

*Date _____
Page _____*

MDSA

Master Diploma in System Administration

Syllabus:

- **Population**: 3,400 (in 2001)

* Introduction

* windows

- ## 2. Völker, Staaten & Hardwage

⇒ peripherals

DOS Installation

\Rightarrow software installation

⇒ System Assembling

Trouble Shooting

⇒ control panel settings

* Networking

Introduction

Hardware and Software:

Hardware \Rightarrow touchable part of a computer (os)
Physical part of a computer
Ex: CPU, monitor, ...

Software \Rightarrow intouchable part or set of programs

Ex: windows, MS-office, tally, etc...

There are 3 types

* System software

* Application S/W

* Utilities S/W

i) System S/W \Rightarrow it is operating system (os)

bridge between HW and S/W

Ex: window, Linux, Unix, POS, ...

ii) Application S/W \Rightarrow it is called user S/W

it is used to work for pos

Ex: MS-office, tally, C++, ...

These are two types

Language:

* it writing S/W.

* used to develop the project and new soft/w

Ex: C, C++, JAVA

Package:

* The S/W already has set up everything

* you can't create anything new

Ex: MS-office, tally, VB, SQL, ...



Utilities \rightarrow Additional usage SW
Ex: Antivirus, VLC media player, ...

Computer generations:

Total computer is 5 generations,
current using generation is 4th,

1st Generations [1942 - 1955] \rightarrow ENIAC, EDVAC, EDSAC
vacuum tube computer are referred
to first generation computers.

2nd Generations [1955 - 1964]:

The storage using transistors
being the brain of the computer.

3rd Generations [1964 - 1974]

The generation is used to IC technology
IC \rightarrow Integrated Circuits

4th Generations: [1975 onwards]

It is present in this gen.
use microprocessor CPU

5th Generations: [Present BEYOND]

Artificial Intelligence Technology
It is reality, using voice recognition,
natural language

Types of computer:

Name	Model
1. Super computer	CAC 6600
2. Mainframe com	Hitachi's 2800
3. mini com	K-800
4. micro com	
5.	
6.	
7.	
8.	
9.	

Computer Major parts:

CPU, monitor, keyboard, mouse

Additional parts:

Printer, scanner, speaker, mike, etc.

CPU Inside parts:

1. Mother board

2. RAM

3. BIOS - ROM

4. Hard Disk

5. SMPS

6. Processor

7. cooling Fan

8. CMOS - Battery

9. Chipset



1) Mother board:

* It is a printed circuit board, to connect the all hardware parts of CPU

2) RAM: → Random Access Memory

* It will store the information on system running, when erase the system switch off

* So it is a temporary storage

device

3) BIOS -ROM:

Basic input output system -read only memory

* It is used to booting process of system start to read the OS programming

4) Hard Disk:

* It is a permanent data storage device in computer. It will store the all type of data's

5) SMPS: → Switched mode power supply

* To power supply the all computer parts

6) Processor:

* To process the everything devices on computer.

7) cooling fan:

To reduce the system and processor heat



8) CMOS - Battery:

complementary metal oxide

semiconductor

* It is a small power battery.

* It has real time clock.

* When system stand by power is off

9) Chipset:

* It is a integrated circuits.

* To write the device working

program.

Volatile memory

Non-volatile memory

SRAM DRAM ROM BIOS

ROM BIOS

BIOS

ROM BIOS

BIOS

W/ RAM having address low to high

capacity of devices

Hard disk \Rightarrow 10 MB to 32 TB

CD-ROM \Rightarrow 700 MB

DVD \Rightarrow 4.7 GB

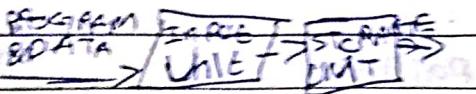
Floppy \Rightarrow 1.44 MB to 2.88 MB

Pen Drive \Rightarrow 8 GB to 64 GB

Memory card \Rightarrow 2 GB to 512 GB

Principle work of computer:

1. INPUT UNIT



2. OUTPUT UNIT

3. MEMORY UNIT

4. ALU

5. CU

INPUT UNIT → To give the information from user to computer.
ex: keyboard, mouse, scanner, joy stick, webcam etc.

2. OUTPUT UNIT → To give the results from computer to user.
ex: monitor, printer, speaker, etc.

3. MEMORY UNIT → To store the all information's
there are TWO types:

a) primary (or) temporary memory

b) secondary (or) permanent memory

a) primary: → This memory is storing automatically
will user works, when system on (or) off timings

i. Device: RAM - Random access memory

ii. ROM - Read only memory

b) secondary: → This memory saved by user. It is a permanent
device: Hard disk, CD, Memory card, etc.

4) ALU: [Arithmetic Logic Unit] → calculation works
Device: IC & chipsets

5. CU → CU = Control Unit → To control the overall process
Device: Processor

S/W name	Exe filename	Exten sion
Paint	MSPaint	png
NotePad	.notePad	txt
WordPad	WordPad	.rtf
MS-Word	win word	dosx
MS-Excel	Excel	xlsx
MS-PowerPoint	PowerPnt	PPTX
Calculator	calc	
on-screen keyboard	OSK	
Picture		.jpg
Animation Picture		gif
small videoS		avi
small audio		wav
<u>Windows Versions</u>		
Windows 1.01 - 1985		
Windows 3.0 - 1990		
Windows 95 - 1995		
Windows 98 - 1998		
Windows 2000 - 2001		
Windows XP - 2001		
Windows Vista - 2007		
Windows 7 - 2009		
Windows 10 - 2015		
Windows 8 - 2012		
Windows 8.1 - 2013		
Windows 9 - 2014		
Windows 10 Pro - 2015		
Windows 11 - 2022		

Dad 11.11.2025
Papa

Peripherals

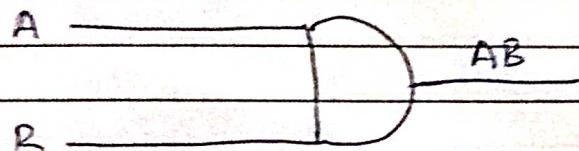
Processor

Gate Base

This is three types

AND

AND, OR, NOT



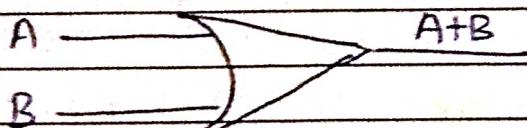
A	B	AB
0	1	0
1	0	0
0	0	0
1	1	1

AND - AND Gate

OR - OR Gate

NOT - NOT Gate

OR



A	B	A+B
0	1	1
1	0	1
1	1	1
0	0	0

OR - OR Gate

NOT - NOT Gate

NOT - NOT Gate

NOT - NOT Gate

Note

A DO A

KOPPAJAPPA

Note

0 → 1

1 → 0

Number system

Binary - 0, 1

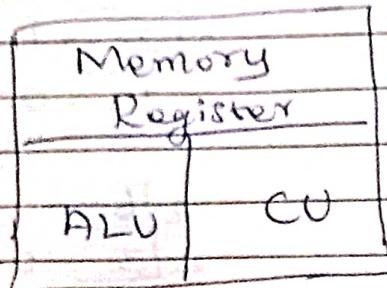
Decimal - 0 to 9

Octal - 0 to 7

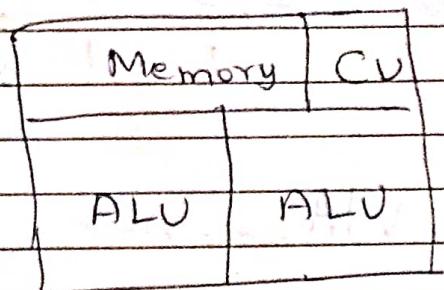
Hexadecimal - Numbers & characters [0 to 15]



Pentium IV



Dual Core



Technology:

Intel

colexon

centxino

Atom

xeon [use network server]

Clock Speed

computer right click Properties

processor capacity _____ MB

Purchase clock speed and cache Memory
processor SOCKET.

To connect the processor Place

LGA (new) \Rightarrow Land Grid Array \Rightarrow Pin socket
hole process

PGA (old) \Rightarrow Pin Grid Array \Rightarrow Pin proc,
hole socket

5MPS:

Switched Mode Power Supply

To power supply the all parts of CPU

AC \rightarrow Alternating current \Rightarrow change the + - direction
- using Electrical items

DC - Direct current \Rightarrow one tone - direction.
- using Electronic items

Charger, Computer.

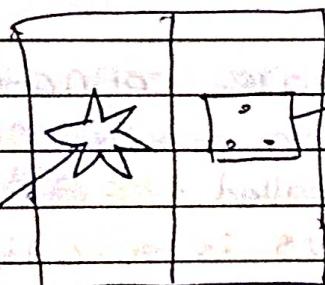
SMPs is AC 230 voltage. convert the AC to DC

Power Pin connector

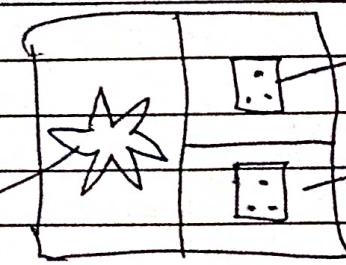
Mother board

Cooling Fan

Hard disk



In (switch to SMPS)



out (SMPS to Monitor)

BUSES:

System Bus:

Data bus

- move data among computer.

System components

Address bus

- carries the bits of a memory address

Control bus

- carries commands, command responses, status codes and similar messages.

