - open System Innterconnection:

It's created by ISO - International Standard organization. It was created as a framwork and reference model to explain how different networking technologies work together it has seven layer and all layer working together and move to data around the network.

7 layers

7	Application layer	Data
6	Presentation layer	
5	Session layer	
4	Transport layer	segments
3	network layer	→packet
2	data link layer	→frams
1	Physical layer	→bits

Physical layer:

It deals with all aspects of moving data from one computer to next computer.

Cable standards wireless standards, fibre optic standards are defined on this layer.

Device used in this layer is Hub.

Data link layer:

It is responsible for moving node to node or computer to computer.

It requires MAC - address or physical address protocal used are ethernet protococu and point-to-point protocal.

device example switch

There are two suppliers → LLC - logic link control, MAC - media Access control.

LLC:

It is a data link layer addressing flow control and error control.

MAC:

Determine which computer has to access the network.

Also determine where one frame starts and one frame ends.

network layer:

   provides internet working

   It is responsible for moving packets from one
end of network to other.

   It requires logical address or Ip address.

Routing:

   Routing is the process of moving packets from
source to destination.

Transport layer:

   It is data from higher levels of OSI
model and breaks in to segments and send
it to lower layers of data transmission.

   It uses TCP - connection oriented protocal
to ensure. destination received segments.

   It may uses UDP - connection less protocal
to send segments without assurance of
delivery.

Session layer:

   It is responsible for managing dialog
between network devices.

   It establishes, manages, terminate and
terminate sessions. or connections.

   It provides simplex, by duplex, and full duplex.

presentation layer :

It is consumed with how the data is presented to the network.

It handles three primary tasks

Translation

Compression

encryption.

Translation :

It changes data so that another type of computer can understand.

Comparision :

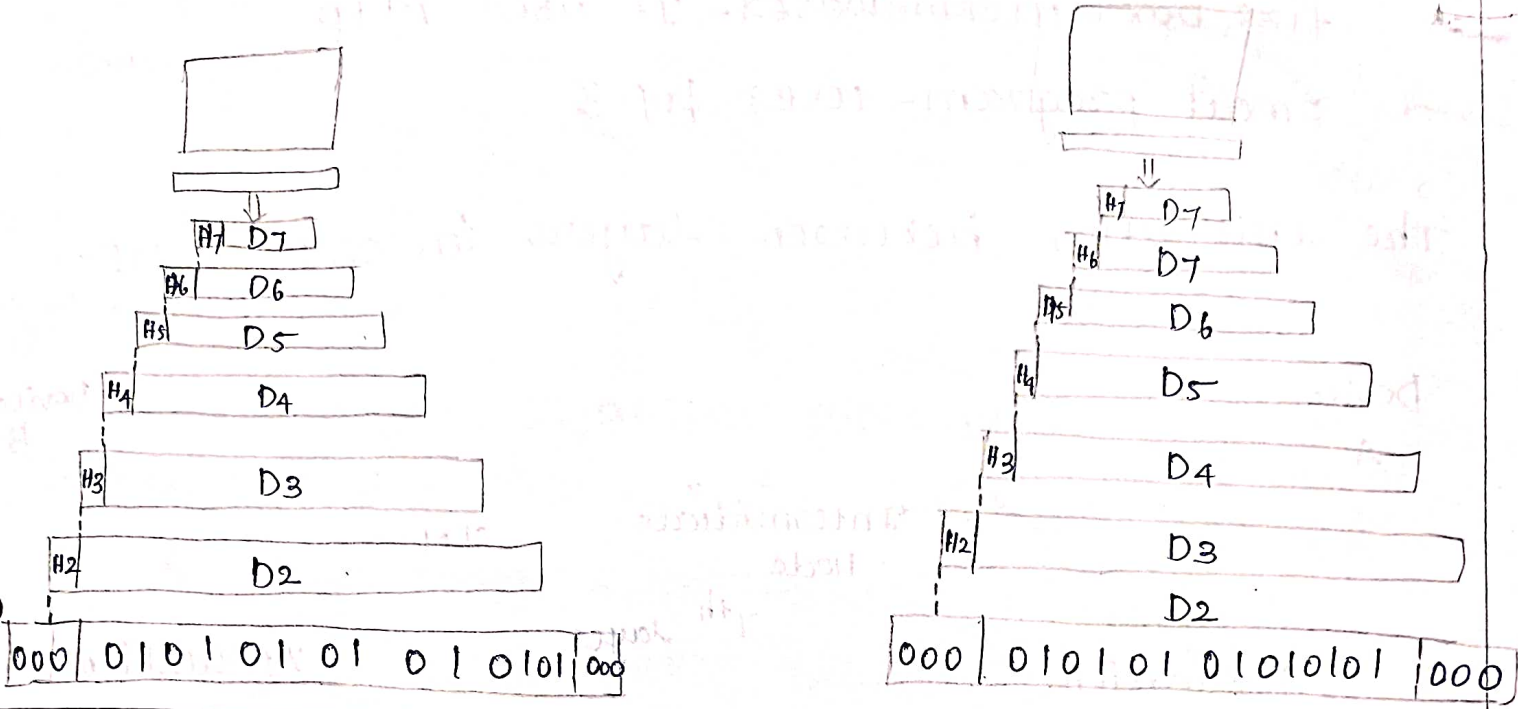It makes data smaller to send more data in same amount of time.

