THADOMAL SHAHANI TSEC ENGINEERING COLLEGE

Assignment No - I

Q.1 Write short note on :

1) Repeater

⇒
- A repeater is a dynamic network device used to reproduce the signals when they transmit over a greater distance so that signal's strength remains equal.
- It can be used to create an Ethernet network.
- A repeater that occurs as the first layer of the OSI layer is the physical layer.
- The significant point to be noted regarding these devices is that they do not strengthen the signal.
- Whenever the signal gets weak, they reproduce it at the actual strength.
- A repeater is a two-port device.

2) Hub

⇒
- A Hub is common connection point, also known as network hub, which is used for connections of devices in a network.
- It works as a central connection for all devices that are connected through a hub.
- The hub has numerous ports.
- IF a packet reaches at one port, it is able to see all the segments of the network due to a packet is copied to the other ports.

- Network Hubs are classified as -

1) Active Hub

⇒ These hubs have their own power supply and these hubs are used to clean, increase and transmit the signal using the network.

2) Passive Hub

⇒ These hubs collect wiring from the power supply and different nodes of an active hub.

3) gent Hub

⇒ It works like active hubs and include remote management capabilities.

3) Bridges

⇒
- A bridge in the computer network is used to unite two or more network segments.
- The main function of bridge in network architecture is to store as well as transmit Frames among the various segments.
- Bridges use MAC hardware for transferring Frames.
- In the OSI model, bridges work at the data link and physical layers to divide the networks from larger to smaller by controlling the data flow between the two.
- These are also used for connecting two

physical local area networks to a larger logical local area network.

4) Switches

⇒
- Similar to a hub, this also works at the layer in the LAN and a switch is more clever compare with a hub.
- The hub is used for data transferring, whereas a switch is used for filtering and forwarding the data.
- So this is the more clever technique to deal with the data packets.
- Whenever a data packet is obtained from the interfaces in the switch, then the data packet can be filtered and transmits to the interface of the proposed receiver.
- Due to this reason, a switch maintains a content addressable memory table to maintain system configuration as well as memory. This table is also named as FIB (Forwarding Information Base)

5) Router

⇒
- A network router is one kind of network device in a computer network and it is used for routing traffic from one network to another.
- These two networks could be private to public company networks.

- Example: A router is considered as traffic police at the junction, he directs dissimilar traffic networks to dissimilar directions.