1. Data:

Discuss Different -types of system buses

Data Bus is the most common type of bus.

It is used to transfer data between different components of computer.

The data bus consists of 8, 16, 32, 64 lines.

A b-line data bus can transfer bit of data at a time

2. Address Bus:

Many components are connected to one another through buses. Each component is assigned a unique ID, this ID is called the address of that component. The address bus is a unidirectional bus. It can carry information only in one direction. It carries address of memory location from microprocessor to the main memory.

B. CONTROL BUS:

Control bus is used to transmit different or control signals from one component to another component. Suppose CPU wants to read data from main memory.

1. Timing information:

It specifies the time for which a device can use data and address bus.

2. Command signal:

It specifies the type of operation to be performed.

ISA: → Industry Standard Architecture.

is a acronym for the 16-bit internal bus of IBM PC/AT and similar computers based on the Intel 80886 and its immediate successors during the 1980s.

$$2^{16} \Rightarrow 16 \text{ Bit}$$

$$2^{32} \Rightarrow 32 \text{ Bit or } \times 86$$

$$2^{64} \Rightarrow 64 \text{ Bit or } \times 64$$

MCA: → Micro channel architecture

superseded by - PCI (1993) pin

speed - 10MHz

EISA:

The Extended Industry Standard Architecture is a bus standard for IBM PC compatible computers.



VESA:

The VESA Local Bus is a short-lived expansion bus that was mostly used in personal computers.

PCI:

Conventional PCI, often shortened to PCI, is a local computer bus for attaching hardware devices in a computer.

audio/modem riser:

The audio/modem riser, also known as an AMR,

PCI-X:

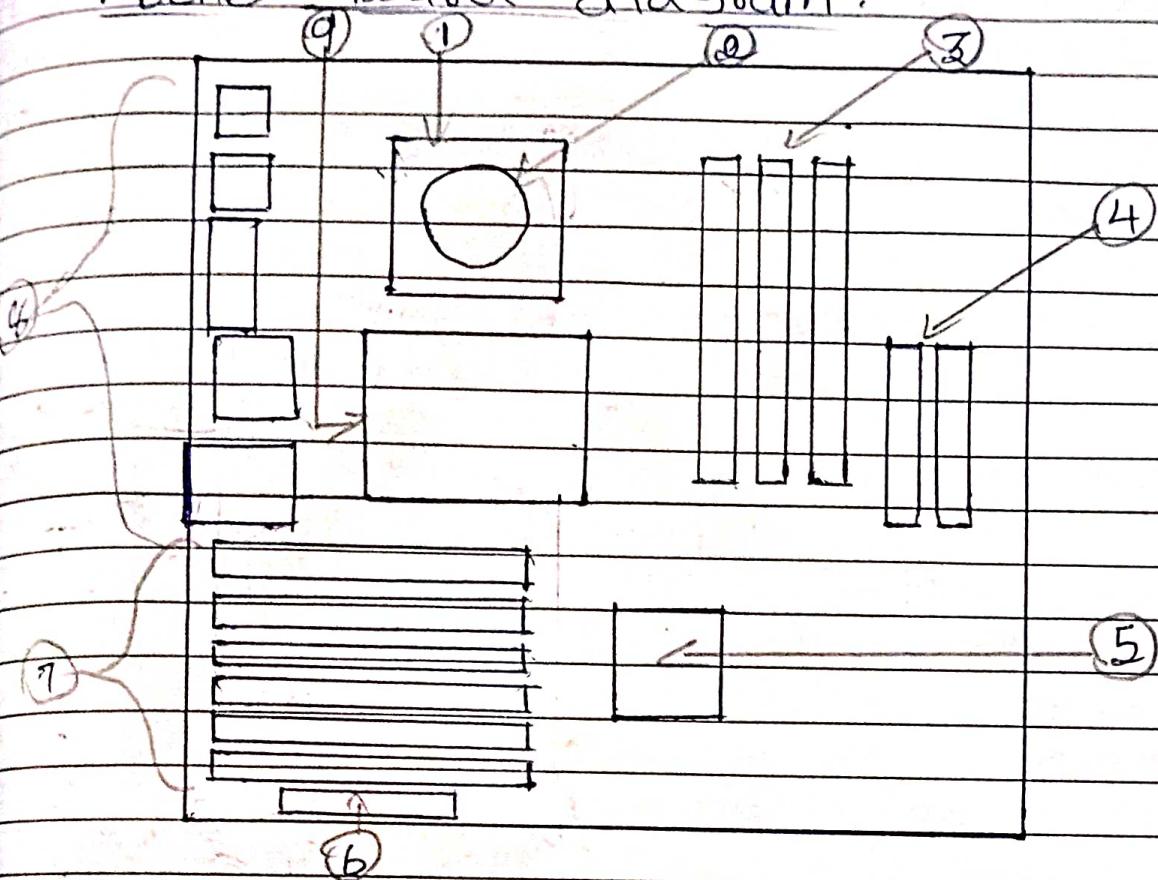
* This is 1998 year created

* created by IBM, HP, and Compaq

* supposed by PCI Express

* speed : 1064 MB/s

Mother board diagram:



1. → SOC A connector

2. → Processor Heat Sensor

3. → DDE Memory Slot

4. → HOD Header

5. → SOUTH BRIDGE chipset

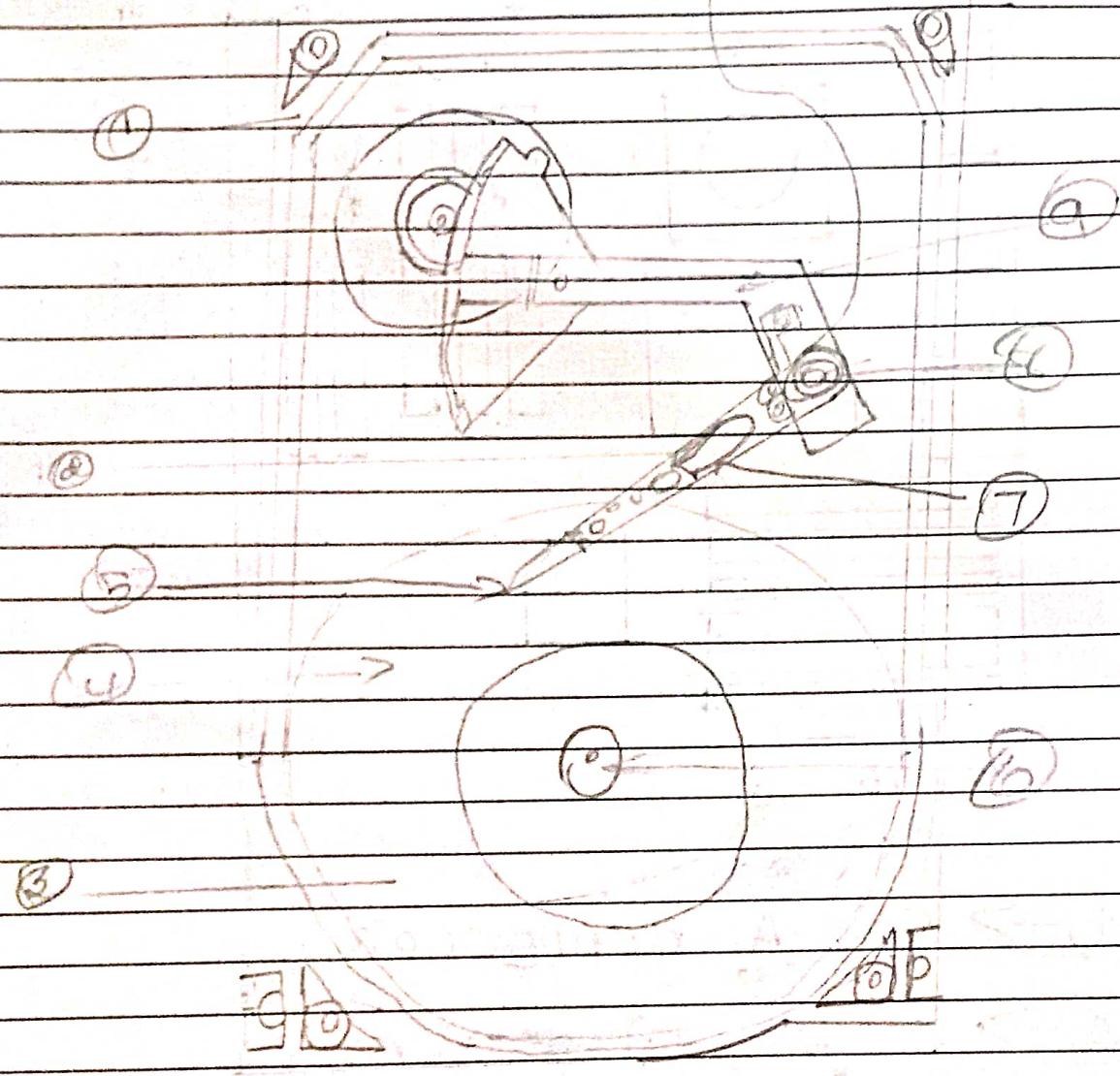
6. → CNR SLOT

7. → 32 PCl slot

8. → Back panel connector

9. → NORTH BRIDGE chipset

Hard disk diagram:



1 → chassis

2 → Head Arm

3 → disk platter

4 → platter

5 → Read / write head

6 → spindle motor

7 → arm

8 → pivot

9 → voice coil motor

Motherboard:

To connect the all parts in motherboard

Types:

OFF Board

ON Board

Semi - ON Board

Technology:

XT => Extended Technology

AT => Advanced Technology

AT, ATX => Advanced Technology.