Encryption :

It encodes data to product from interssion or eves dropping.
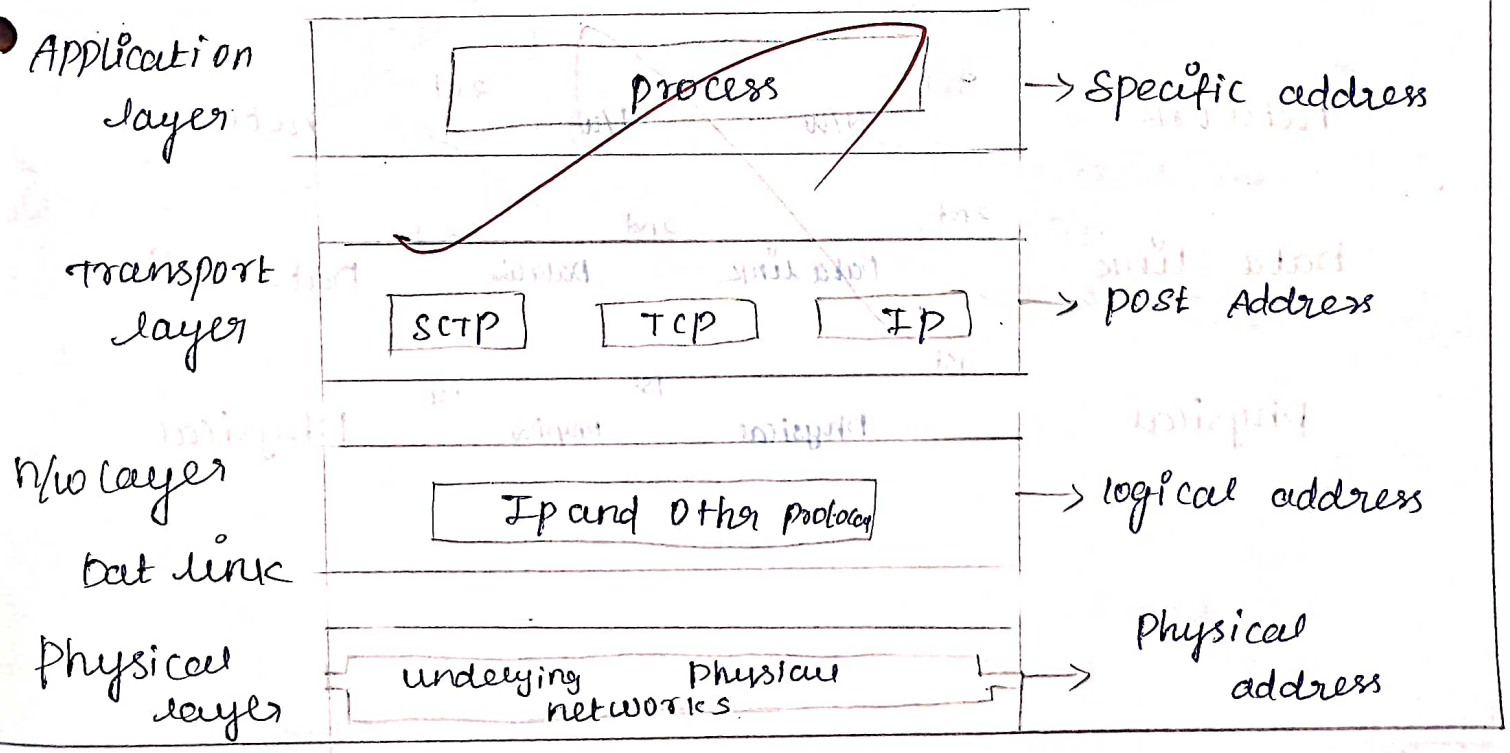
Application layer :

It contains all services or protocals needed by the application software or operating System to communicate on the network.

An exchange using OSI Model:

TCP/IP Model → Transmission Control Protocol
Internet protocol.

A protocol suit a large number of related protocals that works together to allow networked computers to communicate.

