4) What is Kernel? Please use your own words, just what you think and feel Kernel is.

The main part of the operating system. It is loaded into memory immediately after the BIOS and is responsible for transferring data between the system components (hard disk, RAM, CPU, cards, interfaces...) and managing the CPU.

5) How do you list running processes and how do you terminate one of them?

The command line I use is **ps ax**. This command shows all the existing processes. **Kill** pid. To see the pid I use the previous command.

How do you find specific process that you would like to terminate? (related to Linux, Unix OS

If I know the name iof the processes I use **ps ax | grep** name
If I don't know the name but I want to know what it is using the most my CPU, for instance, I use **top**
xkill for graphic applications.

6) Declare and set two variables: @cy which is set on the last year @py which is set on two years ago.

The query shows for the year cy the number and sum of the values of payments made by a certain type of account called major donors. @py is not used in the query.

7) Can you describe in your own words, what is happening in any PC when you click on PowerON switch? You are free do go as far as you think you can.

A computer without a running programme is just a mass of electronic components. The first thing a computer has to do when it is turned on is run a special programme called the operating system. The operating system's job is to help the computer's other programs run by managing details of controlling the computer's hardware. The process of starting up the operating system is called booting (originally it was bootstrapping and alluded to the process of pulling itself up, 'through its own bootstraps'). Your computer knows how to boot because the instructions for booting are built into one of its chips, the BIOS (Basic Input/Output System).

The BIOS chip tells it to look in a predefined place on the lowest numbered hard disk (the boot disk) for a special program called a boot loader (under Linux the boot loader is called Grub or LILO – I am nostalgic!!) to be found.

The loader looks for a kernel, loads it into memory, and boots it up. When you boot up Linux and see "Grub" and the kernel is loading.

Once booted, the kernel looks around, finds the rest of the hardware, and gets ready to run programs. The kernel doesn't search at random; it has a lot of knowledge inside of it about what is likely to be found and where, and how the controllers will respond if they are there. This process is called self-discovery.

Why is the bootstrap necessary? Each time the CPU is switched on, the program counter starts with instructions contained at a predetermined address. The CPU expects to find the

first instruction to be executed at this address. Since the main memory is made of volatile technology, stored data is lost each time the computer is switched off

The first task called ‘init process’ is usually to check that the disks are OK. Disk file systems are fragile things; if they are damaged by a hardware malfunction or a sudden power failure, there is good reason to perform a few recovery steps before Unix is fully functional. We will expand on this later, talking about how a file system can be damaged.