ATX => Advanced Technology EXTended

Motherboard Parts:

1. Back Panel connectors
2. Processor socket
3. Cooler
4. Chipset
5. RAM slot
6. PCI slot
7. PCI-X
8. Power Pin connector
9. FDD connector
10. IDE connector
11. CMOS Battery
12. SATA Port
13. BIOS Jumper
14. FB USB
15. FB Audio
16. Front panel connector
17. BIOS ROM
18. POST



Memory:

To store the information

Types:

Primary storage (volatile) RAM

Secondary storage (non-volatile)

ROM, Hard disk, ...

Offline storage (Floppy, CD, DVD, Removable Di)

Audio and video files stored in their size/color depth based calculate the bytes

Ex: MP3, MP4, GIF, Picture files

RAM:

Ram → Random Access Memory

Two categories of RAM, That is,

1. SRAM [Static Random Access memory]

2. DRAM [Dynamic Random Access memory]

Lab:

1) chip set developed company name

Company Name + Country

- 1) Adapteva → USA
- 2) AiMotive → Hungary
- 3) Alstom → USA
- 4) Cognoce → USA
- 5) Ambarella → USA
- 6) Cerebras → USA
- 7) Graphcore → UK
- 8) Groq → USA
- 9) Koniku → USA
- 10) Light Matter → USA
- 11) Novumind → USA
- 12) Qualcomm → USA
- 13) Samba Nova Systems → USA
- 14) Tachyum → USA
- 15) Thicci → USA
- 16) "

Chips & Boards

- 1) Cambricon → China
- 2) Bitmain Technology → China
- 3) Horizon Robotics → China
- 4) Habana → USA
- 5) NVIDIA → USA
- 6) Brain chip → USA
- 7) Flex Logix → USA
- 8) Gyrfalcon technology → USA
- 9) Hailo Technologies → Israel
- 10) Luminous computing → USA
- 11) Mythic → USA
- 12) Wave Computing → USA

2) Motherboard types:

* Standard - ATX

* Micro - ATX

* Mini - ITX

* Nano - ITX

* Pico - ITX

3) PCI Sub - bus connected card?

* video card

* sound card

* TV tuners

* Firewire cards

* graphics cards

* many other types of extension cards

OS - Installed

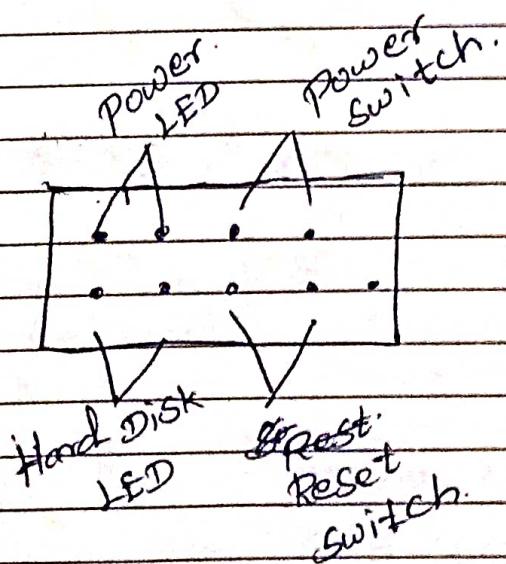
* Boot Pendrive (MSD card)

Boot The Pendrive:-

- => To Connect Pendrive.
- => open command prompt (cmd)
- => type diskpart ↴
- => list disk ↴
- => select disk 1 ↴
- => clean ↴
- => create partition primary ↴
- => select partition 1 ↴
- => Format 'fs NTFS' ↴ quick ↴
- => activate ↴
- => exit ↴

Mother Board

=> Front panel connector.

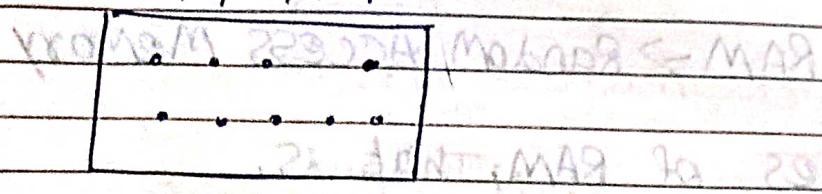




Audio

FP Audio.

MAR

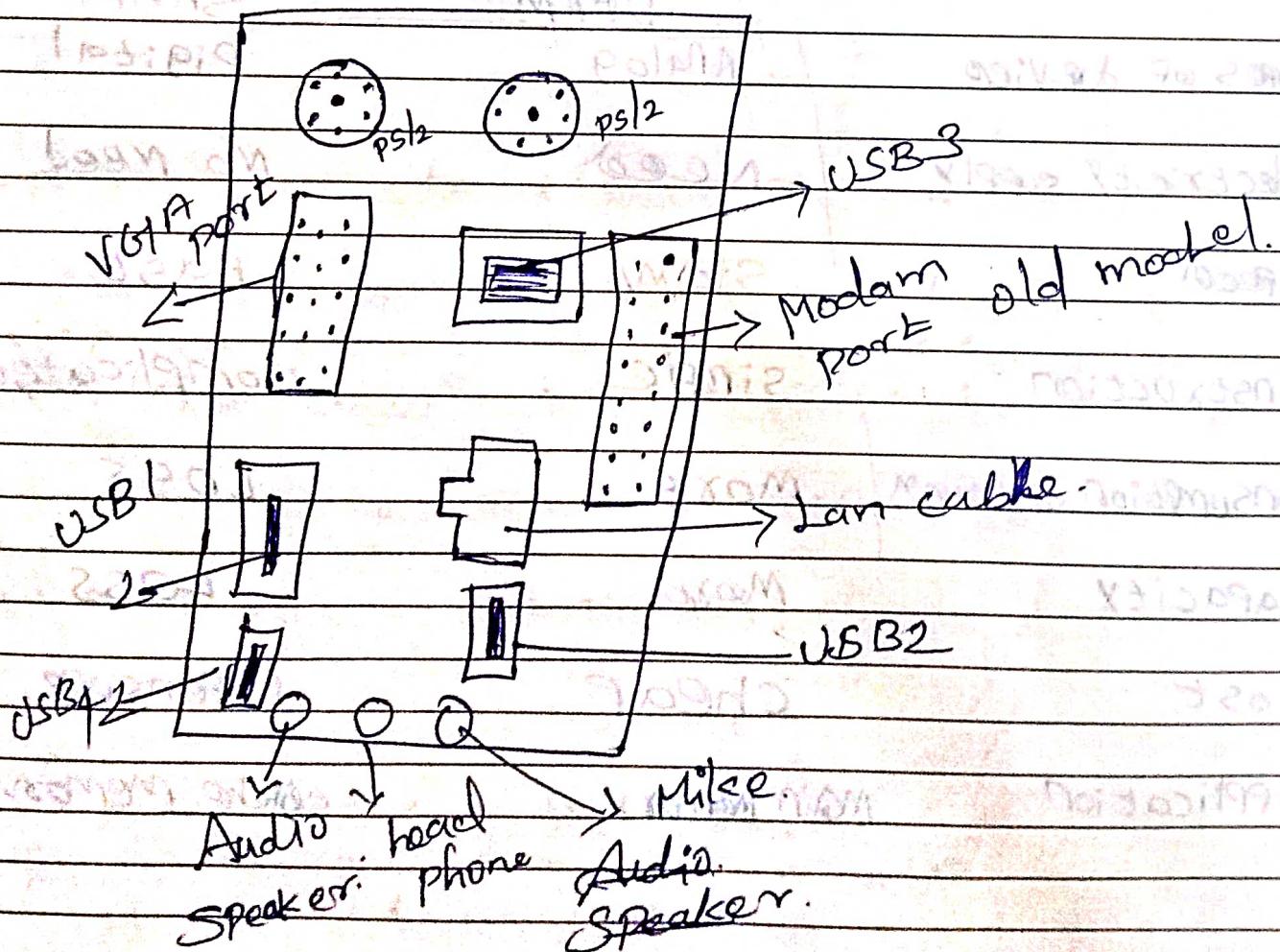


USB

USB 1

USB 2

Back Panel :-



RAM

RAM → Random Access Memory

TWO Categories of RAM, that is,

1. SRAM (Static Random Access Memory)

2. DRAM (Dynamic Random Access Memory)

SRAM:

→ SRAM means Cache Memory

Types of device	DRAM	SRAM
Electricity supply	Analog	Digital
Speed	Need	No Need
Construction	Simple	Complicated
Consumption of Power	More	Less
Capacity	More	Less
Cost	Cheap	Expensive
Application	Main memory	Cache memory

DRAM TYPES:

SDRAM, DDR, DDR2, DDR3

SDRAM \Rightarrow Synchronous DRAM

DDR \Rightarrow Double Data Rate

Memory Processing

Input \rightarrow RAM \rightarrow Cache Memory \Rightarrow Processor

SIMM \Rightarrow single In-line Memory Module

DIMM \Rightarrow Dual In-line Memory Module

RIMM \Rightarrow RAM bus-In-line Memory Module

DRAM · DIMM

RAM Module	Name	Notches	Pins
SDRAM	Synchronous	TWO	168
DDR	double data rate Synchronous	one in middle	184
DDR2	double data rate 2 Synchronous	one slightly to left middle	240
DDR3	double data rate 3 Synchronous	one furthest to left middle	240

chipset:

To store the program and it is a south bridge.
To manage the memory devices.

