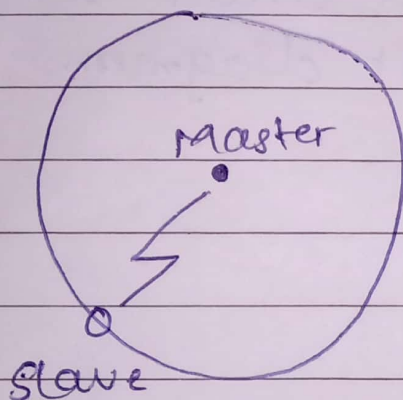


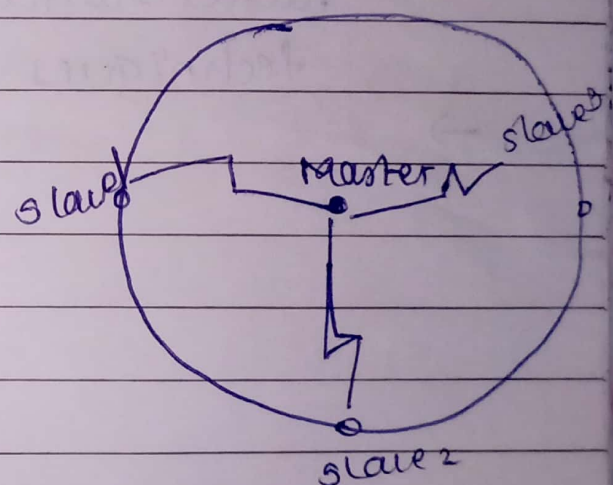
★  
→ i) Describe Bluetooth architecture technologies.  
The basic element of a Bluetooth is piconet.

ii) Piconet is a collection of slave devices operating together with a common master.

Single-slave  
Piconet



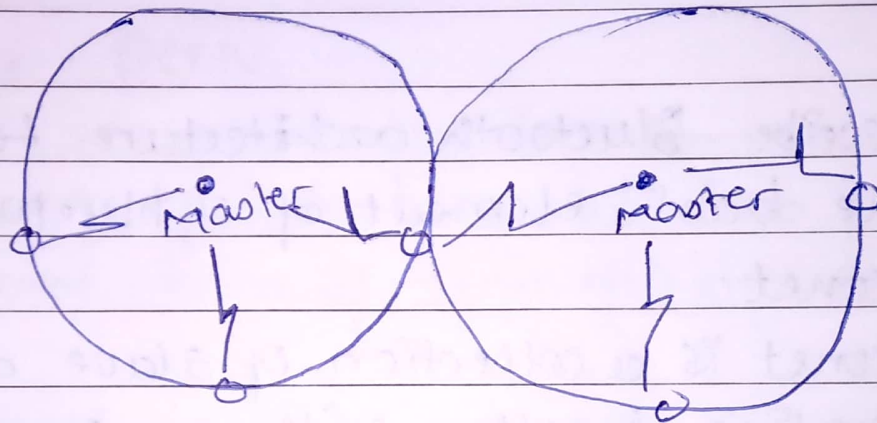
Multi-slave  
Piconet



~~Scatternet~~

i) As shown in the figure there is no direct link between slaves. A common master is shared between maximum seven slaves.

- Several piconets can be established and linked together in a topology called as Scatternet. In scatternet several ~~piconets~~ devices are common to more than one piconet.



Scatternet

## ④ Difference Between LAN, MAN & WAN.

Parameter	LAN	MAN	WAN.
Area covered	Covers small area i.e within the building	Covers larger area than MAN & smaller than WAN	Covers large geographical <del>area</del> areas.
Error rates	lowest	Moderate	Highest
Transmission Speed	High Speed	Moderate Speed	low speed.
Equipment cost	Inexpensive	Moderately expensive	most expensive



## ① Difference between Hub & Switch

Parameters	HUB	Switch.
Basic layer	Physical	Physical & Data link layer
Ports -	upto 12 Ports -	upto 48 ports.
device type	Broadcast	Both
Speed	upto 10 Mbps	upto 10 Gbps.

