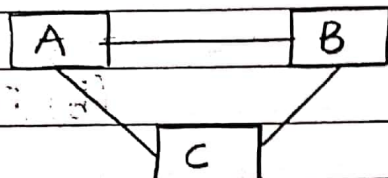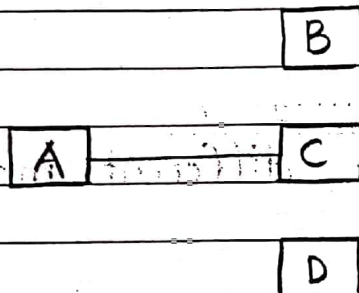Computer Network :—
Collection of machines connected to each other
in such a way that all the machines can
communicate with each other for info and
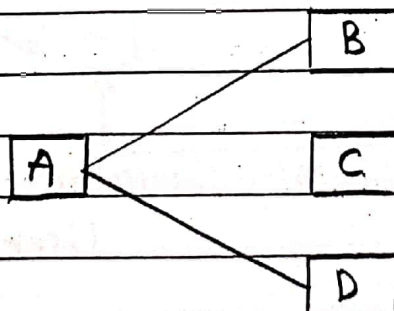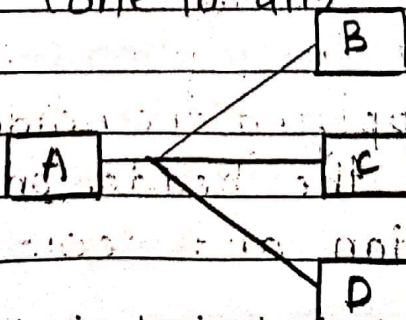resource sharing.



Types of communication :—
(1) Unicast (One to one)



(2) Multicast (One to many)
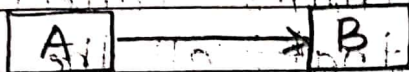


(3) Broadcast (one to all)

## Ways of communication :—

(1) Simplex (one way) :

A ———→ B

Eg:- Radio, TV

(2) Duplex (Two way) :

(a) Half

A ———→ B

A ←——— B

Eg:- Walkie-Talkie

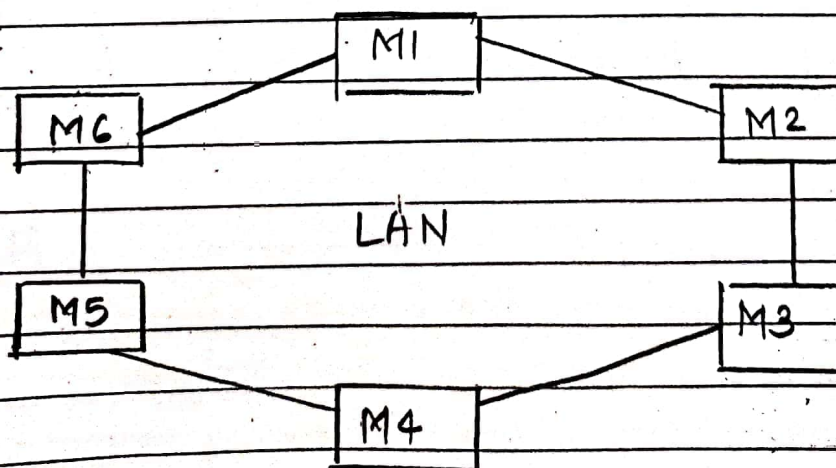(b) Full

A ←———→ B
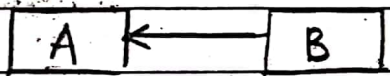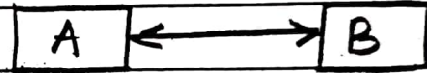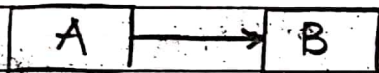
Eg:- Telecommunication network, chatbox

Networking Types :—

Depending upon the geographical area covered by a network, it is classified as :

(1) Local Area Network (LAN)
(2) Meteropolitan Area Network (MAN)
(3) Wide Area Network (WAN)
(4) Personal Area Network (PAN)
(5) Campus Area Network (can)

(1) Local Area Network (LAN) :—

(1) A LAN is a network that is used for communic--ating among computer devices usually within an office building or home.

(2) LAN enable the sharing of resources such as files or hardware devices that may be needed by multiple users.

(3) The geographical area covered by LAN is limited.

(4) LAN's are capable of very high transmission rate (100 Mb/s to Gb/s)

(5) The cost is less as compared to MAN and WAN

(6) It requires less wiring.

MI
M6
M2
LAN
M5
M3
M4

(2) **Meteropolitian Area Network (MAN):**

(1) A MAN is a large computer network that usually spans a city or a large campus.