Ex. Hard Disk, CD, DVD, Floppy, ...

Bridge, which connects the device connect between north and south bridge program chipset - it connects the南北bridge. Chipset is connected to Motherboard work.

chipset developed company:

1. Intel
2. SIS
3. VIA

~~System memory control chip~~ - RAM - L1 cache
Motherboard: system control - L2 cache

Intel board + Intel chipset \Rightarrow 3 year warranty
other board + Intel chipset \Rightarrow 1 year x warranty
other board + other chipset \Rightarrow 1 year warranty

PCI slot - ai connect

1. LAN card
2. USB card
3. Bluetooth
4. Audio
5. VGA card
6. WiFi
7. TV Tuner card



cache memory capacity:

0-MB, 2, 4, 6, 8 MB

13, 17 → 3 MB

cpu core → 2 MB

Processor speed:

2.6 GHz, 2.8 GHz, 3.0 GHz, 3.2 GHz, 3.3 GHz

→ X

Monitor:

Technology

CRT

LCD

LED

CRT ⇒ Cathode Ray Tube (Picture tube = color display)

Advantage: Display original color (Studio = Take photo)

Disadvantage: Big Size, high voltage power (LCD Power)

LCD ⇒ Liquid Crystal Display

Liquid means water, touching screen, this is direct view.

Advantage: Size small, low power.

Disadvantage: Not Reuse

Size: 15, 16, 17, 19, 21 inches

LED ⇒ Light Emitting Diode

Ex. Gold Rate, Bus board, LED TV

It is Photo film view, that is any direction

Advantage: Low power, original view or multi view

Disadvantage: Not Reuse.

LG, SAMSUNG, ACER, BEKO, HITACHI, Micromax

Purchase:

technobay, inches

Company:

company, warranty

Customer id no: seithu service center 110002

@ Parkalum: shop A5, 1st floor, 974210

- c Monitor cable:-

POWER CABLE

VGA cable \Rightarrow Video Graphics Adapter

VGA Pin types:

1 pin connector (old)

9 pin connector (old)

15 pin connector (current)

Keyboard:

Technology:

1. ordinary keyboard (Plastic)

2. Mechanical - The key travel rate \rightarrow 300 to 1500

Connector:

• PS/2 6 PIN

• USB

• wireless cordless

wireless

Keyboard

old

PC connect

use co

PC connect

LAPTOP

technology

connector

buttons!

TV

The

The

Purchase:

technology, inches

CHIPS AND DRIVERS

company:

company, warranty (6 months)

Customer is used with service center (if sold)

Part number, shipping address, contact information

- Monitor cable: 

Power cable

VGA cable \Rightarrow Video Graphics Adapter

- VGA pin types:

1 Pin connected [cold]

9 Pin connector [GD]

15 Pin connected [current]

key board

technology:

1. ordinary keyboard (Plastics)

2. Mechanical: Theadv

Rate \rightarrow 320 to 15000 events

connectors:

• PS/2 • 6 Pin mini DIN (Keyboard, Mouse)

• USB (Universal Serial Bus) with 4 pins

• serial • wireless cordless



Wireless:

Mobile, Remote

Keyboard types:

ordinary multimedia keyboard shortcut

Bluetooth based keyboard for portable devices

PC converter:

to convert the USB to PS/2

to convert the PS/2 to PS/2

use converter on port failure

PC computer is connect the PS/2, USB in CPU

Laptop is direct connection the motherboard

MOUSE:

Technology:

mechanical mouse

optical mouse

Connectors:

serial port

PS/2

USB

wireless

Buttons:

Two button - use before bkeys

Three button - use before bkeys

Two button + one scroll bar - current using

Mechanical mouse

using before 2006. Available the ball, working in x, y direction, detection, stuck (dust) the ball is not moving.

optical mouse:

current using mouse, working with round direction, sensor based working mouse.

sensor fault is mouse fault

USB movement \Rightarrow sensor light \Rightarrow Motherboard all CPU \Rightarrow not support the USB port serial port \Rightarrow no current use

wireless:

signal pass \Rightarrow change the power

Hard Disk

Hard disk developed and using before the floppy is used in computer

First hard disk - 1GB

Hard disk layout same as CD/DVD

Hard disk rotating the 7200 RPM [Round, RPM]
Rounding is used to store the information

Hard disk cables:

SATA cable [Fast & Safety]

IDE cable [Slow]

SATA \Rightarrow Serial Advanced Technology Attachment

Formatting

High Level

OS Install

Each and every

this 100%

4 drives

in memory

system

& 4 - Hard

CD/DVD, P

Note:

soft

installed

system

Mechanical mouse

using before 2006. Available the ball; working in x, y direction selection; if stuck (dust) the ball is not working.

Optical mouse

current using mouse, working with road direction, sensor based working mouse.

sensor fault is mouse fault.

key movement \Rightarrow sensor light \Rightarrow motherboard at CPU \Rightarrow not support the USB, POST serial port \Rightarrow No event use.

Wireless

signal pass \Rightarrow change the power

Hard Disk

Hard disk developed and using before the floppy is used in computer.

First hard disk - 1GB

hard disk layout same as CD/DVD

hard disk rotating the 7200 RPM [round. per minute]

Formatting is used to store the information

Hard disk cables:

SATA cable [Fast & Safety]

IDE cable [Slow]

SATA \Rightarrow serial Advanced Technology Attachment



Formatting:

High level formatting

low level formatting [only C formatting]

High Level formatting:

Hard Disk Drive [C,D,E,F,...] All formatting

OS Installation

minimum 40GB in C.

split drive capacity 352GB → 225GB

Each and every drive 10% storage is empty.

This 10% is recycle bin
if drives is split hard disk than recycle
bin memory is 10%
system maximum drive is 16
84 - Hard Disk, Floppy → But not connect the
CD/DVD, Pendrive

Note:

Software installed in D drive, but Antivirus
installed in C Drive: virus attack the C.
System process is slow

STEPS FOR WIN 7 OS

- Connect the USB drive and mini IT Pen Drive.
- Go to the system setup.
- Press F2 (Intel) or Delete (Msi/Gateway) or Esc (Acer/MSI).
- BIOS Setup will be appear.
- Select the Boot tab.
- Set the booting priority:
 - CD/DVD drive
 - Hard disk drive
 - FloPPY drive (disabled)
 - Ethernet
- Press F10 (Save and Exit).
- Press F12 (Enter).
- System say "Press any key boot from CD/DVD..."
- Press the "any one" key.
- Select "Windows Setup". Enter.
- Language screen will be appear.
- Click "Next".
- Click "Install Now".
- I accept the License Agreement & click Next.
- Select the "Windows 7 Ultimate x86" and "Windows 7 Ultimate (32-bit)". Click Next.
- Hard Disk Partition will be appear.
- Click "Drive options".
- Remove the all drive using "Delete" option.
- Create the partition using "New" option.
- Format the "C" Drive.
- Click Next.
- Installing the windows on 15 or 20 minutes.
- Restart the system a few times.
- Press any key boot from CD/DVD... [Don't press F12].
- Boot from hard disk load the windows.
- A box will be appear.
- Type the user name (pani), click Next.
- (Computer name: Daniel-PC)



- System ask the password. No answer. Click Next
- Select the Date and time click Next
- System ask. Update the recommended settings
- Select "Ask me later", Click Next
- Prepare the desktop on the System
- Start \Rightarrow Windows update
- Click \Rightarrow Change settings on left side
- Click "Never check for updates".
- Uncheck the below check box. Click OK

Flash Memory:

• Open drive, memory card, camera

• Remove the memory card ---

SMPS:

To power supply the all computer parts in CPU

SMPS \Rightarrow switched mode power supply

AC 230 V

AC \Rightarrow Alternating current

DC \Rightarrow Direct current

starting rate RS. 500

Power cables:

switch board to SMPS

SMPS to monitor

Power Pin / connector:

Mother board

cooling fan

hard disk

internal CD drive

ROM:

ROM \Rightarrow Read only memory

To store the BIOS program and this program is stored in chip

ROM types:

PROM

E.P ROM

EE.P ROM

PROM:

Programmable Read only memory

Ex. Writable CD

can't erase the data's

EPROM:

Erasable Programmable -ROM

Ex -Rewritable CD

write the new data's but not change the existing data's

EEPROM:

Electronic Erasable -Programmable - ROM

UV.RAS - This device is used to erase the data's
Ex. To erase the chip program by using UV.RAS.