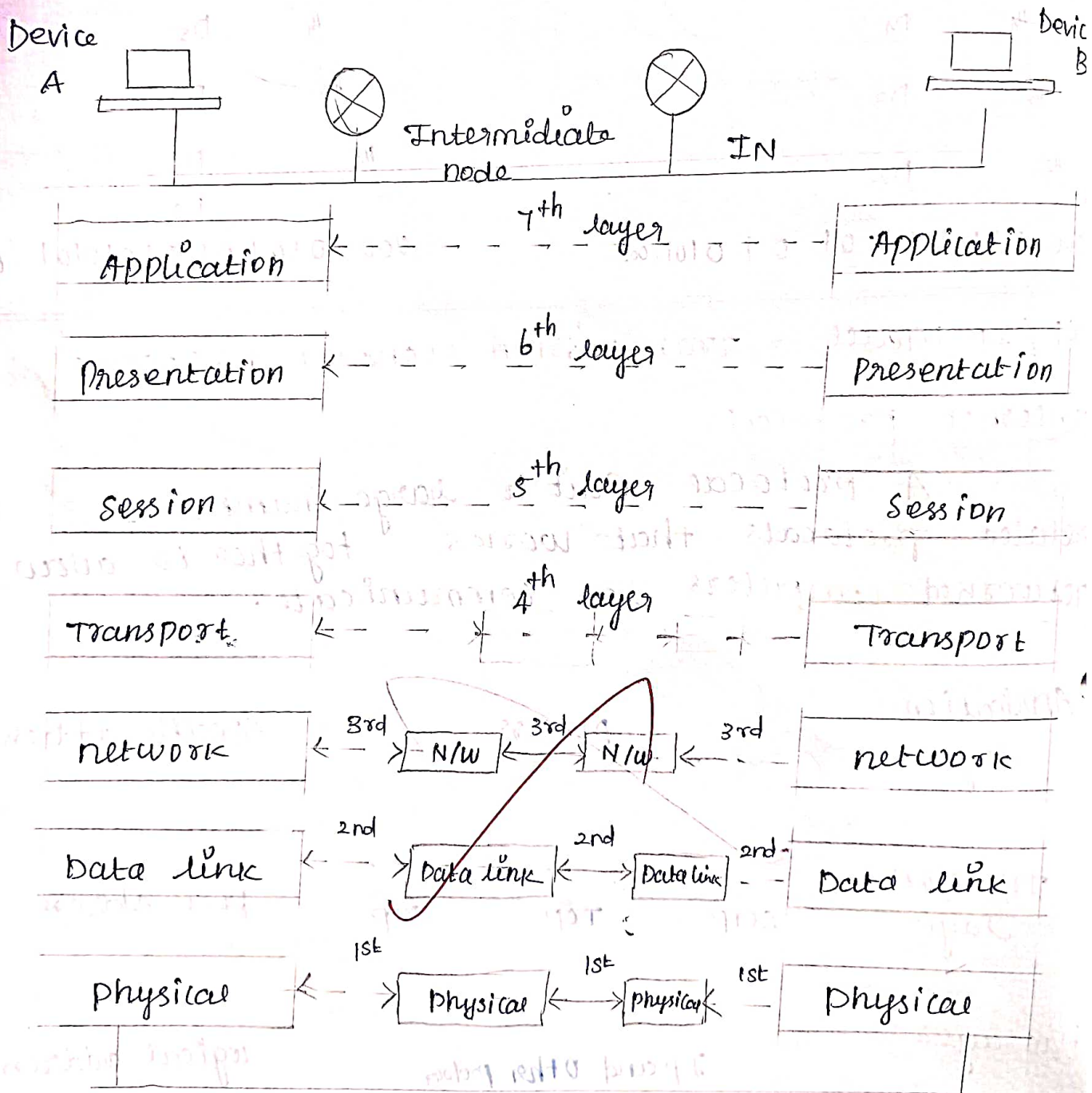- Application layer   Process   → Specific address
- transport layer   SCTP   TCP   IP   → post Address
- n/w cayer   Ip and Other protocol   → logical address
- bat link
- Physical layer   underying physical networks   → Physical address

example:

fire box webbrowoser - It uses http

Email program - uses pop3

The interaction between layers in OSI Model:

Device A

Intermidiate node

IN

Device B

Application	←- - - - - - 7th layer - - - - →	Application
Presentation	←- - - - 6th layer - - - - -	Presentation
Session	←- - - - - 5th layer - - - - -	Session
Transport	←- - - - 4th layer - - - -	Transport
network	3rd ←- →N/W← 3rd N/W← 3rd -	network
Data link	2nd ←- →Data link← →Data link 2nd -	Data link
Physical	1st ←- →Physical← →Physical 1st -	Physical

Application layer:

Defines the rules when implementing specific network applications. It relay on the underlying layers to provide accurate & efficient data delivery.

Typical protocals:

FTP → file Transfer protocal

Telnet → Remote terminal protocal

SMTP → Simple mail transfer protocal

HTTP → Hyper tex Transfer protocal

Transport layer:

TCP is a connection oriented Protocal. It does not mean physical connection b/w Sender & receiver. It provides connection virtually using Virtual circuit.

Internet layer (or) network layer:

which deals with packets and connects independent networks to Transport packet across network boundaries. There are two network layer protocal.

IP → Internet protocal

ICMP → Internet control message protocal.