① DHCP: (Dynamic host configure Protocol)

→ i) DHCP is a protocol used to provide quick, automatic and central management for the distribution of IP address with a network.

ii) DHCP is a protocol that automatically addresses a unique IP address to each device that connects to network.

iii) A DHCP server also provides network gate, masks subnet, name server & amount of time that a given IP address will be valid.

iv) with DHCP there is no need to assign manually IP address to new devices.

v) There are steps to connect network via DHCP.

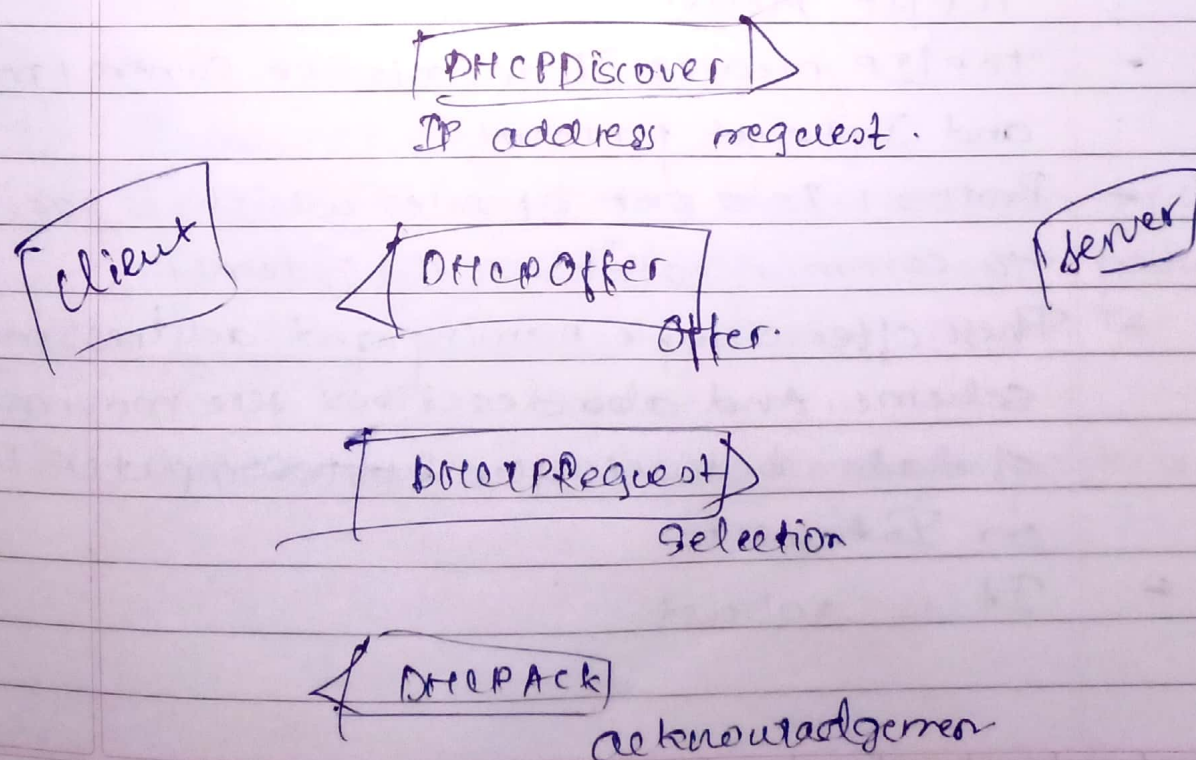
Step 1:- When a client detects it has connected to a DHCP server, it sends a DHCPDISCOVER request.

Step 2:- The router either requests or redirects the DHCP server.

Step 3:- If the server accepts the new device, it will send the DHCPOFFER ~~message~~ message back to the client.

Step 4:- The client returns a DHCPREQUEST message to the server, confirming it will use the IP address.

Step 5:- At the last it will acknowledge the request by DHCPACK.