FLOPPY

FDD \Rightarrow Floppy Disk Drive

- It is a offline memory
- It is a magnetic storage device
- To read or write the data's by using head and motor
- To read or write the more than times

Capacity:

320 KB, 640 KB, 1.44 MB, 2.88 MB (Failure)

Size: 3.5 inches

5.25, 3.5 inches

Floppy Rate: RS. 10

Disadvantages:

Magnetic power available in floppy, so near speaker then erase the data's

Floppy Disk:

36 Pins Connector

Rate \Rightarrow RS. 300

Speaker:

4 TYPES of computer speakers

- 2.0

- 2.1

- 5.1

- 7.1

PC \Rightarrow 3.5 mm audio jack

Laptop \Rightarrow USB

4 channel sound card

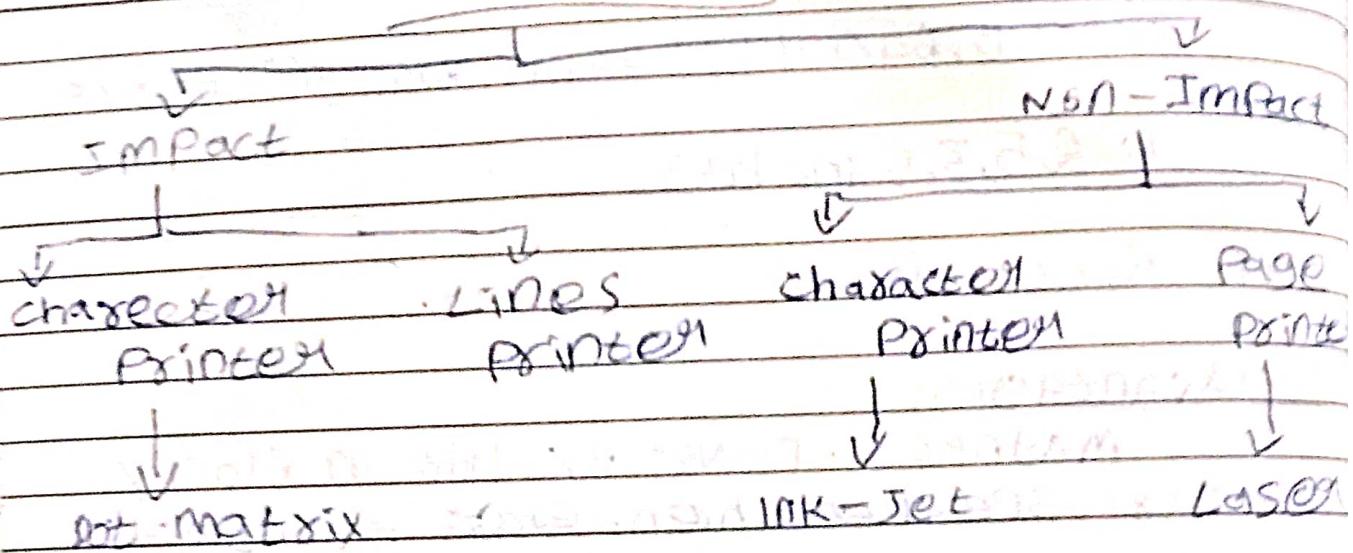
1. Speaker (out)

2. Headphones (out)

3. Tape recorder (in)

4. Microphone (in)

Printer



Scanner

System Assembling:

SMPS Power supply connection to Motherboard

Hard Disk
cooling fan

Hard Disk \Rightarrow SATA or IDE cable is HD to motherboard (or)

power cable is HD to SMPS

Mother board \Rightarrow To connect the Processor,

cooling fan and connect 3 pin to connect

Front Panel connector \Rightarrow connect the Audio Pin and LAN Pin

USB Pin connect the speakers Pin

connect the power switch, power LED, HDD LED, Reset

Dock Panel connector \Rightarrow connect the keyboard, mouse

connect the power cable in switch board to d

com & VGA cable in CPU to monitor

or to audio cable in CPU to speaker to m

onitor \Rightarrow connect the power cable in switch

board to monitor (or)

CPU to monitor (or)

- ~~refractor~~ Pin connected in cooling fan for ATX mother board
- SDRAM \Rightarrow Synchronous Dynamic Random Access Memory
- CRT \Rightarrow cathode Ray tube
- LCD \Rightarrow Liquid crystal Display
- & IDE connectors in motherboard [HDD, FDD]
- AGP \Rightarrow Accelerate Graphics port
- Heavy work in south bridge compare with north bridge.

To print the page

File menu \Rightarrow Print or $\text{ctrl} + \text{P}$

A box will appear

Select the printer name

Type the number of copies

Type the page range

Select the paper size

Adjust the margins

Adjust the scaling

Select the layout etc.

Click point button

Scan:

Insert the document in Scanner

start \Rightarrow type "scan a document" \Rightarrow Enter

Click preview button

Adjust the preview

Select the save location

Select the type of file

Click scan button

Type the file name. Click OK

Task Manager

How can show then all icons in Taskbar

I
⇒ right click on the Taskbar

⇒ click Task Manager

Windows Process ⇒ click Windows Explorer

⇒ click Rescan it

II
⇒ right click over the Taskbar

⇒ click Customize button

⇒ click the select which icon appear on the Taskbar

⇒

System Information

How can show the system details

⇒ msinfo32

I

⇒ take the run box (Win+R)

⇒ type msinfo32

msinfo32 → Microsoft Information 32 bit

osname, system manufacturer, processor

system type x86-based PC ⇒ 32 bit

x64 based PC - 64 bit



how can view the hardware id.

⇒ click Manage

⇒ device manager

⇒ Network adapter

⇒ double click Realtek PCIe GBE Family controller

⇒ click details tab

⇒ select the property

⇒ Hardware tab

to set the need web page in your browser

⇒ start → control panel → internet option

⇒ general tab → "http://www.google.com"

Networking:

To share the data's between two systems or groups of computers, that is called networking.

Ex: one printer used on more than systems

Types of network

PAN \Rightarrow Personal Area Network

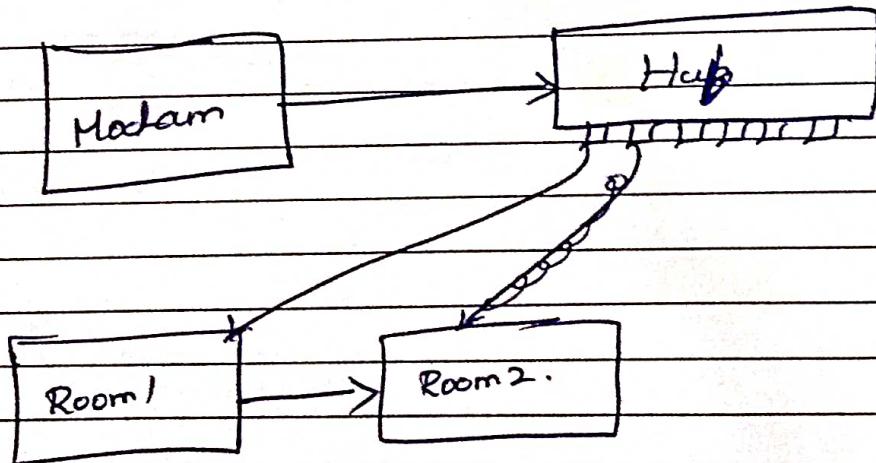
LAN \Rightarrow Local Area Network

MAN \Rightarrow Metropolitan Area Network

WAN \Rightarrow Wide Area Network

LAN:

connect the network in one room to another room



Man:

Connect Network from one place or one Building to another one place or Building.

ex:

College campus.



Modem

hub

Modem = You can connect
Modem + MS = Home network

Building 1

Building 2

X LAN:

Large size area network.

Connect the network one country
to another country

Modem

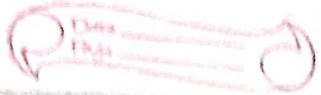
hub

India

USA

PAN:

Connect Networks Between around an
individual Building in Single person.



Internet working concept:

Information search \Rightarrow Modem \Rightarrow ISP \Rightarrow Server
server \Rightarrow ISP \Rightarrow Modem \Rightarrow my computer

.org - organisation (non-profit)

.in - india

.net - network

.co.in \rightarrow company in india

.uk - united kingdom

Apart from these are other common domain name like
.com - commercial organisation

.pk - pakistan

.au - australia

.edu - educational institutions

.ac - academic institutions

.res - research institutions

.ernet - educational and research institutions

.gov - government site

.mil - military

.nic.in - national informatics centre

(basically reserved for national
informatics centre but in practice most
Indian government agencies have domains
ending .in, nic.in.)

.um - united states minor outlying islands

EX

- .org → www.covid19india.org
 - .in → www.amazon.in
 - .net → www.wgo.net, www.kalvi-seithi.net
 - .co.in → www.yahoo.co.in
 - .uk → www.united kingdom.gov.co.uk
 - .com → www.sakthi.com
 - .pk → pknic.net.pk
 - .au → Gov.au
 - .edu → www.phoenix.edu
 - .ac → www.tanuvast.ac.in
 - .yes →
 - .ernet → www.b-sc.nursing.ernet
 - .gov → www.tnpsc.in
 - .mil → www.dma.mil
 - .nic.in → goidirectory.nic.in, www.ssc.nic.in
two category
 - .im →
1. workgroup
2. client/server
(Domain)

Workgroup is Microsoft's term for Peer-to-Peer local area network.

Workgroup same as individual system or file, printer and internet connection share same information.

* File share via cable or wireless

SERVERT

In computer networking, a server is a computer designed to process requests and deliver data to other computer over a local network or the internet.



TYPES:

- Web servers
- Proxy servers
- FTP servers
- online game servers

Needed for Net connection to computer.

- RJ45 pin connector
- Driver Software's
- MODEM
- TOPOLOGY

TOPOLOGY:

Topology is one of the internet connecting method.