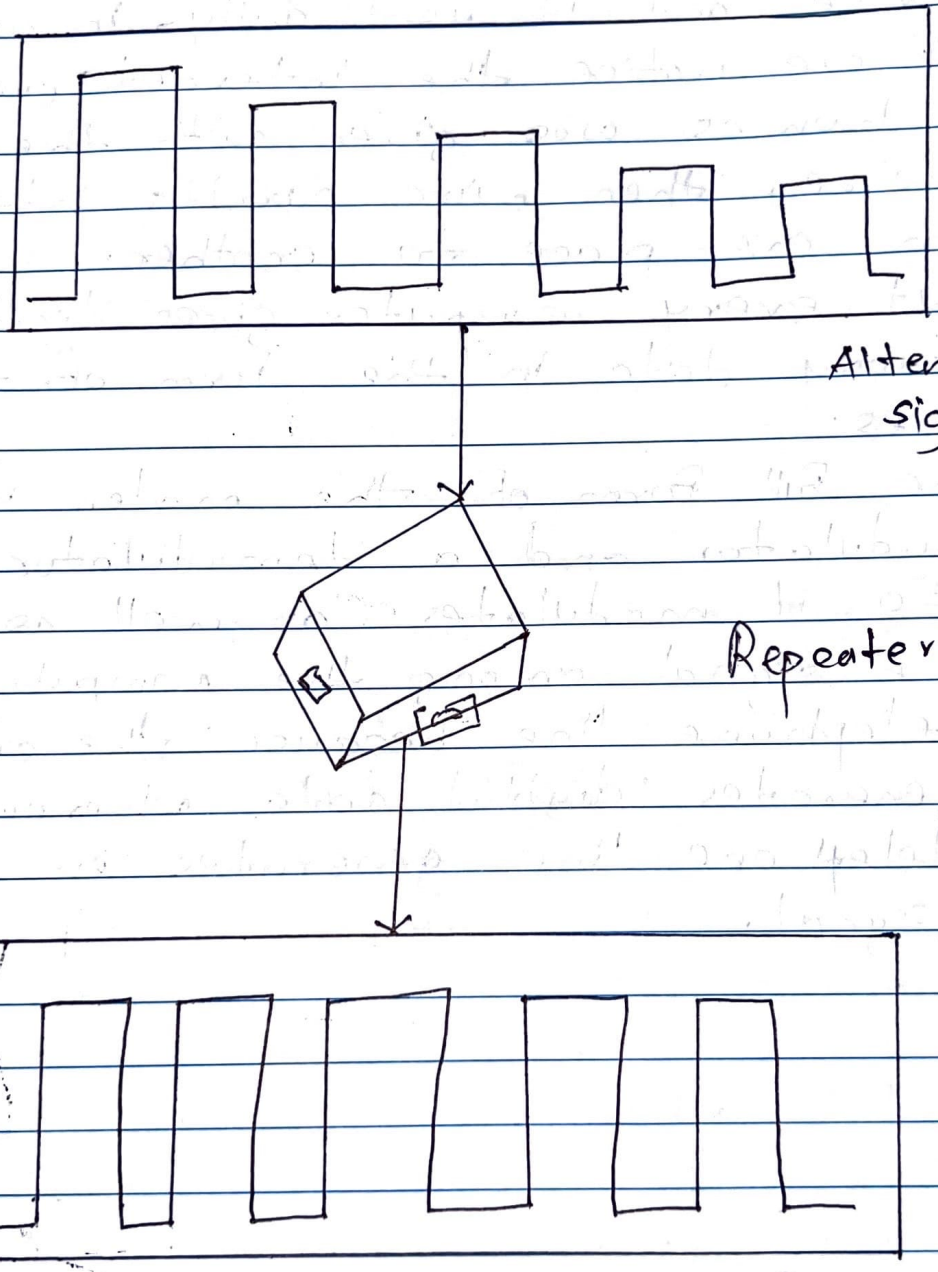
6) Gateway

⇒
- Generally, a gateway performs at the session and transport layers in the OSI model.
- Gateways offer conversion between networking technologies like OSI and TCP/IP.
- Because of this, these are connected to two or many autonomous networks, where each network has its own domain name service, routing algorithm, topology, protocols, and procedures of network administration and policies.
- Gateways execute all the functions of routers.
- Actually, a router with additional conversion functionality is a gateway, so the conversion between various network technologies is known as a protocol converter.