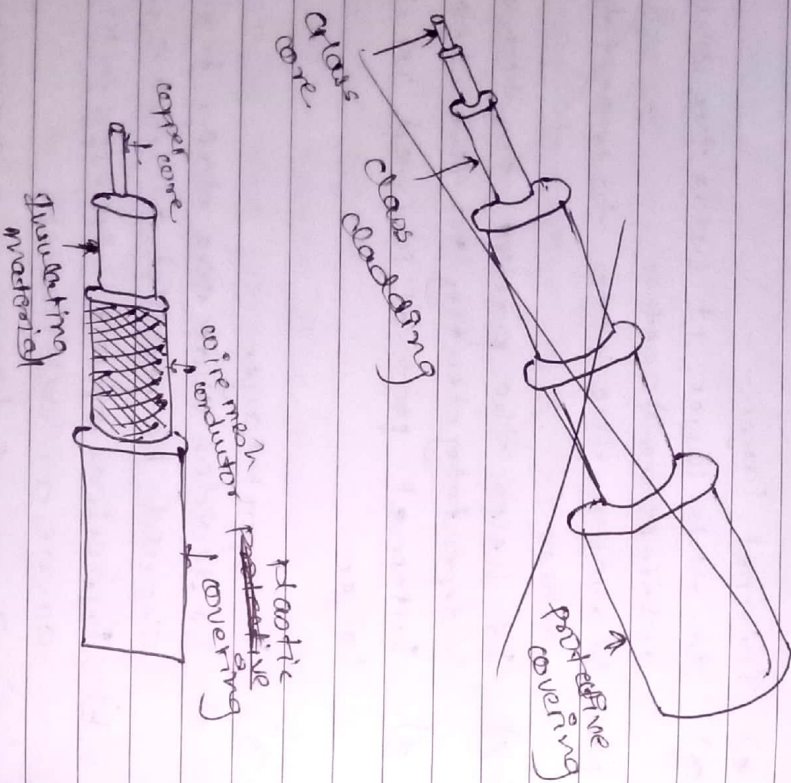




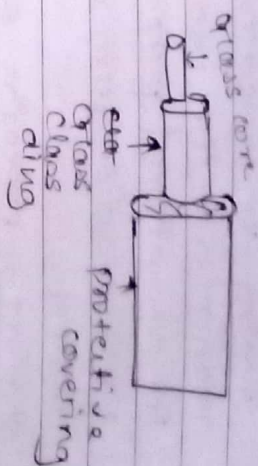
#### 4) Application layer :-

Protocols used in this level in this layer are high level protocols used such as TELNET, FTP, SMTP, SNMP, etc.

Q1) Draw a neat diagram of ~~fiber~~ <sup>coaxial cable</sup> and state its types.



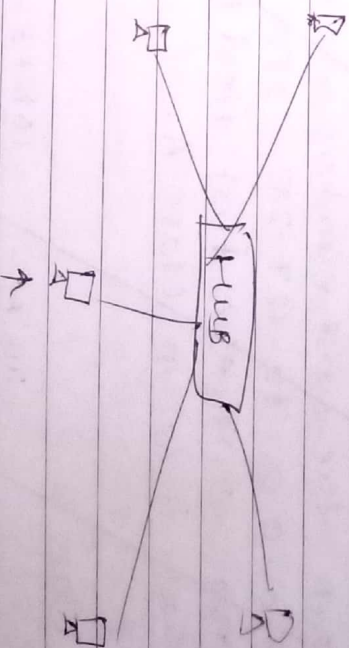
#### Fiber optic cable



- i) Plastic core with cladding
- ii) Glass core with plastic cladding
- iii) Glass core with glass cladding

#### Q2) Computer Network.

A computer network is a interconnection of ~~in~~ <sup>two or more</sup> computers. Each node in a computer network is a computer.