(2) A MAN typically covers an area of 5 to 50 km diameter

(3) A MAN often acts as a high speed network to allow sharing of regional resources.

```
        LAN 1                      LAN 2

                      MAN

  LAN 5                              LAN 3


              LAN 4
```
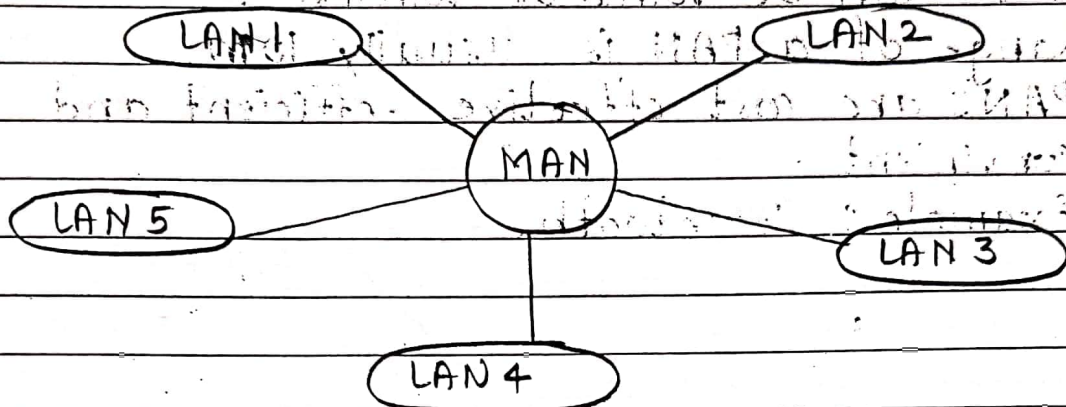
(3) **Wide Area Network (WAN):-**

(1) WAN covers a large geographic area such as country, continent or even whole world

(2) A WAN is two or more LAN's connected together. The LAN scan be many miles apart

(3) To cover great distances WAN may transmit data over leased high speed phone lines or wireless links.

(4) The world's most popular WAN is the internet.

(5) Multiple LAN's can be connected together using devices such as bridges, rounters or gateway.

(6) WAN is typically owned and maintained by various organisation

(4) Setting up a WAN network is expensive, slow and complicated.

