Unit 2 : "INPUT AND OUTPUT DEVICES"

INPUT AND OUTPUT DEVICES: Description of input and output unit, Keyboard, mouse, MICR, OCR, Barcode, Monitor, Printer, and its types. **Secondary storage:** FLOPPY DISK , HARD DISK , Optical disk and other types of secondary storage devices.

KEYBOARD:

- Keyboard devices are the most commonly used input devices, Today keyboard Translate numbers, letters, and special characters.
- The types of keyboard are : Traditional, ergonomic, flexible, wireless and PDA keyboard.
- Numeric keyboard, toggle and combination keys are keyboard features.

Types of keyboards:

1. **Traditional keyboard:-** full sized, rigid rectangular keyboard that include –functions, navigational & numeric keys.
2. **Flexible keyboard:-** Fold or roll up for easy packing or storage. They are designed to provide mobile.
3. **Ergonomic keyboard:-** Similar to traditional keyboards. The keyboard arrangement is not rectangular & palm rest provided.
4. **Wireless keyboard:-** Transmit input to the system unit through the air these keyboards provide greater flexibility & convenience.
5. **PDA keyboards :-** Miniature keyboards for PDAs used to send e-mail ,create documents & more.
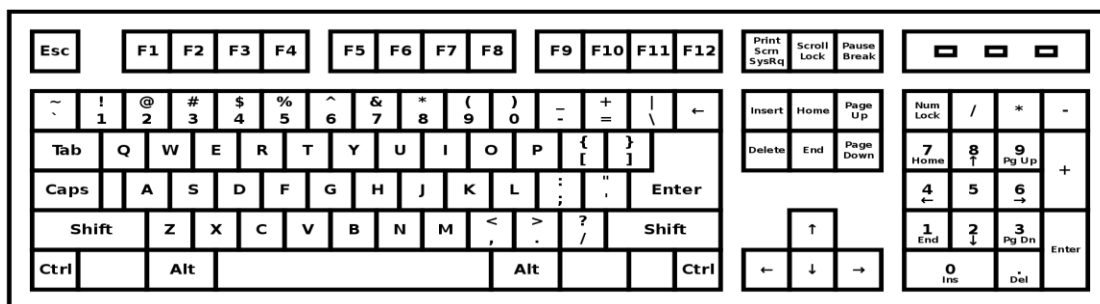

Diagram of Keyboard

MOUSE:

- Mouse is the most popular point & draw device. It is most having input devices on modern personal computers & workstations because they support GUI as their primary user interface. Different application display the graphics cursor as different symbols such as an arrow a wrist with a pointing finger, etc.

  Commonly used ways to categorize mouse devices are:
  1. Mechanical   2. Optical mouse   3. Cordless mouse.
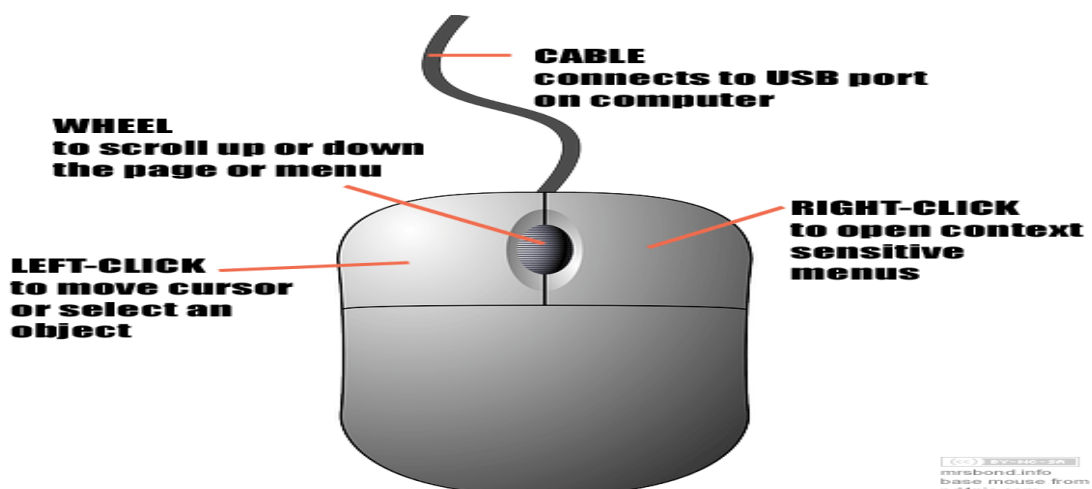
MICR:-