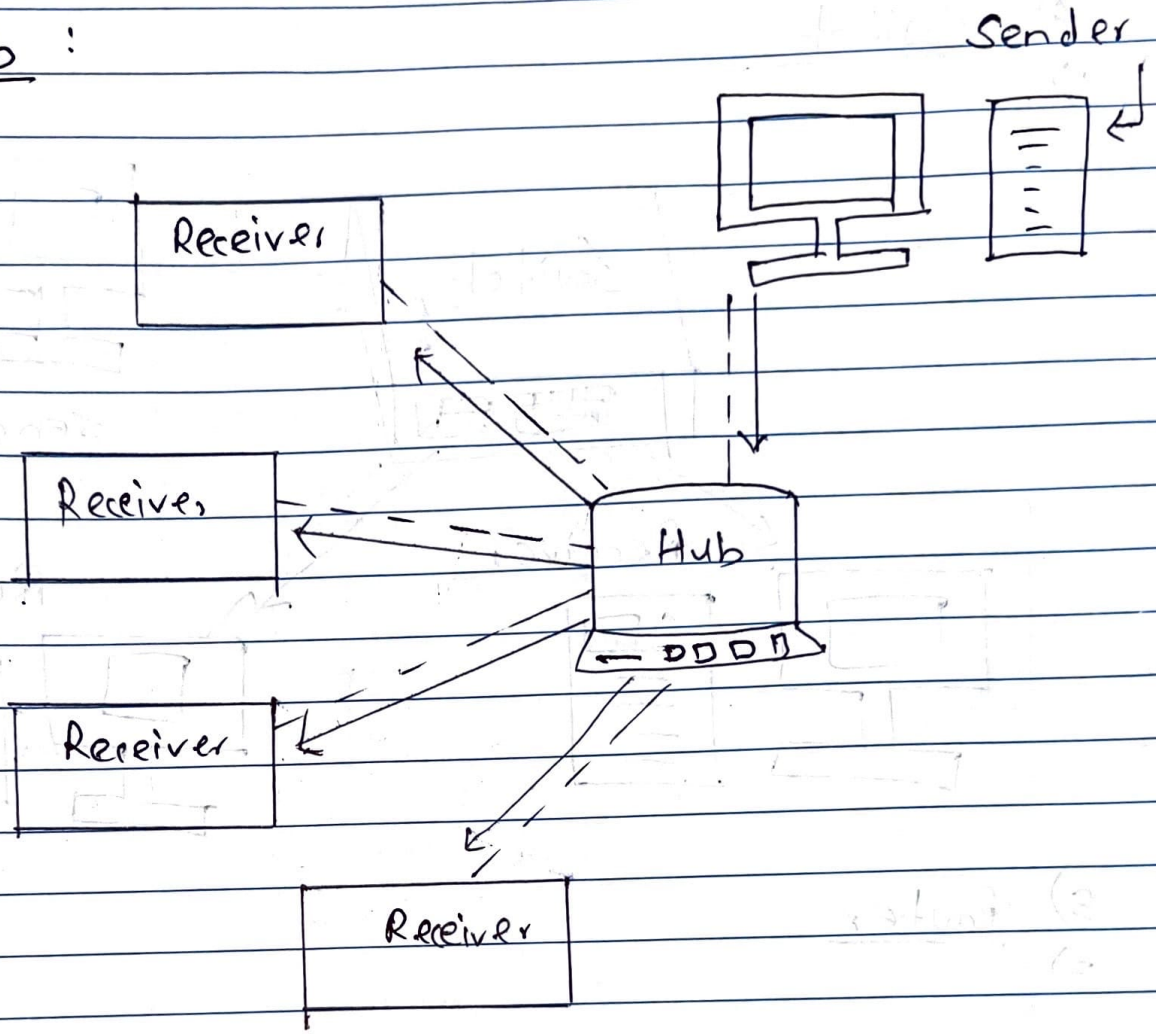
7) Modem

=> • A modem is the most important network device and it used daily in our life.
• IF we notice the internet connections to homes was given with the help of a wire, then wire carries internet data from one place to another.
• But, every computer gives digital or binary data in the form of zeros and ones.
• The full form of the modem is a modulator and a demodulator.
• So it modulates as well as demodulates the signal among the computer and a telephone line because the computer generates digital data whereas the telephone line generates an analog signal.

