

SECONDARY STORAGE

Key Revision Facts: GCSE Computer Science

Secondary storage, sometimes called auxiliary storage, is non-volatile and is used to store data and programs for later retrieval. Most storage devices use either magnetic or optical storage media.

Optical media devices

Optical media devices use lasers to burn tiny craters or pits onto the surface of a plastic or metallic disk. The presence or absence of a pit on the surface of the disk is used for binary storage.

- **Advantages of Optical storage devices**
 - Storage capacity of the optical disk is more than a magnetic disk
- **Disadvantages of Optical storage devices**
 - Surface damages and scratches can corrupt the data
- **Example of Optical Storage devices**
 - CD ROM, DVD, Blu-ray disk

Magnetic storage devices

Magnetic storage devices use the principle that magnetically charged material has both a North and South Pole. These two poles are used to represent 0's and 1's and hence binary numbers. When data are read from magnetic media, the read/write head is used to convert the different magnetic poles into binary numbers.

- **Advantages of Magnetic storage devices**
 - Relatively cheap per unit of storage.
- **Disadvantages of Magnetic storage devices**
 - Magnetic radiation can corrupt the data
 - Slow read and write speeds
 - Storage device contains moving parts that could fail.
- **Example of Magnetic Storage devices**
 - Hard Disc Drive (HDD)
 - Floppy disk
 - Cassette tape
 - Magnetic strip on the back of a credit card

Solid State storage devices

Solid state storage is made from silicon microchips. It can be written to and overwritten like RAM. However, unlike RAM, it is non-volatile, which means that when the power is switched off, solid state storage will retain its contents.

- **Advantages of Solid State storage devices**
 - Fast read and write speeds
 - Durable and greater reliability because there are no moving parts
 - Low power consumption.
 - Produce less heat and noise than spinning hard disk drives or magnetic tape
 - Portable and light weight because of the small physical size
 - Large storage capacity
- **Disadvantages of Solid State storage devices**
 - Price: The biggest disadvantage of a solid state drive is the cost.
- **Example of Solid State Storage devices**
 - USB memory sticks

- o Solid state drives.