- **MICR stands for magnetic ink character recognition**
- **It is used by banks to automatically read these unusual numbers on the bottom of checks & deposit slips .A special –purpose machine known as a reader / sorter reads these numbers & provides input that allows banks to efficiently maintain customers account balances.**

OCR:-

- **It is stand for Optical Character Recognition.**
- **It is special preprinted characters that can be read by a light source & changed into machine readable code. A common OCR device is the handheld wand reader .These are used in department stored to read retail price tags by reflecting light on the printed characters.**

BARCODING:-

- **Data coded in the form of small lines are known as bar code.**
- **Barcode represents alphanumeric data by a combination of adjacent vertical lines by varying their width & the spacing between them.**
- **A barcode reader is a device for reading bar-coded data.**
- **It is a laser-beam scanning technology.**
- **There are many types of bar-coding. The most widely known one is the universal product code (UPC).**
- **It appears on almost all retail packages in USA &now in India as well on many products.**

MONITOR:-

- **The most frequently used output devices is the monitor also known as display screen monitor present visual image of the text and graphics. The output is often referred to as soft copy. Monitors vary in size, shapes and cost.**

- **FEATUERS:**
  - **The most common features of monitor is its clarity.**
  - **Clarity refers to the quality and sharpness of the displayed image. It is the function of several image.**

- **Resolution:**
- **Resolution is one of the most important features.**
- **Images are form on monitors by series of dot or pixels as express matrix form.**
- **For examples: many monitors today's have a resolutions of 1,280 pixels columns by 1,024 pixel row for a total of 1.310,720 pixels.**

- **DOT PITCH: -**
- **Dot pitch is distance between each pixel . most of newer monitor have adopt pitch of 31mm.**
- **The lower dot pitch clearer the image produced .**

- **REFRESH RATE :-**
- **Most monitors operates at a rate of 75 h which means that the monitors redrawn 75 times each second**
- **Image displayed on monitors with a refresh rates on lower than 75 h appear to flickers and can cause eye strain. And better the quality images displayed.**
- **SIZE OR VIEWABLE SIZE:-**
- **Size is measures by the diagonal length of a monitors viewing area. Common size are 15,17,19,21 and etc. inches.**
- **The smaller the monitor size better the quality of image displayed.**
- **FLAT PANNEL MONITOR**
- **OTHERS MONITORS**
- **HIGH DEFINATION TELIVISION (HDTV)**

PRINTER & ITS TYPE:-

- **Printers translate information that has been processed by the system unit & present the information on paper. Printer output is often called hard copy.**

- **There are two types of printers Impact and Non-Impact printers.**
1. **DOT Matrix printers :**
- **DOT matrix printers are character printers that print one character at a time.**
- **They form characters &all kinds of images as patterns of DOTs. All characters are formed by 5 horizontal & 7 vertical dots such a pattern is Called a 5*7 matrix for faster printing many DOT matrix Printers print both ways while the print head moves from left to right &while it moves from right to left on return such method is called bi-directional printing.**