TYPES:

- Bus Topology
- Ring Topology
- Star Topology

BUS TOPOLOGY:

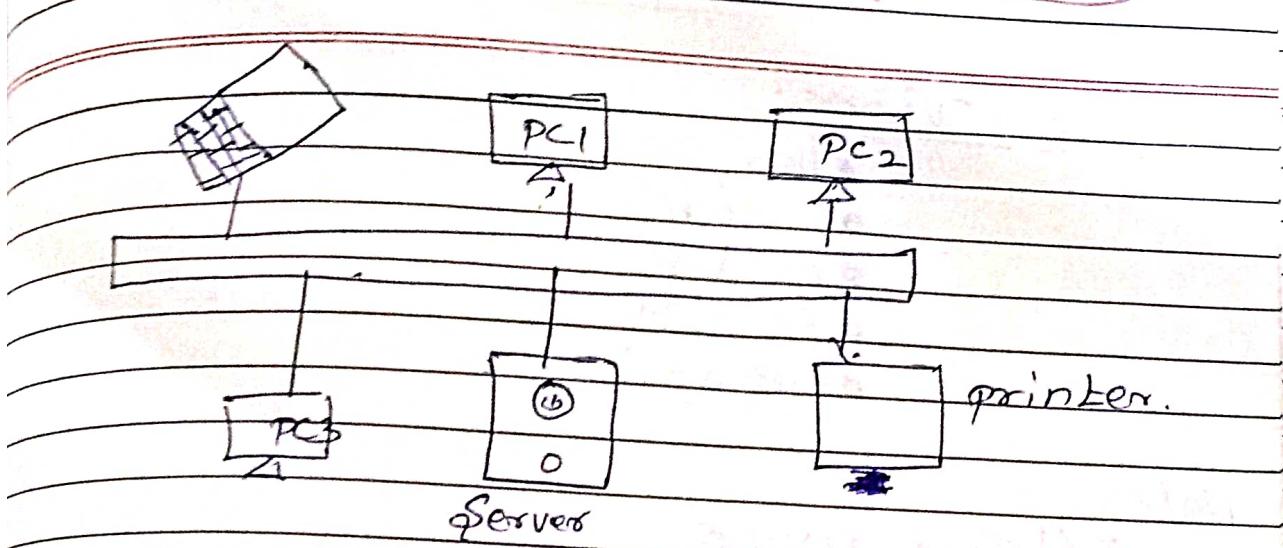
- Computer name and address is unique
- To maintain the address
from \Rightarrow source

To \Rightarrow destination

Address is correct than data's.

Transfer the one computer to another one computer

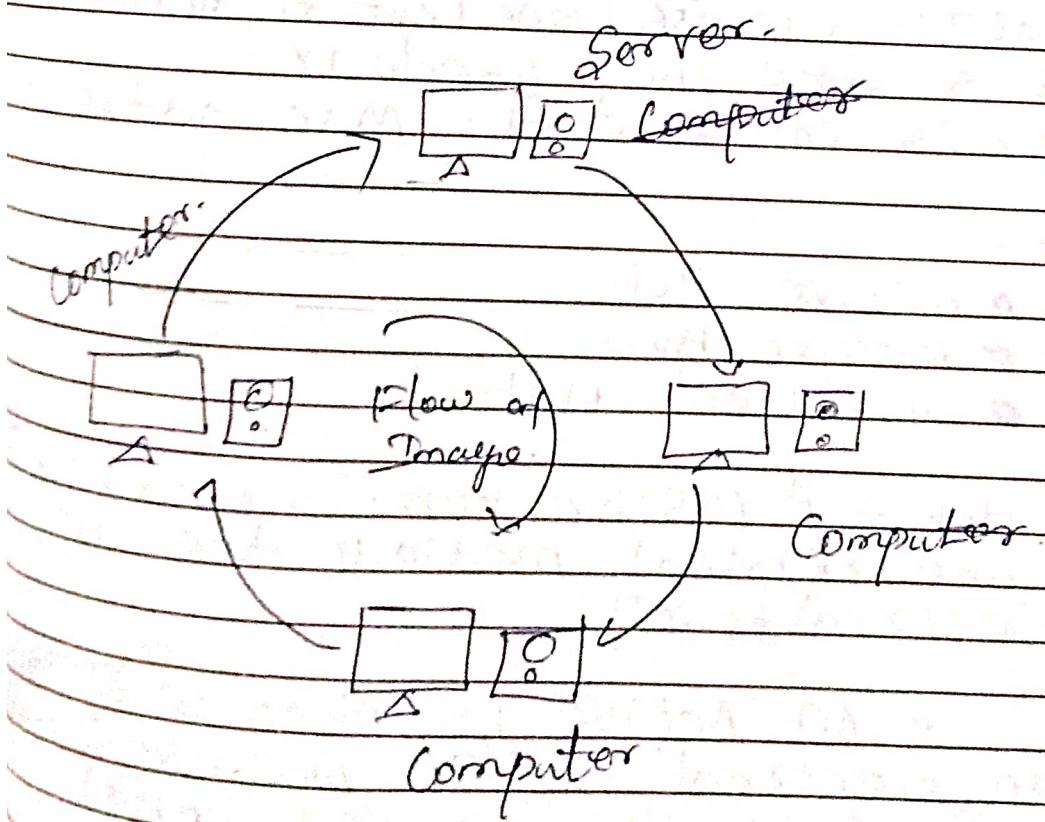
- Home letter \Rightarrow Received
- Data transfer is copper wire



Bus Topology

22/01/2002

Ring Topology:





Network Devices:

- Hub
- Switch
- Bridge
- Router
- Firewall

Notes:

Ethernet device

Band width \Rightarrow speed capacity

Ex. water pipe

Hub and Switch \Rightarrow only PC

Bridge, Router \Rightarrow one network to another network

Firewall \Rightarrow security device

Hub:

- Data's transfer one Port to all other Ports
- It is same bus topology
- Hub is not read the Mac address

Hub type:

- Active Hub
- Passive Hub
- Intelligent Hub

PASSIVE HUB - A Passive Hub is used only to store the physical media. It does not need electrical power.

ACTIVE - An Active hub must be plugged into an electrical outlet because it needs power to amplify the incoming signal before passing it out to the other ports.

Intelligent - Intelligent hubs are sometimes called smart hubs. These devices basically function as active hubs, but also include a microprocessor chip and diagnostic capabilities.

switch:

• Data's transfer is one Port
• It is same As Active Hub. But size is small.

• It has mac address available on Ethernet port

• Mac Address is a 12 bit hexadecimal Address

• Mac Address is called Physical Address

• Switch to read the Mac Address

• Mac Address is unique.

To view the system Mac Address

command \Rightarrow TYPE IPconfig

MAC \Rightarrow media access control

(or) manufacturer access code

12 bit Hexadecimal

6 bit

6 bit

(IEEE)

(Manufacturer serial no)

IEEE \Rightarrow International Electronics Electrical Engineering (or)

INSTITUTE OF ELECTRONICAL AND ELECTRONICS ENGINEERS



Advantage:

To transfer the data's using Mac Address. So no traffic, no collision.

Network Speed types:

TYPE	Download speeds	Upload speeds
cable	4-15 Mbps	384 kbps - 1.5 Mbps
DSL	786 kbps - 6 Mbps	256 kbps - 768 Mbps
Satellite	512 kbps - 1.5 Mbps	128 - 256 kbps
mobile	3Mbps - 6 Mbps	Up to 1Mbps

Bridges:

A network bridge is a computer networking device that creates a single aggregate network from multiple communication networks or networks segments. This function is called network bridging. Bridging is distinct from routing, which allows multiple different networks to communicate independently while remaining separate.

- To connect the more than one network for different places and different networks.
Ex: more branches network
one branch to another one branch

Notes:

- Normal website \Rightarrow view the data's in all person
- Industrial website \Rightarrow don't view the person, because data's transfer by using bridge. So, don't view the another network and another person
Ex: Net Banking
- Don't using this bridge currently, reason for data's transfer is particular way

Repeater Mode =

IP: 192.168.0.1

IP: 192.168.0.10

IP: 192.168.0.1



wireless Router
or Access Point



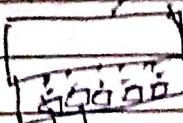
Repeater



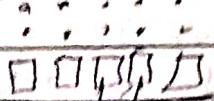
Desktop/
Laptop

ROUTER

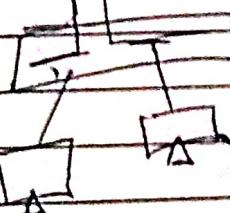
switch 1



switch 2



Hub A



Hub B

Bridge

* Router

* It is one of the network devices

* Transfer the data packets between networks

Repeater Mode

It transfers the data to two networks
using Repeater purpose of range
extended

Network cables:

use:

→ data transfer between two network using cable.

1. coaxial cable
2. Twisted pair cable
3. Fiber optic cable

Coaxial cable:

The cable is product of copper wire. To product this cable is using cladding material.

Ex: TV cable

There are 2 types

Thicknet
Thinnet

cable type IEEE code bandwidth max

Thicknet	10 Base 5	10 Mbps	500
----------	-----------	---------	-----

thinnet	10 Base 2	10 Mbps	185
---------	-----------	---------	-----

Twisted pair cable:

This is a current using LAN cable for PC.