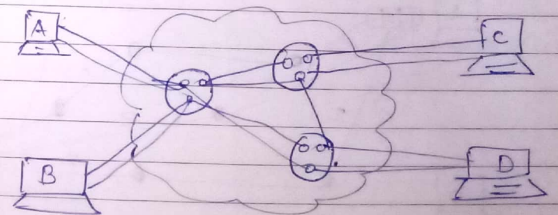
Best example of a computer network is

Q) Compare different techniques of switching on the basis of Orientation, Flexibility, Technology and Layer

Parameters	Circuit Switching	Packet Switching
Orientation	Connection oriented	connectionless
Flexibility	Inflexible	Flexible
Technology	Circuit switching can be achieved using two technologies.	Packet switching has two approaches Datagram approach and Virtual circuit approach.
Layer	Physical layer	Network layer

Q) Describe the working principle of Packet Switching and Circuit Switching techniques with neat diagram.

- i) When two nodes communicate with each other with over a dedicated path it is called as ~~Packet~~ Circuit Switching. There is a need of pre-specified route from which data will travel and no other data is permitted. In circuit switching, to transfer the data, circuit must be established so that data transfer can take place. Circuits can be permanent or temporary. Application which use circuit switching may have to go through three phases:
- Establish a circuit
  - Transfer the data
  - Disconnect the circuit.



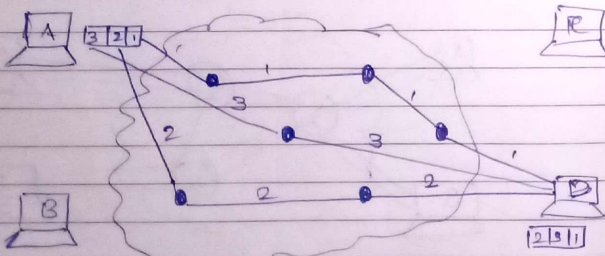
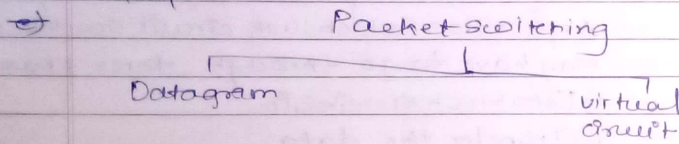
circuit switching



Telephone is the best example of the circuit switching.

ii) Packet switching:-

- The entire message is broken down into smaller chunks called packets.
- Individual packets take different routes to reach the destination.
- The internet uses packet switching techniques.
- The packet can arrive out of order at the receiver and have to be reassembled in proper sequence.



Packet switching

Ⓐ List any four Networking Connecting Devices.

- i) Hub      Repeater  
Switch      Bridge  
Router

Ⓐ State the types of errors

- i) Single Bit Error  
ii) Burst error  
iii) Noise  
iv) Distortion.

Ⓐ IPv6

- Source & destination addresses are 128 bits in length.
- IP header does not include a checksum.
- Fragmentation is not supported.
- There is no IPv6 broadcast addresses.

IPv4

- Source & destination addresses are 32 bits in length.
- IP header includes a checksum.
- Fragmentation is supported.
- IP headers include options.



Guided Media	unguided media.
i) It is also called as bounded or wired media.	i) Also called as <sup>needed</sup> unbounded or wireless media.
ii) undirected, not Broadcast-	ii) Broadcast-
iii) <del>Needs more memory</del>	
iii) Installation is costly and time consuming	iii) Installation needs less time & money.
iv) Twisted pair cable, Fiber optic, coaxial cable	iv) Radio, Infrared light, Microwave, Satellite

LRC	VRC
i) Longitudinal Redundancy check.	i) Vertical Redundancy check.
ii) The LRC bits are parity bits associated with the rows of the data block	ii) The VRC bits are parity bits associated with the ASCII Code of each character
iii) Each VRC bit will make the parity of the bits corresponding column an even <sup>parity</sup>	iii) Each VRC bit will make the parity of the corresponding row an even parity.
iv) character (	
b1 1	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> 1   0   1   1   0   1 </div>
b2 0	
b3 1	
b4 1	
VRC = 1	