Dot matrix printhead

Paper

Print wires

Solenoid

Ribbon

Print wires
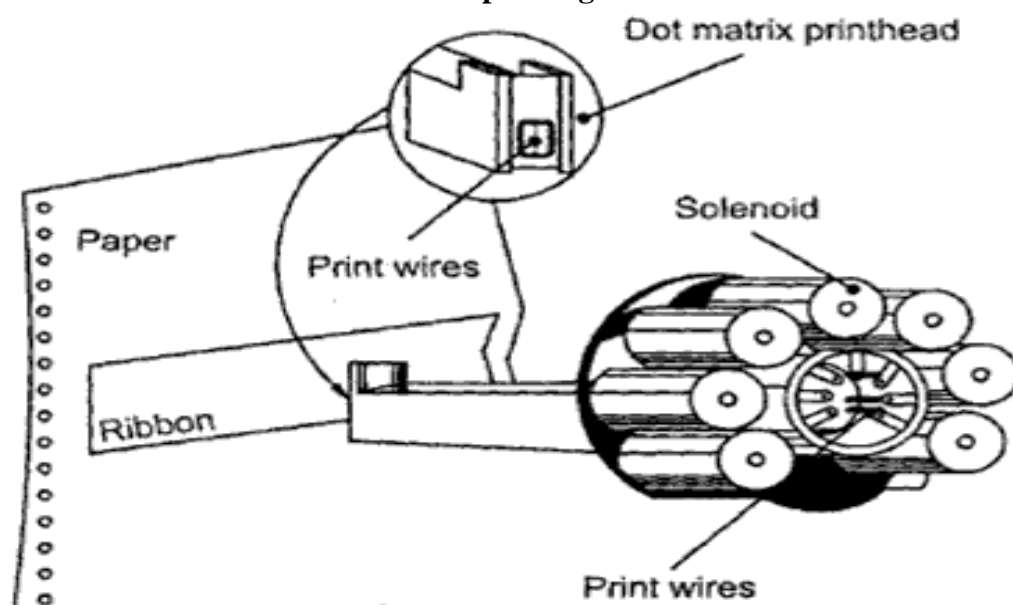
2. Daisy Wheel Printer:

A type of <u>printer</u> that produces letter-quality type. A daisy-wheel printer works on the same principle as a ball-head typewriter. The daisy wheel is a <u>disk</u> made of plastic or metal on which <u>characters</u> stand out in relief along the outer edge. To print a character, the printer rotates the disk until the desired letter is facing the paper. Then a hammer strikes the disk, forcing the character to hit an ink ribbon, leaving an impression of the character on the paper. You can change the daisy wheel to print different <u>fonts</u>.

Daisy-wheel printers cannot print <u>graphics</u>, and in general they are noisy and slow, printing from 10 to about 75 <u>characters per second</u>. As the price of <u>laser</u> and <u>ink-jet printers</u> has declined, and the quality of <u>dot-matrix printers</u> has improved, daisy-wheel printers have become obsolete.
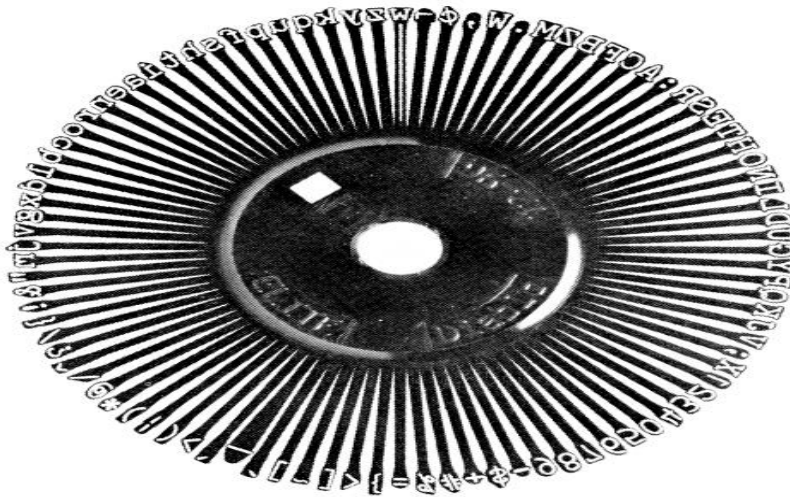

Non Impact Printer:

1. <u>Inkjet printers:-</u>

- Inkjet printers are character printer that forms characters & image by spraying small drops of ink on a paper.
- The print head of inkjet printers contains up to 64 tiny nozzles, within a height of 7mm providing print resolution of around 360 Dots per inch.
- Inkjet printers are non impact because they print by spraying ink on paper the speed of ranging from 40 to 300 characters per seconds.
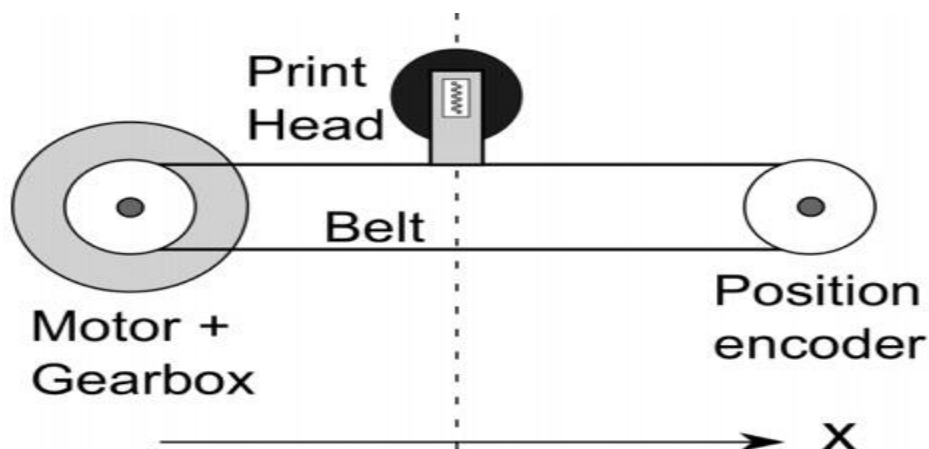

2. <u>Drum printers :-</u>

- Drum printers are line printers that print on entire line at a time.
- It consists of a solid cylindrical drum with characters embraced on its surface in the form of circular bands.
- The total no. of bands = the maximum no. of characters that the printers can print on a line.
- The drum rotates at a high speed.
- It is expensive & we cannot change it often.
- Drum printers are impact printers because they print by hammering on a paper & inked ribbon against characters embossed on the drum.
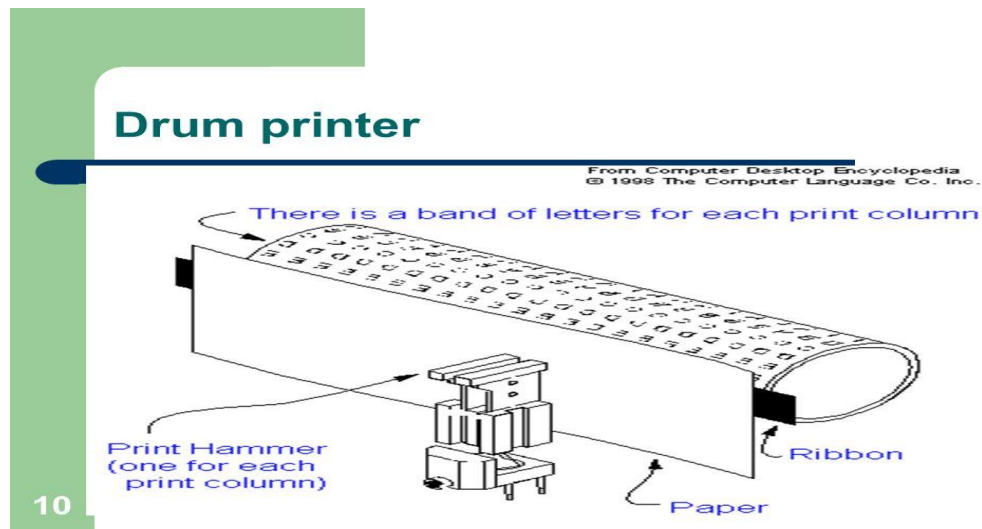
3.Laser printers :-

• **The lower printer uses a technology similar to that used in a photocopying machine.**

• **Laser printer uses a laser light beam to produce image with excellent letter & quality.**

• **The two categories of laser printers.**

1.**Personal laser printers typically do not support color are less expensive & are used by many single users. They are typically can print 15 to 17 pages a minute.**

