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CN WRITTEN ASSIGNO-1
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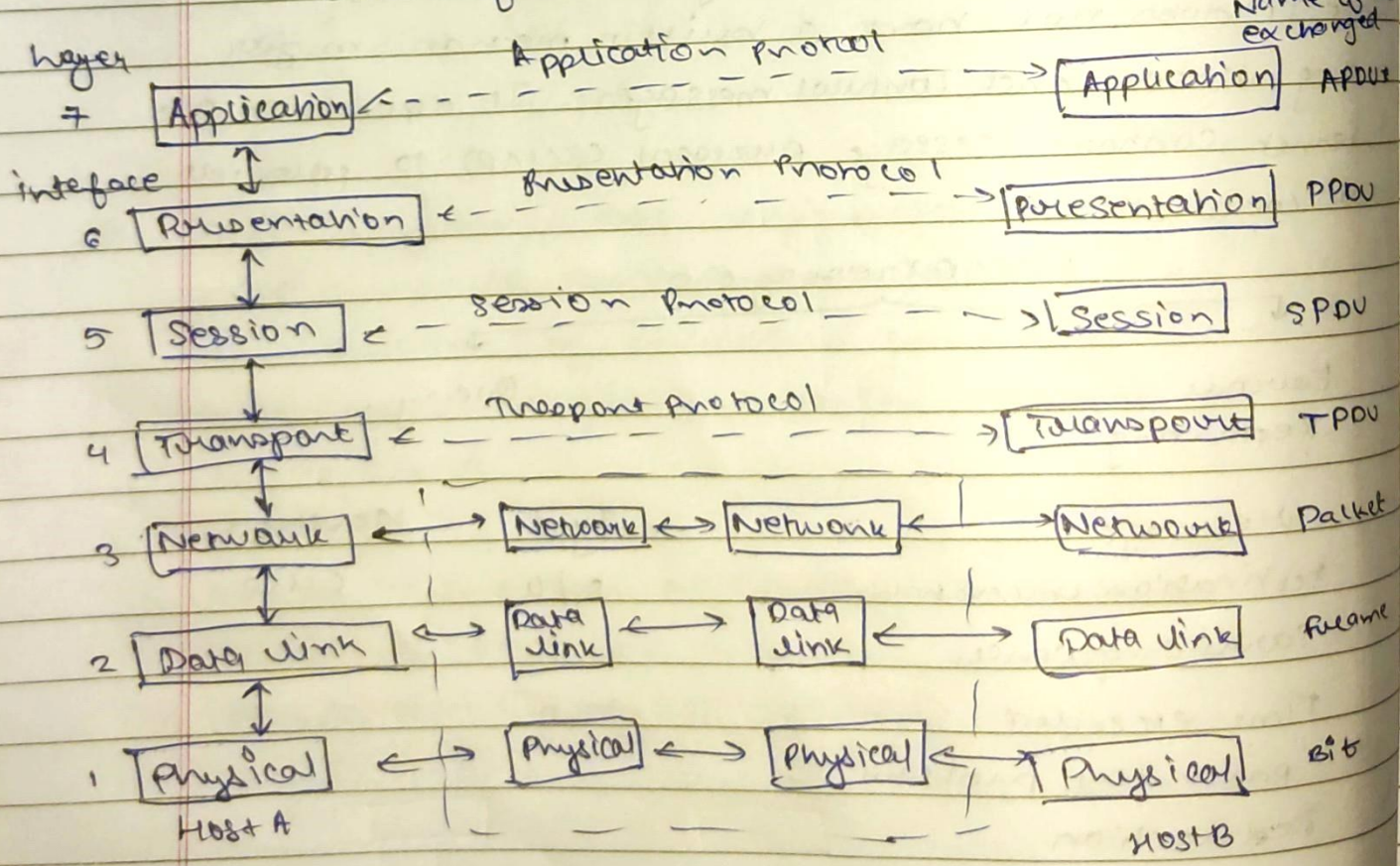
Q1] Explain ISO/OSI Ref Model in details
Q2] write a shortnote on 1. Topology
2. IP Addresses
Q3] Differentiate between LAN, WAN, MAN
Q4] Explain Error control mechanism in DLL
Q5] Explain Ethernet standard

Q1] Ans:-
The international standards organization (ISO) is a multinational body dedicated to worldwide agreement on internation standards. It divides the ~~process~~ communication processes into seven layers

OSI Reference model



i) Physical layer
converts bits into electronic signal for outgoing messages. converts electronic signals into bits for incoming messages.

(ii) Data link layer
The main task of the data link layer is to detected transmission errors. It accomplishes this task by having the sender break up the input data into data frames and transmits the frames sequentially. At the receiving end, this layer packages raw data from the physical layer into data frames for delivery to the network layer.

(iii) Network Layer.
The network layer controls the operation of the subnet the network layer is responsible for the delivery of individual packets from the source host to the destination host. A key design issue is determining how packets are routed from source to destination.

(iv) Transport layer.
Manages the data transmission across a network Manages the flow of data btw parties by segmenting long data streams into smaller data chunks Provides acknowledgements of successful transmission and requests resends for packets which arrives with errors.

(v) Session Layer

The session layer allows users on different machines to establish sessions between them. Various services offer by session layer are: dialog control, token management, Synchronization.

(vi) Presentation layer:

The presentation layer is concerned with the syntax and semantics of the information transmitted.

(vii) Application layer:

Application layer is responsible for providing services to the user. The application layer contains a variety of protocol that are commonly need by user.