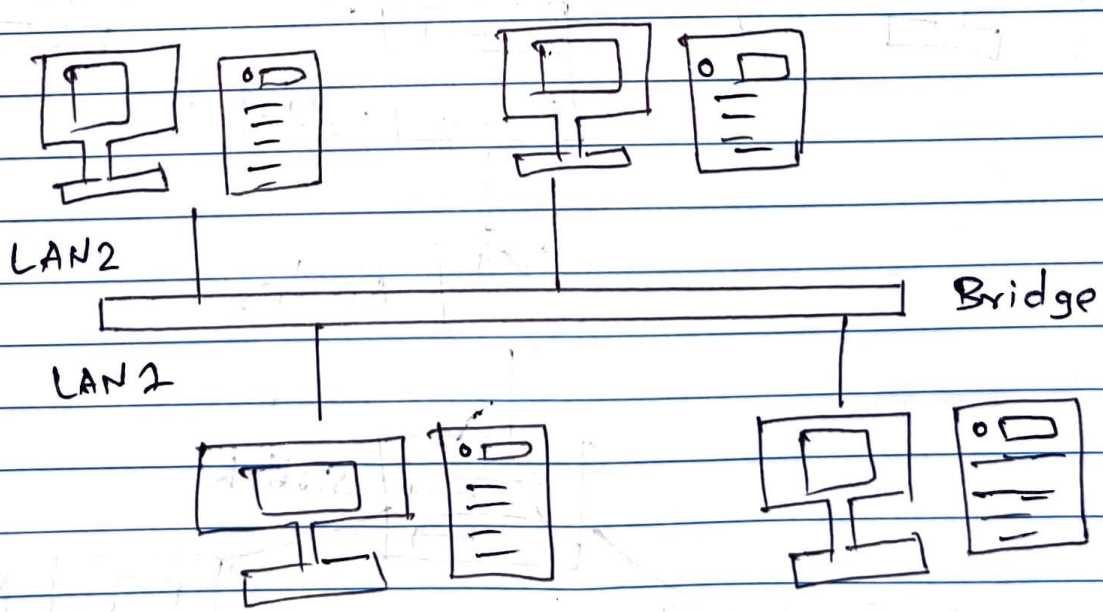
- Repeater



2) Hub :