2.**Shared laser, are more expensive support color, are more expensive & are used by a group of users. It can print over 50 pages a minute.**
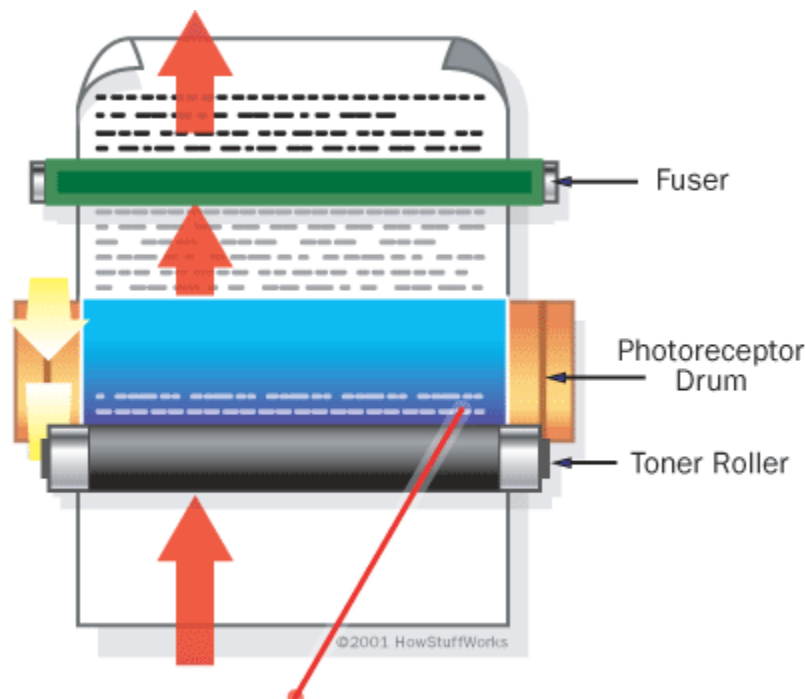

SECONDARY STORAGE:

FLOPPY DISK:

• **Floppy disks are removable storage media. The traditional floppy disk is 1.44 mb. Data is recorded on tracks & sectors.**

• **Zip, Super disk & HIFD are high capacity floppy disks.**

1. **Floppy disks often Diskettes or simple disks are portable or removable storage media.**

2. **They are typically used to store & transport word processing, spreadsheet & the types of files.**

3. **Floppy disk drives (FDD) store data & programs by the electromagnetic charges on the disks surface to represent 1's & 0's.**

4. **Charges/characters are represented by positive & negative charges using the ASCII, EFCDIC, or Unicode binary codes.**

5. **Floppy disks are also called flexible disks & floppies.**

Traditional floppy disk:-

- **A traditional floppy disk the 1.44 MB 3.5 inch disk.**
- **Although introduced over 20 years ago they are still widely used. The most common type is labeled 2HD which means "two-sided, high-density".**
1. **Density refers to how tightly the bits can be packed next to one another.**
2. **A shutter on the disk slides to the side inside surface.**
3. **Labels provide users with an area to write or document contents of the disk**
4. **The write protection notch has a slide that opens & closes.**
5. **Tracks are the rings of concentric circles without visible grooves.**
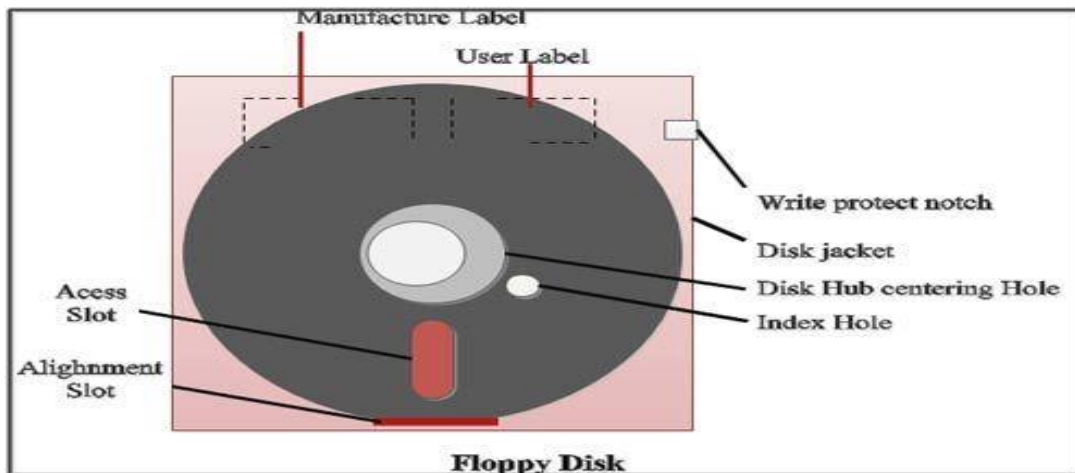