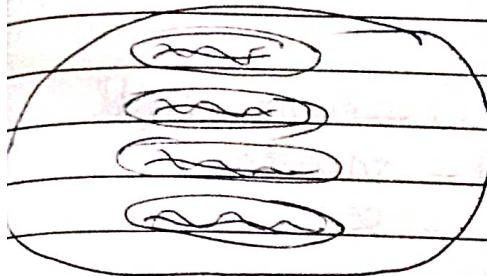
TYPES:

→ shielded twisted pair [STP]

→ unshielded twisted pair [UTP]

LAN cable is unshielded twisted pair cable

STP



Shield

UTP



Lan cable. (Un Shield)

categories of UTP [loop base . Twister]

TYPE	SPEED	COMMON USE
CAT1	1 Mbps	Phone lines (voice only)
CAT2	4 Mbps	Token Ring networks
CAT3	16 Mbps	Ethernet networks
CAT4	80 Mbps	Token Ring networks
CAT5	100 Mbps	Ethernet networks
CAT6	1000 Mbps	Ethernet networks
CAT6	2500 Mbps	Ethernet networks

Windows update:

- ⇒ Open the Control Panel
- ⇒ Select Windows Update
- ⇒ Install updates automatically (recommended)
 - ⇒ Select Fast download PC internet data (Fast download system)
 - ⇒ Update plan: Manual
- ⇒ Never check for updates (Not recommended)
 - ⇒ Select manual update setting

RJ45 pin connector:

AJ ⇒ Registered Jack

unshielded - Join the two wires inner, and split the wires edge, totally 4 pairs, 8 wires in the edge.

Shield - joining the two wires and covering the wires in plastic. Totally 4 pairs is available.

Fiber optic cable - FO/OFCS

Production is:- Mirror Layer with Copper data transfer very fast.
using place: tele communication.



Types:

SM → Single Mode Fiber

MM → Multi mode Fiber

SM ⇒ 10 Gbps ⇒ 20 km

MM ⇒ 10 Gbps ⇒ 10 km

Connector:

SC/ST → single mode

MT/RJ → multi mode

1.9.2021

N-computing

to connect more monitors with
in one CPU use in N-computing technology

Needed Tools

1. PCI card

2. N-computing Software

3. N-computing device attach the
needed monitor

4. LAN cable

2. VSpace server: X-6.2.7.2

Step 1A software install -

⇒ VSpace bi-cleanup file

⇒ Table click on this file

⇒ Reboot msg appd click OK

Step 2:

⇒ Running the VSpace server application

⇒ Yes ⇒ Click Next ⇒ Agree

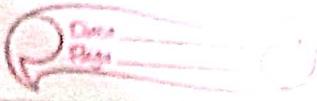
⇒ Next ⇒ Agree ⇒ Next ⇒ Next

Step 3:

⇒ Type the user login data for
Ncomputing products

⇒ Click Finish

⇒ Restart the system



Step 4: user creation:

- ⇒ Right click on the computer ⇒ Manage
- ⇒ Local users and groups ⇒ Users ⇒ Right click
- ⇒ New user
- ⇒ Type user name and password (csc)

Step 5: Remote desktop

- ⇒ Double click on the user name
- ⇒ Click members of tab ⇒ click Add
- ⇒ Click Advanced ⇒ Click Find Now
- ⇒ Select (RDN) Name ⇒ Remote desktop

Step 6: Restart the system

Step 7:

- ⇒ Click the needed user
 - ⇒ Type the password (csc)
- ~~SMS msg: the user's password must be changed before logging on the first time~~

[User] successfully logged in.

2010

2.0 - VIKRAM

Q-1

EDU

Q-1

11/10

Q-1

Address:

communication uses address. Address is unique.

Types:

Address → Logical Address (Mac)
→ Physical Address (IP)

IP: ⇒ Internet protocol

IP Address assign the user. (Programmable)

32 Bit / 4 Octant ⇒ 32 Bit divide 4 Octant

Bit

We | comes
1 1 1 1 1 1 1.
1 2 3 4 5 6 7 8

8 bits - 1 byte

(31/808)

00000000 . 00000000 . 00000006 . 00000000
8bit 8bit 8bit 8bit

$2^8 \Rightarrow 256$ values [0 to 255]

Binary = 0, 1

2^{12}

1 - 0

Binary

2^3

1 - 1

2^4
1 - 0
1 - 0

Binary:

$0 \Rightarrow 00, 1 \Rightarrow 01, 2 \Rightarrow 10, 3 \Rightarrow 11$

$$2^2 \Rightarrow 4$$

Octal: - 0 to 7

000, 001, 010, 011, 100, 101, 110, 111

$$2^3 \Rightarrow 8$$

0
1
2
3
4
5
6
7

Notes:

IP Address allocate 256 values.

Assign the IP Address:

Ex:

$$1.0.0.0 \rightarrow 1.0.0.0$$

$$2.0.0.0 - 1.1.0.0 \rightarrow 1.2.0.0$$

$$3.0.0.0 \quad 1.2.0.0$$

$$1 \quad 1.2.0.0$$

$$1.3.0.0$$

$$1.2.1.0$$

$$1.2.2.0$$

$$1.2.3.0$$

$$1.2.3.1$$

$$1.2.3.2$$

$$255.0.0.0$$

$$1.255.0.0$$

$$1$$

$$1$$

$$1.255.0.0$$

$$1.255.255.255$$

Last value: 255.255.255.255

Total value: $2^{30} \Rightarrow 4,29,49,67,295$



Notes:

No 07: To write the data CD, DVD from system

Step:

⇒ Open the Nero SW

⇒ Select "Burn" → ~~Format~~ → ~~10,00,000,000~~

⇒ Select - Make data DVD

⇒ Click Add

⇒ Select Software file location

⇒ Click Add → Click Next

⇒ Current recorder ⇒ GIGA-HIGH-SPEED DVDRAM

⇒ NV → GP65NB60-LDVD

⇒ Burn disk

⇒ Verify data on disk after burning

⇒ All files to be added successfully

— X0-08-2X — Date: 2023

— 08-08-2023 — Date: 2023

1) What is Modem?

2) Modem Types

3) Broadband Modem Diagram with Explanation

Modem IP

Notes

To Search the Modem IP in Broad band

Website: speedtest.in

Modem Address: 139.59.42.216

1st octant 5 classes:

- A, B, C, D, E

Class

A (1-126) \rightarrow 1.0.0.0 \rightarrow 126.0.0.0

B (128-191) \rightarrow 128.0.0.0 \rightarrow 191.0.0.0

C (192-223) \rightarrow 192.0.0.0 \rightarrow 223.0.0.0

D (224-239)

E (240-255)

1ST \rightarrow Reserved \rightarrow Loopback \rightarrow Echo

Using bridging or hub or switch or router
Ping command or tracert or ipconfig.

A, B, C classes is using PC network

Part E - class Resolved, not using this PC
Used for Broad cast and Research

Unique cost:

one to one msg - sending one person

Multi cost:

one to group msg - sending number of person

Broad cost: estimation add diag. OT

average sending method person

E.g.: FM 192.168.10.1

F.R.D.A.A.

(8/2/21)

Booting

0.0.0.1 and Right click

→ Run as Admin

* Disk Part

* list disk

* select disk 2

* clean

* convert MBR

* creation partition Primary

* select partition 1

* active

* format. fs = ntfs - quick

* exit



Crimping:

To join the lane cable and registered jack using crimping method

Crimping Type:

Two types

⇒ straight

⇒ cross over

Straight:

connection devices

PC-Hub

PC-Switch

PC-Modem

colors:

Start Edge:

End Edge

1. white-orange

same order

2. orange

3. white-green

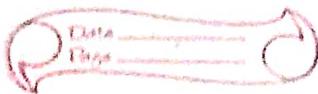
4. green-blue

5. white-blue

6. green

7. white-brown

8. brown



CROSS OVER

SAME DEVICES:

bottom PORT \rightarrow PC port \rightarrow top port

Hub \rightarrow Hub

switch \rightarrow switch

order change:

1 \rightarrow 3, 3 \rightarrow 1, 2 \rightarrow 6, 6 \rightarrow 2

interchange

colors:

Start Edge:

1. white orange
2. orange
3. white green
4. blue
5. white blue
6. green
7. brown
8. white brown

End Edge:

1. white green
2. green
3. white orange
4. blue
5. white blue
6. orange
7. brown
8. white brown

Network:

collection of host is network
It is a network connection system.

Rose

Host is one of the member of network.

Class -

A.C(1-186) N.H.H.H 8Bit 24Bit 1,67,77,216

A.C(1-186) N.H.H,H 3Bit 24Bit 1,67,77,216
large Address

B(193-191) N.N.H.H 16 BIT 16 BIT 65536
medium address

C(192-223) N.N.N.H 24Bit 8Bit 256
small Address

E-11-801 6-1-1-801

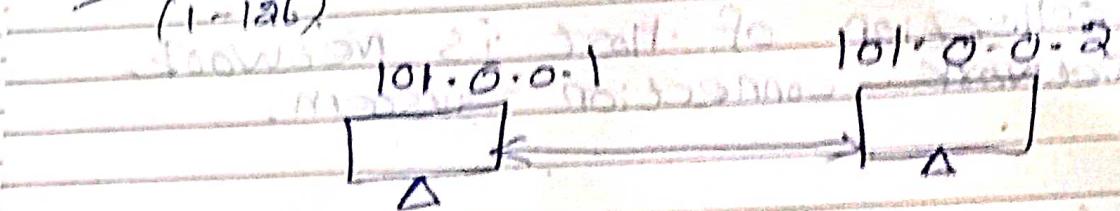
10. The following table shows the number of hours worked by 1000 workers in a certain industry.