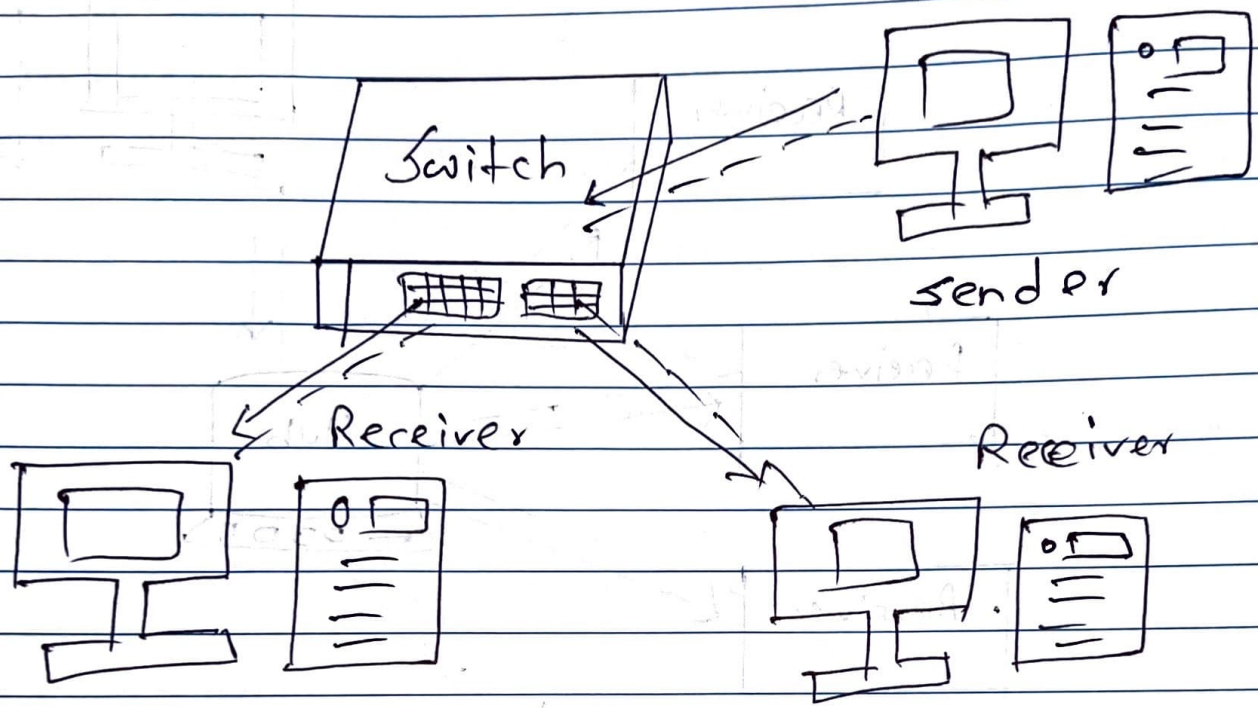


3) Bridge



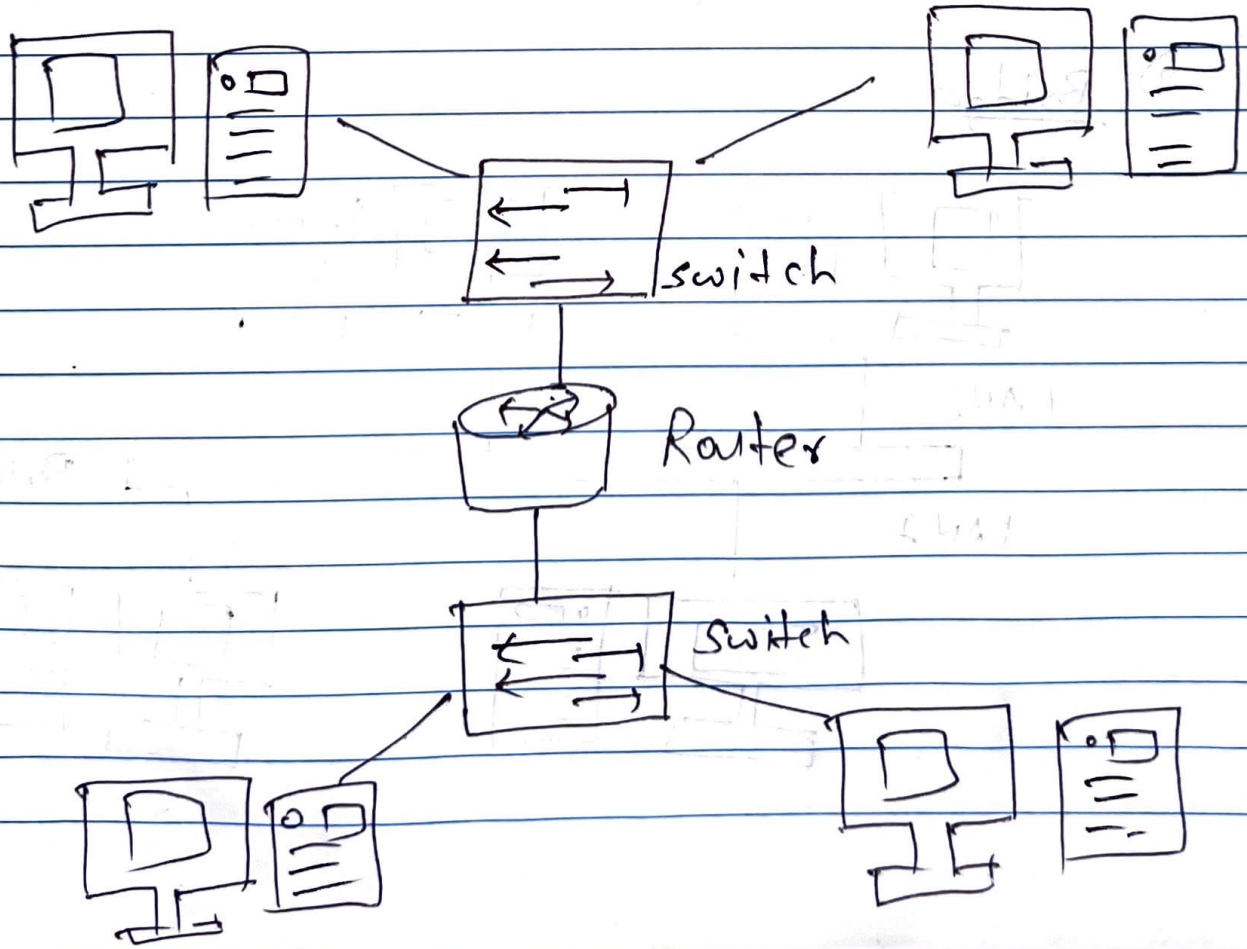
4) Switch

⇒