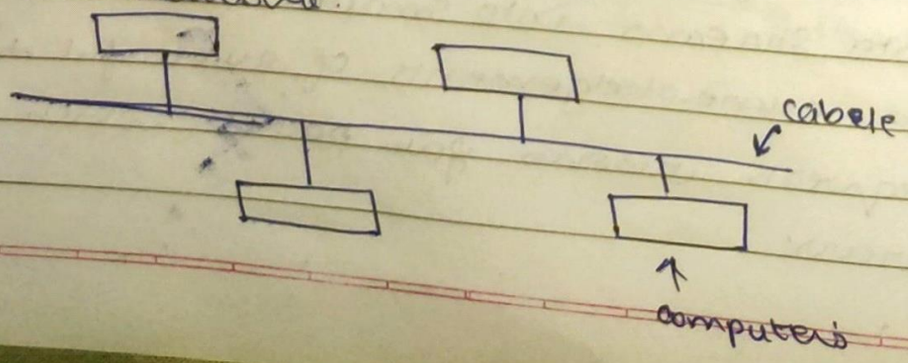
Q2] Ans.

i] Topology.

Topology defines the physical or logical arrangement of links in a network.

① Bus topology:

One long cable act as a backbone to link all the devices in a network.



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Advantages of Bus Topology.

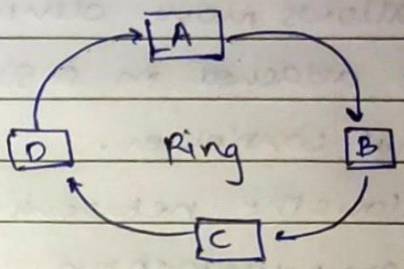
Less Expensive

Suitable for temporary network

Disadvantages:

Not a fault tolerant

limited cable length.



(2) Ring Topology:

A Ring topology is a bus topology in a closed loop.

peer to peer LAN topology

Advantages

~~Com~~ Easy to install and reconfigure.

All nodes with equal access.

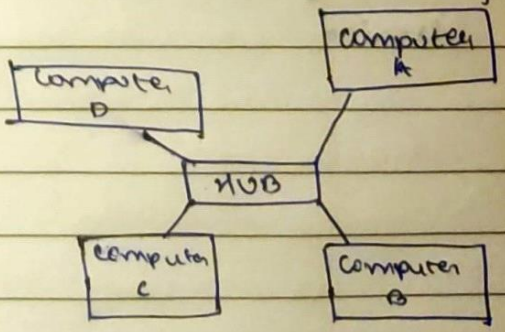
Disadvantages:

Inc in load leads to dec in performance

No security.

(3) Star topology.

Each device has a dedicated point to point link btw only a central controller or "HUB". The devices are not directly linked to some other device



Advantages:

Easy to design and implement

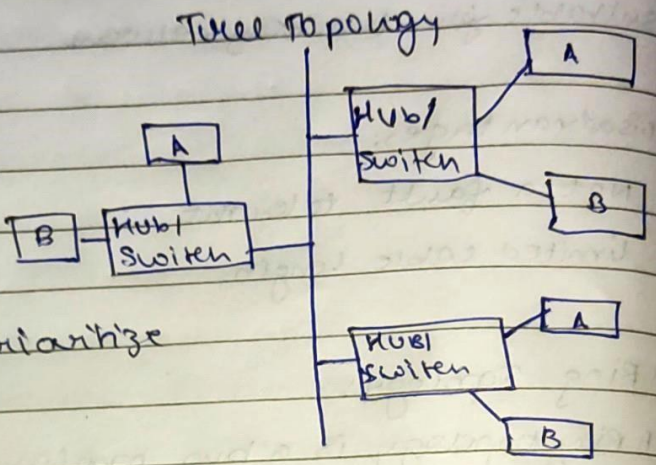
Scalable.

Disadvantages:

Each device must connected to controller.

Bottle neck due to overloaded Switch and Hub.

Tree topology: Tree topology has some variation from star topology. The nodes in the tree are linked to central controller.



Adv:

It allows more devices to be attached in a single central controller.

It allows the network to prioritize the communication.

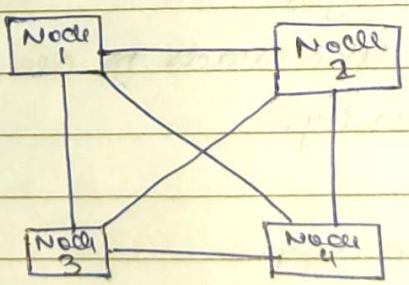
Disadv:

Each device must be linked to controller

It requires more installation processes.

Mesh topology:-

Here every device has a direct point to point link between every other device.



Adv

It eliminates the traffic problem.

It is robustness.

Dis adv

More number of cables to be used.

Every devices must be connected to some other devices

Q3] Ans

① LAN : Local Area Network

LAN's are privately owned networks within a single building or campus of up to few kilometers in size.

LAN's are distinguished based on

i) Their size

ii) Their transmission Technology.

iii) Their topology.

LAN's are restricted in size

LAN's use a transmission technology consisting of a single cable to which all machines are attached like telephone company lines in rural area.

Advantages	Disadvantages.
1) sharing files	1) Reliability
2) sharing of programs	2) capacity
3) communication exchange	3) High cost.

② MAN : Metropolitan Area Network.

Interconnects users with computer resources in a geographic area or region larger than that covered by even a large.

MAN supports upto 150 KM distance

It uses the standard DQDB.

Advantages.	Disadvantages.
1) High Bandwidth	1) Large Space Req.
2) It supports large no. of clients.	2) Slower Data Access
3) Reduce the Errors.	3) High cost.

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(3) WAN: Wide Area Network

WAN's spans a large geographical area, often a country or continent

It contains collection of machine for running.