2013-09-27 12:35:01

March 6th - small dry snowflakes
March 23rd - snow will fall

Class A N.H.H.H

(1-126)



101.0.0.1

101.0.0.3

101.0.0.4

Network
101.0.0.0

Hub

102.0.0.0

102.0.0.5

host 1
102.1.1.1

host 2
102.1.1.2

host 3
102.1.1.3

host 4
102.1.1.4

Notes

communicate the system

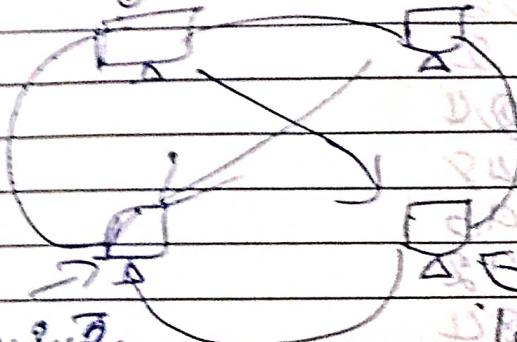
Network name are same and Host value are different

Class B: NN, R-H



129.129.0.1

129.129.0.0



129.129.2.2

129.129.3.3

129.129.3.2

12/02/21

Formatting Pendrive

→ DiskPart

→ List disk

→ Select disk 1

→ Clean and mark GPT

→ Select partition-primary + right arrow to 9.

→ Select partition 1

→ Format fs=ntfs quick + right arrow to 9.

→ activate

→ Assign H:H.M.D. (80-81) - 22012

→ Exit 222 H:H.M.D. (80-81) - 22012

File transfer - 8.8.8

File Transfer Two Types.

1. FAT (File Allocation Table)

old FAT 16

old FAT 32

2. NTFS (Network File System) Current.

16

H.S.VN

1.0.0.0/8

$$\cancel{2^8} = \underline{\underline{256}}$$

$$2^9 = \underline{\underline{512}}$$

$$2^{10} = \underline{\underline{1024}}$$

$$2^{11} = \underline{\underline{2048}}$$

$$2^{12} = \underline{\underline{4096}}$$

$$2^{13} = \underline{\underline{8192}}$$

$$2^{14} = \underline{\underline{16384}}$$

$$2^{15} = \underline{\underline{32768}}$$

calculator.

REVIEWING PRACTICE

~~→ X → X → X → X → X~~~~→ X → X → X → X → X~~Subnet mask:

TO · SPLIT from one network-to number
of network host value \rightarrow 0.0.0.0

Maintain subnet mask value \rightarrow 255.255.255.0

class · A(1-126) . N-H-H-H . 255.0.0.0

class · B(128-191) N-N-H-H 255.255.0;0

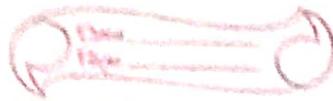
class · C(192-223) N-N-N-H 255.255.255.0

8-8-8-8 Neutron size

IP

1 to 25 \Rightarrow 126 to 50 \Rightarrow 251 to 75 \Rightarrow 3-LT (Network A, B, C)76 to 100 \Rightarrow 4

domain (multiple sub network) 255.0.0.0



gateways

It is similar to entrance

of building - Mail - post office & ATM

Switch Router - (IP address)

10.1.1.1

Same switch \rightarrow IP Address [Different Host Address]

Ex. 10.1.1.1 - 10.1.1.2 (Host IP)

switch A

10.1.1.1 - 10.1.1.2

10.1.1.2

switch B

10.1.0.1

11.1.0.1 - 11.1.0.2 (Host IP)

Port 1:

Different switch \rightarrow same host address

the collection of IP addresses is called a pool

1. Private Registry

2. Public Registry

Private IP address \rightarrow any one IP address given
by IANA from government

IANA \rightarrow Internet Assigned Numbers Authority

* It is organization

* This organization assign the IP

Address on ISP basis

class

Private

Public

A(1-126)

100.0.0 - 10.255.255.255

1.0.0 - 1.255.255.255
1.0.0 - 126.255.255.255

B(128-191)

172.16.0.0 - 172.31.255.255

172.0.0.0 - 172.15.255.255

(1.1.0)

[172]

172.32.0.0 - 191.255.255.255

C(192-223) 192.168.0.0 - 192.168.255.255

192.0.0.0 - 192.167.255.255

192.168.0.0 - 223.255.255.255

Subnet mask

192.168.10.11 0.1.1.1

Class - C

Network bit - 24 bit

Host bit - 8 bit

Subnet mask - 255.255.255.0

Type - Private

Network Address - Start value 192.168.10.0

Broadcast Address - End value 192.168.10.255

VLSM Subnetting 2^3 = 8 Subnets 2^2 = 4 Subnets 2^1 = 2 Subnets

128.72.10.8 - 10.255.255.255 - 255.255.255.0

11 bits Network address 10 bits Host bits

Class - B

Address 921.10.220.64

Network bit 16 bit

Host bit - 16 bit

Subnet mask - 255.255.0.0

Type - Public

4,783,006,097

4,783,006,736

108



Network Address - 129.72.0.0.255.255
Broadcast Address - 129.72.255.255

Exercise:

1) 26.5.10.1

2) 172.20.1.0

3) 205.0.90.5

4) 10.6.1.8

5) 192.168.0.1

1) 26.5.10.1

Class - A

Network bit - 8 bit

Host bit - 24 bit

Subnet Mask - 255.0.0.0

Type - public

Network Adr. - 26.0.0.0

Broadcast Adr. - 26.255.255.255

2) 172.20.1.0

Class - B

Network - 16 bit

Host bit - 16 bit

Subnet Mask - 255.255.0.0

Type - private

Network Adr. - 172.20.0.0

Broadcast Adr. - 172.20.255.255

0.0.7A1.001

32 bits 32 bits 32 bits 32 bits

3) 205.0.90.5

Class C - Public

Class C

Net work bit - 24 bit

Host bit - 8 bit

Subnet mask - 255.0.0.0

Type - Public

Net work Address - 205.0.90.0

Broadcast Address - 205.0.90.255

4)

4) 10.6.1.8

Class - A

Net bit - 8 bit

Host bit - 24 bit

Subnet mask - 255.0.0.0

Type - Private

Net work Address - 10.0.0.0

Broadcast Address - 10.255.255.255

5) 192.167.0.1

Class - C

Net bit - 24 bit

Host bit - 8 bit

Subnet mask - 255.255.0.0

Type - Public

Net work Address - 192.167.0.0

Broadcast Address - 192.167.0.255



Sharing

desde windows para windows
windows update plug-in para windows

control panel → windows update -
→ change settings

→ never check for updates
→ [] no click

click OK

Any DESK:

Way to target the dates: triggering
Plates in using networks

• Any DESK same as Period
• anything can be linked to table
• ~~some~~ ~~some~~

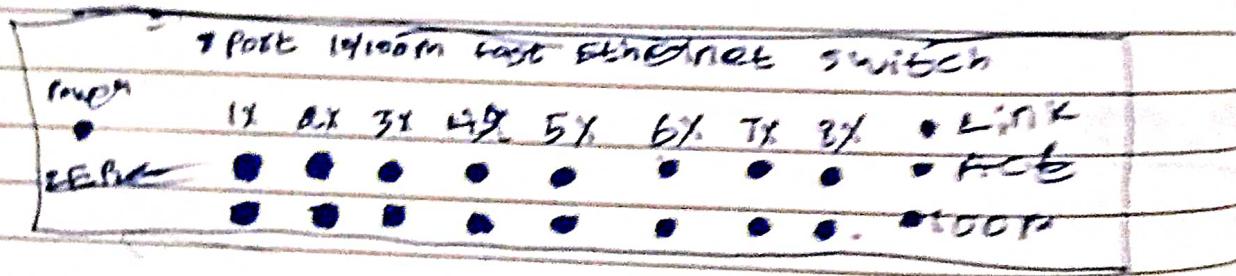
Registration table

Table 5.7

E D 19.00.33

Switch

DC 90,150



- Link → two diverse checking in ~~Bei~~
- Act → ACKNOWLEDGEMENT
- 100M → Fest of the switch

Team Viewer:

use: Remote access & wireless

* Remote access

* File transfer

Any Dest:

same purpose of team viewer

BUT Any dest was ID only

team viewer ID & Password

come network connect warning sign.

• ⇒ go to control panel → Network and Internet

→ Network and Sharing center

⇒ click Local Area Connection

⇒ click the Properties

⇒ double click Internet Protocol Version 4 (TCP/IPv4)

⇒ Advanced option

- 1 • obtain an IP address automatically
- 2 • use the following IP address:

1 • IP address ~~192.168.1.20~~ orange ~~192.168.1.20~~

2 • IP address is set ~~192.168.0.10~~ ~~192.168.0.10~~

IP address : 192.168.1.20

subnet mask : 255.255.255.0 - 255.255.255.0

default gateway : 192.168.1.1

o --- ~~192.168.1.1~~
o --- DNS ---

Preferred DNS server: 8.8.4.4

Alternate DNS server: 4.4.4.4



ANY DESK

Last review written
March 05, 2021

The application's interface
and management screen
is very good

connection speed is very good
→ x

It's great screen
sharing application.
Pros

SUPPORT:

- * Email / Help Desk
- * Phone support
- * Chat

BI:

TRAINING

- * Documentation

TEAMVIEWER

Last review written
March 11, 2021

Normal

connection speed normal

It's excellent very
fast and very useful
in pros

SUPPORT:

- * Email / Help Desk
- * Phone support
- * FAQS / Forum
- * Knowledge Base

TRAINING

- * Documentation
- * In Person
- * Live online
- * Videos
- *