

## Chapter4 –Secondary Storage Devices

### Summary

This chapter deals with the usage of secondary storage devices, which include Floppy disks, Hard disks, CD's/DVD's, Pen Drives and Magnetic tapes.

In most of today's organizations semi permanent storage is required. Primary storage such as the RAM though fast cannot be used for this purpose due to the sheer size of the information. Further primary storage is volatile in nature i.e. all the information is lost as soon as the power is turned off.

- In this chapter we have studied the Floppy disks and drives. This is a secondary storage device introduced in 1971. They were 8" diameter plastic disks with magnetic coating, enclosed in a cardboard case. The floppy disk is packaged in a 3.5-inch square hard plastic envelope. The disk is logically divided into tracks and sectors. The data is written and read from the read-write head. These diskettes have a thinner magnetic coating, allowing more tracks on a smaller surface. In a floppy drive the track density is measured in TPI (tracks per inch). When the computer requests the drive to be accessed, the floppy revolves on the central spindle. Some of the merits of the floppy drives are –
  1. Floppies make it possible to store an infinite amount of information since the data can span multiple floppies.
  2. Files can be arranged sequentially or in a random manner.Some of the demerits of the floppy drives are –
  1. Floppy disks tend to get corrupted very fast either due to physical handling or due to dirt, moisture, radiation etc.
  2. The floppy drives have lesser storage space and transfer rates as compared to several other devices such as CD-ROMS.
- We have also discussed the most important secondary storage device – the hard disk drive. The hard disk was developed by IBM and is a device and a storage medium, which is permanently fixed into the computer. The hard disk comes in the capacities of the order of 20GB, 30GB, 40GB and 60GB.

A hard disk works on the same principle as the floppy drive. The typical speeds are of the order of 7500 rpm and the response time of the order of 20-25 millisecond is quite common.

Some of the merits of the hard disk drives are –
  1. Hard drives provide on-line information and are very fast
  2. Hard disks are enclosed in a hermetically closed container thereby reducing the chance of damage

Some of the demerits of the hard disk drives are –

1. The amount of storage is restricted by the capacity of the disk installed at the time on the computer
  2. Hard disks can crash due to mechanical defects or electrical surges.
- You have been introduced to the Pen drive, which is a small removable flash memory drive usually, connected to the USB port of a computer. It provides storage ranging from 16 MB, to several Gigabytes. The Pen drive is really a memory chip. It therefore does not have any moving electro mechanical parts. The computer reads/writes to the pen drive as it would to the RAM. The Pen drive also has a write protect tab just like a floppy drive has.

Some of the merits of the Pen drives are –

1. Massive storage capacity, portable and compact
  2. Solid state (No moving internal parts) hence less damage and corruption.
  3. It does not require an external source of power.
- In this chapter we have studied the CD/DVD, which are the new generation of optical device storage. While the CD-ROM's were developed earlier, Digital Versatile Disc were first announced in 1995. A DVD is composed of several layers of plastic and each layer is created by injection molding polycarbonate plastic. In a DVD, data is encoded in the form of small pits and bumps in the tracks of the disks. A sharp laser beam does the encoding. While reading the laser beam detects the pits and bumps and the combination of these gives a stream of bits which can be interpreted as characters by the computer

Some of the merits of the CD/DVD drives are –

1. Superior Quality
2. Interactivity
3. Flexibility and durability
4. Low cost and compatibility.