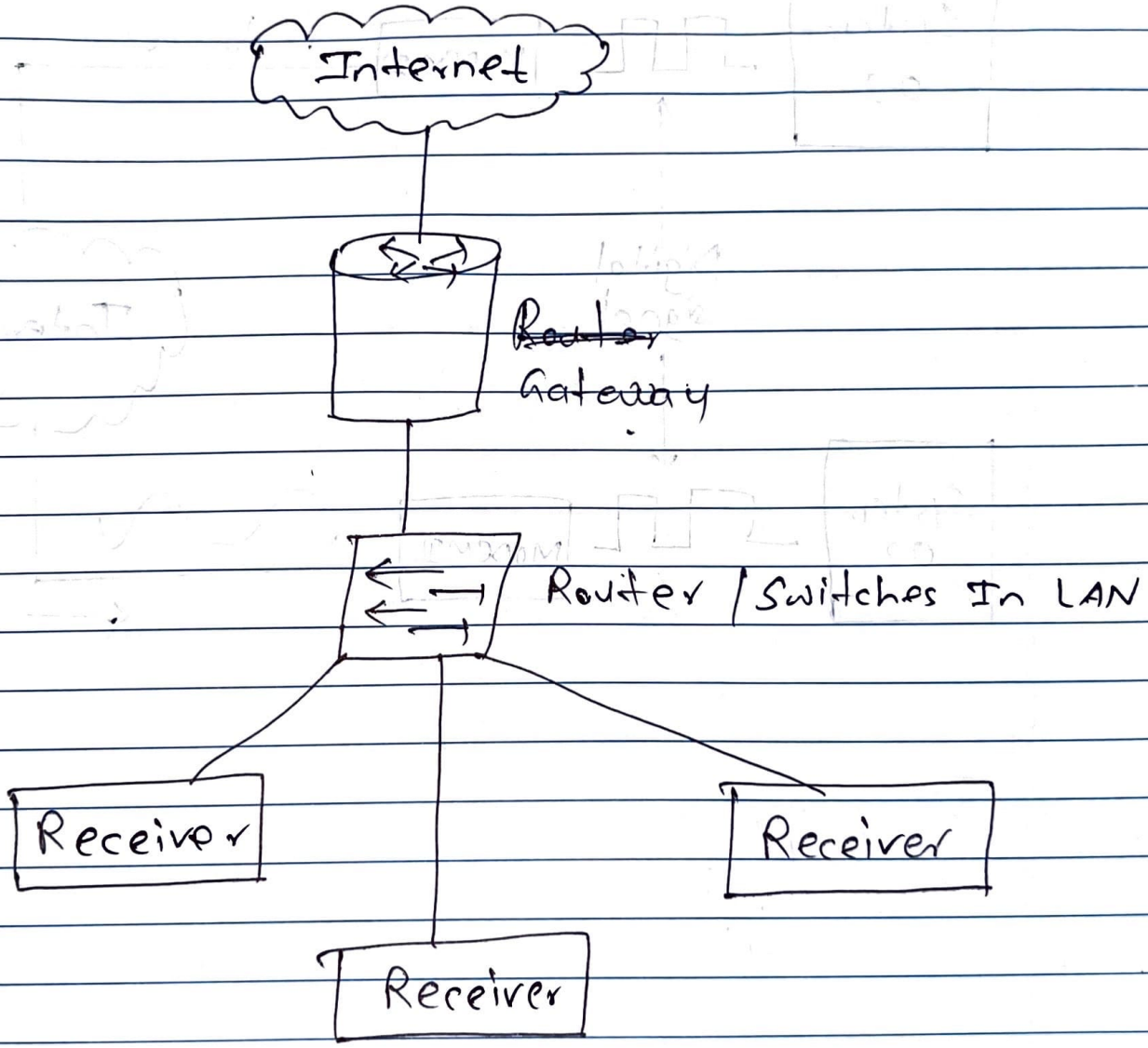
5) Router

⇒

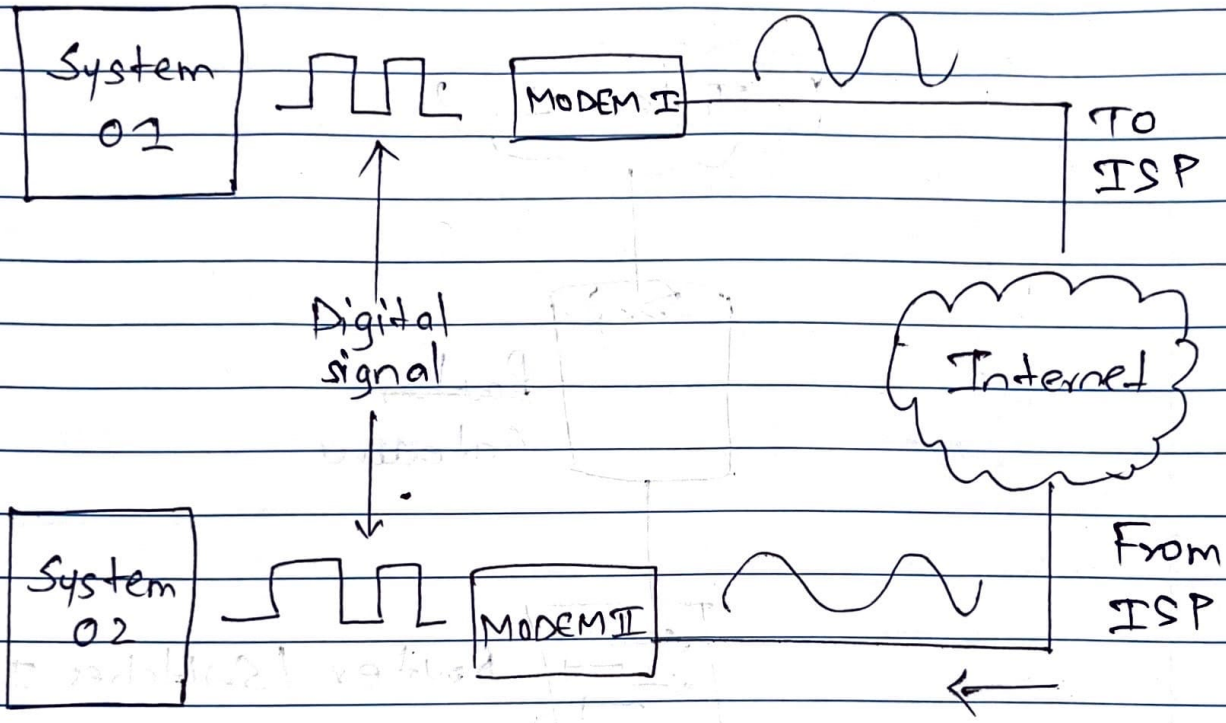


6) Gateways

⇒


Internet
Router
Gateway
Router / Switches In LAN
Receiver
Receiver
Receiver

7) Modem


System 01
MODEM I
TO ISP
Digital signal
Internet
System 02
MODEM II
From ISP