***What is a firmware?***

**Firmware** is a software program permanently etched into a hardware device such as a keyboards, hard drive, BIOS, or video cards.

It is programmed to give permanent instructions to communicate with other devices and perform functions like basic input/output tasks.

Firmware is typically stored in the flash ROM (read only memory) of a hardware device. It can be erased and rewritten.

Firmware was originally designed for high level software and could be changed with having to exchange the hardware for a newer device.

Firmware also retains the basic instructions for hardware devices that make them operative. Without firmware, a hardware device would be non-functional.

***What are the different levels of firmware?***

There are levels of firmware :

**Low Level Firmware**: This is found in ROM, OTP/PROM and PLA structures. Low level firmware is often read-only memory and cannot be changed or updated. It is sometimes referred to as hardware.

**High Level Firmware**: This is used in flash memory for updates that is often considered as software.

**Subsystems**: These have their own fixed microcode embedded in flash chips, CPUs and LCD units. A subsystem is usually considered part of the hardware device as well as high level firmware.

***What is difference between hardware, software and firmware ?***

**HARDWARE:**

Computer hardware includes the physical parts of a computer, such as the case, central processing unit, monitor, mouse, keyboard, computer data storage, graphics card, sound card, speakers and motherboard.

**SOFTWARE :**

Software is the set of instructions that can be stored and run by hardware.

**FIRMWARE :**

In computing, firmware is a specific class of computer software that provides the low-level control for a device's specific hardware.

***What are advantages and disadvantages of firmware?***

**ADVANTAGES :**

1)A Firmware updates and improves the functionality and features of your device.

2)It can provide fixes to any performance issues that may occur.

3)With the ever-changing advances in technology, a firmware update also helps a device remain competitive with newer models.

**DISADVANTAGES :**

1)You can't use your PC while updating your BIOS (so time lost).

2)You might not need to update your BIOS but problems still happen even with dual BIOS though less frequently.

***What are the difference between RAM, cache and hard disk?***

**RAM :**

RAM is used to store computer programs and data that CPU needs in real time.

RAM data is volatile and is erased once computer is switched off.

**CACHE :**

Cache memory, which also is a type of random access memory, does not need to be refreshed.

It is built directly into the CPU to give the processor the fastest possible access to memory locations and provides nanosecond speed access time to frequently referenced instructions and data.

**HARD DISK :**

Whereas, HDD, hard disk has permanent storage and it is used to store user specific data and operating system files.