Computer Processes

Your computer must run through specific processes to function well. You will learn the basic functions such as starting up and shutting down, and the order in which a computer must run.

Boot Process...

The computer must go through very specific steps in order to start. This is called the boot process. The original name was “bootstrap” from the old idea to pull one's self up by the bootstraps. To get a computer to turn itself on, or booting up, is a set of instructions so a computer can turn on by itself, without the user giving every step manually. We will look at it in detail. Pay close attention to the order that must be followed:

1. Power. Plugging in the computer and pressing the on button starts electricity flowing through the computer.
2. System Check. When it has electricity, the CPU checks the ROM for its first instructions. The saved info in the ROM tells the CPU what to do, and this includes checking for memory, keyboard, screen, mouse, and other storage devices and hardware. On many computers, there will be one or two beeps when this is completed.
3. Operating System. After all the hardware has been accounted for, the software must be found. Most computers have the operating system located on the “C” drive. It will then load the operating system.
4. Drivers. Once the operating system is located, the computer checks for drivers, including drivers for peripheral devices. This includes looking for printers, scanners, and other devices.
5. Updates. The computer checks to see if any programs have been updated.
6. Log in. After the main components are loaded, usually a log-in screen will appear. This allows the user to sign into specific programs.

While this is the standard form, it is possible to boot from a disc or a file located somewhere other than the hard drive.

Applications...

When you run a program on a computer, the program has to communicate with the memory and CPU. There is a mini-program embedded in every program you run. This is called the **kernel**. Kernel means core or center, and the kernel is the core of the program. The kernel takes the actions by the user and translates them into computer language.

The kernel has access to the **memory** of the computer. There must be both available RAM (temporary) memory, and long-term storage. Another thing the kernel can help with is communication between different processes.

Shut Down…

Your computer needs to run through a shut-down process in order to protect the data. When shutting down the computer, make sure you have saved your data and close your programs. Select the “shutdown” option on the start menu. Under most circumstances, the computer will go through the processes on its own.

Sometimes your computer may have frozen. A frozen computer is one that no longer responds to input from the user. When this happens on a personal computer (not a Mac), you can hold down the control and alternate keys, and press delete. This will stop the processes enough for you to shut the computer down safely.

You should not shut down a computer by interrupting the power supply unless all else has failed. Do not turn off the computer by flicking a switch, shutting down a power cord, or unplugging the computer.

Like the start-up process, there is a shut-down process when you turn off a computer. Here are some of the things that happen:

1. User check. The computer checks to see if anyone else is logged in. If anyone else is logged in, you will be asked if you want to continue.
2. Programs close. If you haven't shut down any program, your operating system will start shutting those open programs. The computer checks to see if there is anything in the RAM (temporary memory) that needs to be saved. If the computer doesn't do this, this stray memory can actually mess up your files.
3. Updates. If the computer has found software that needs updating, updates usually take place at this time. If the computer is taking too long to shut down, it is probably updating.
4. Log out. All users are logged out. This will end your session.
5. Operating system closes. Whether you use Mac or Windows, this will close after the logout. There is a final check of systems as it closes. Your computer is also updating its boot information. It is also clearing out the short-term memory.
6. Shutdown signal. When the operating system closes, a signal is sent to the hardware. This will shut the power down.

Generally, the shutdown process is exactly opposite of the boot-up process. It is very logical, and if you think it through, you can do well on the quiz.