Floppy Disk

High capacity floppy disks:

- **While the traditional floppy disk is very reliable disk   and still widely used to store it Has very limited capacity.**

- **Power point presentation files for exceed 1.44 MB most multimedia application requires even greater capacity. High capacity disk also known as floppy disk.**

- **Disk cartridges are rapidly replacing with the traditional floppy disk.**

- **There are three main floppy disk are ZIP, HIFD & SUPER DISK.**

- **Zip DISK : ZIP DISK are produced IOMEGA and typically have a 100 MB, 250 MB or 750 MB capacity over 500 times as much as to days standard floppy disk.**

- **HIFD DISK : from the sony corporation have a capacity of 200 MB & 750 MB they have one major advantage over ZXIP DISK.**

- **SUPER DISK : Are produced by imagination and have a 120 MB or 240 MB capacity line HIFD drives , SUPER DISK drives are able to use to days 1.44mb standard disk.**

HARD DISK:-

- **Hard disk stores files using tracks sectors & cylinders.**

- **Internal hard disk is fixed. Hard disk cartridges are removable disk.**
- **While a floppy disk uses a thin flexible plastic disk a hard disk use a thicker rigid metallic plotters that are stack on top of another .**
- **A cylinders runs through each tracks of plotters.**
- **A head crash occurs when a read/ write head makes contact with the hard disk surface.**
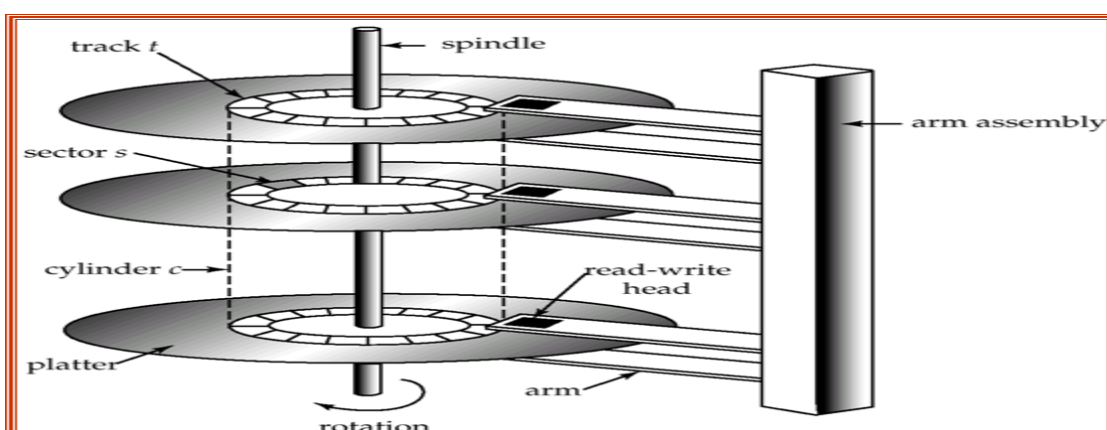
INTERNAL HARDDISK:-

Internal hard disk also known as fixed disk is located inside the system unit.

- The internal hard disk is designated as the c drive.
- It is used to store programs and large files.
- The internal hard disk has two advantages.
- Capacity
- Access speed.
- The capacity of hard disk is 200 gigabyte internal hard disk.
- We can hold as much as information as 140,000 standard floppy disk.

