Storage Devices & Media

A storage device is a piece of electronic hardware made to store data. These pieces of hardware record and retrieve data from a media. Storage devices are divided into two categories: primary storage devices and secondary storage devices. Storage media are the physical material on which data, instructions, and information are stored. They can hold data magnetically, using grooves and pits, as well as using electrical charges.

**Primary Storage:**
RAM, (Random Access Memory) can be considered primary storage device. The data in RAM is data that has been loaded by the operating system and active programs, and it requires electrical current to be maintained there. If you turn off the computer, the data in RAM is lost since the electrical current needed to maintain information in RAM will no longer be available.

**Secondary Storage**
Secondary storage devices may be internal to the computer itself or external (outside of the computer). The hard drive (internal and external) stores data magnetically, so when the computer is turned off, the data on the hard drive will still be there. The new hard drives, called Solid State Drives, store data like flash drives and can hold up to 512 Gigabytes of information as of October 2010.

Other types of secondary storage devices and media may include optical drives, floppy disks, tape storage, and thumb drives.

**Optical drives** are also secondary storage devices. These include CDs, DVDs, Laserdiscs, and Blu-ray, as well as other optical media. Originally, CD-ROMs were just that---Read-Only Media (ROM). You could burn data onto a CD once and then only read from it. Now CDs, DVDs, and Blu-ray discs are fully rewritable, meaning you can add and remove data as long as you have a CD-RW, DVD-RW or BD-RE optical drive. CDs hold a relatively small amount of data, usually about 700 to 800 megabytes. DVDs, however, can hold up to 8.5 gigabytes and Blu-ray discs can hold up to 50 gigabytes.

**Floppy disks** were the most common form of storage in early computing. While some older computers still utilize a floppy disk drive, most new computers do not offer them as an option and therefore, floppy disks are phasing out as a form of storage media.

**Magnetic tape drives** have been in use longer than floppies. Primarily used for back up storage, the tape drive has been a must in the corporate world. Tape drives are now capable of backing up up to 3 terabytes of information. Unlike other storage media, you must scroll through a lot of tape to get to a desired area.

**USB flash drives** use a solid state drive technology (no moving parts) that is both small in form and compatible with any computer that has a USB port. They are often called "jump drives" because they are so portable that they can quickly "jump" from one computer to another, or "thumb drives" because they're roughly the size of a thumb. As of October, 2010, USB flash drives can hold up to 256 gigabytes of data.
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Questions:

1. How is a storage device different from a storage media?

2. Give two examples of storage devices.

3. Give two examples of storage media.

4. How much data can a BluRay disc hold?

5. Why are floppy disks hardly ever used any longer?

6. Why are magnetic tape drives not used as storage devices for everyday use?

7. What is solid state technology?

Critical Thinking:

8. Hard drives are moving towards solid state technology (built-in thumb drives if you will.) How will this affect the size and speed of a computer?

9. If computers and laptops start moving towards solid-state technology only, what will this do to the price of hard drives that are magnetic over the long-run?