CN NOTES BY PROF. AKN

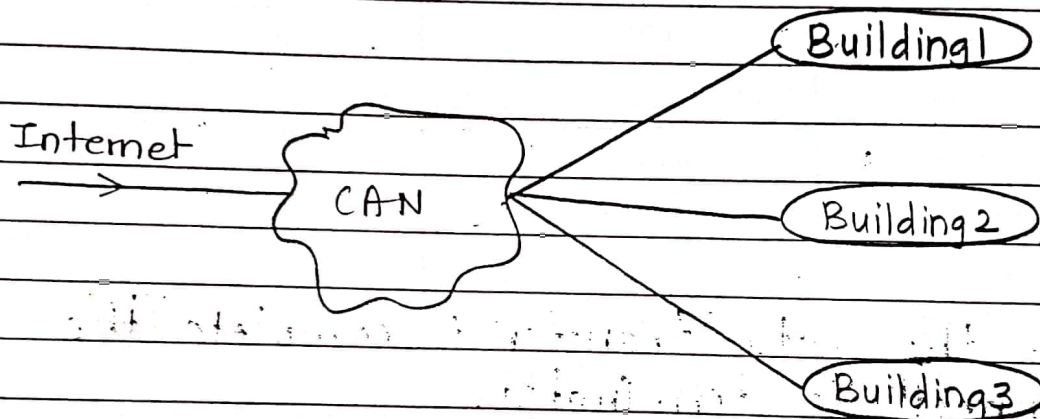(4) Personal Area Network (PAN) :
(1) PAN is a network that is used for communicating among computers and computer devices in close proximity of around a few meters within a room
(2) It can be used for communicating between the devices themselves, or for connecting to larger network.
(3) PAN's can be wired or wireless.
(4) Range of a PAN is usually 10m.
(5) PAN's are cost effective, efficient and convinient.
(6) Example : Bluetooth,
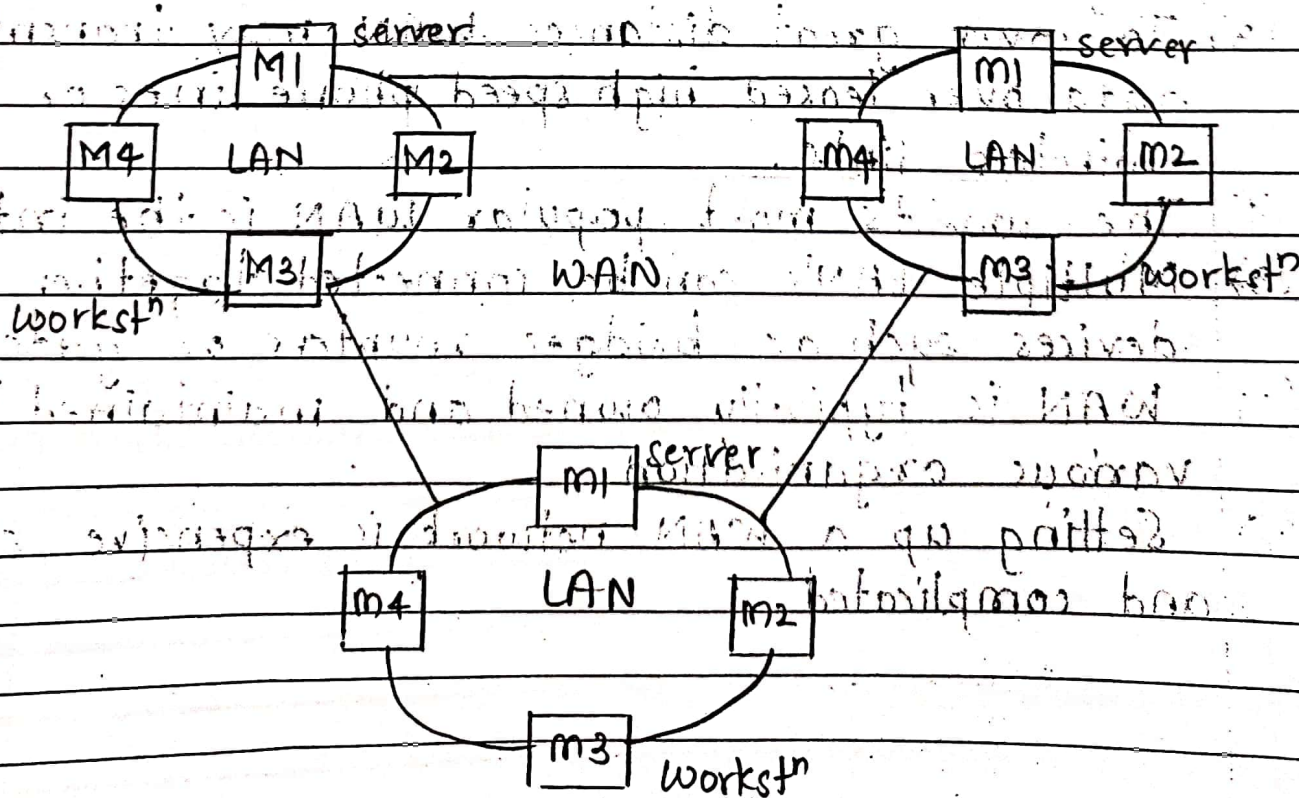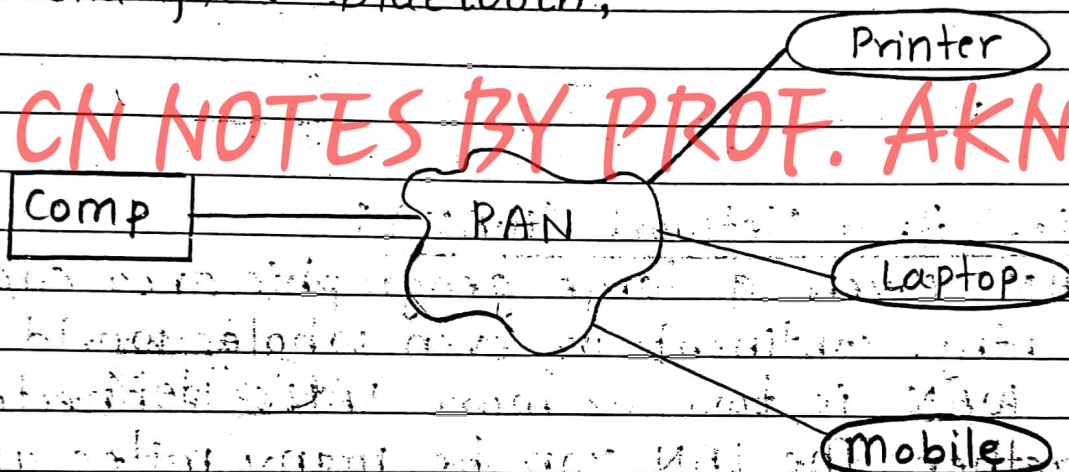
(5) Campus Area Network (CAN)

(1) CAN is made up of an interconnection of LAN with limited geographical area.

(2) Network equipments such as switches, routers and the transmission media i.e. optical fibre etc are almost entirely owned by campus owner

(3) CAN is smaller than WAN and MAN

(4) CAN supports maximum length of 40m

(5) CAN incurs more expenditure for software development and maintenance.



Internet → CAN → Building1, Building2, Building3