HARD DISK CARTRIDGES:

Hard disk cartridges also known as removable hard disk are easy to remove as a cassette from video cassette recorder.

- Hard disk cartridges for computer desktop have typically capacities of 10 to 20 GB.
- Once of the most used of cartridges is peerless disk from hard disk iomega
- Hard disk packs are removable storage devices used to store massive amount of information.
- Credit card cartridges size hard disk cartridges are called PC card hard disk.
- PC card hard disk is 1MB hard disk micro drive & Toshiba mk 5002 drives.

OPTICAL DISK :-

- An optical storage disk system consists of a metallic or plastic coated with highly reflective material. Optical disks are also known as LASER DISK or OPTICAL LASER DISK. Because they used laser beam technology for data storage.

STORAGE CAPACITY :-

- Cost per bit of storage is very low because of their low cost and high density. Ranging from 12.0 inch to 3.0 inch diameter.
- The most popularity one is of 5.25 inch diameter with capacity of about 650 megabytes.

STORAGE capacity of an optical disk = number of sectors*number of bytes per sectors.

TYPES OF OPTICAL DISK:-

- All optical disk are round plotters they comes in different size & capacity of commonly used types of optical disks are CD ROM.
  - ✓ CD_ROM.
  - ✓ WORM CD-R
  - ✓ CD RW
  - ✓ DVD.
- CD- ROM : It stand for compact disk read only memory. It is a shiny silver metal disk usually of 5 ¼. Inch it storage capacity of about 650 MB or 700 MB in newer once.
- WORM CD-R:- disk recordable (CD-R) disks. WORM stands for write once read many.
- CD-RW:- CD read write (cd-rw)is very similar to worm disk with the exception that we can erase its previous contents & write on it multiple times.
- DVD:- digital video disk. This is newer format that is rapidly replacing cds. As the standard optical disk.
- DVD has two layers of specification
  - ✓ Physical layers.
  - ✓ Logical layers.

  - Physical layers specification applies to the physical media itself.
  - Logical layer specification is supporting all types of application.

- **The types of physical layers are:**
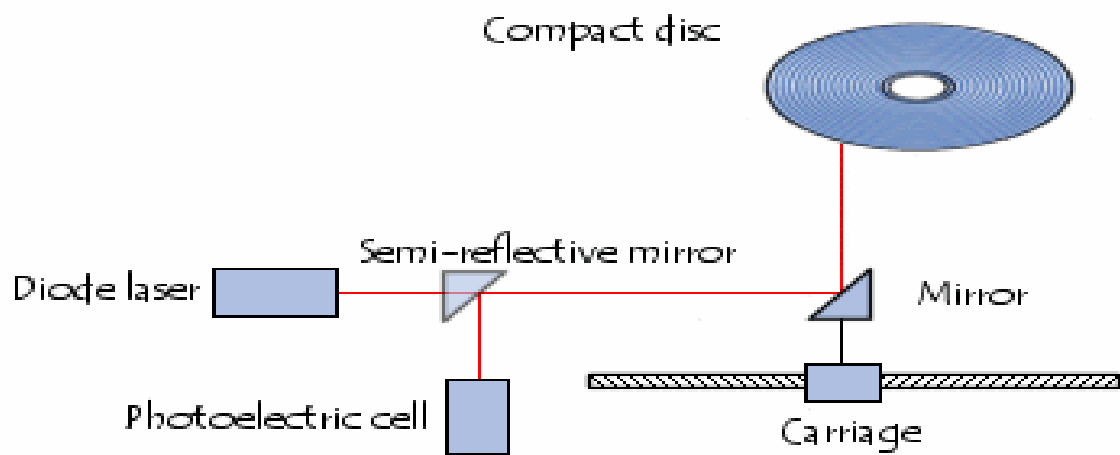- **DVD- ROM.**
- **DVD –RAM.**
- **DVD-R.**
- **DVD –RW.**

Diagram of Compact Disc