**Identifying the components on the raspberry PI B+**

ARM CPU/GPU with video core 4 graphics  
GPIO general purpose input output connection points  
USB ports  
HDMI Ports  
Ethernet for wired network access

SD card slot

**How many cores does the Raspberry Pi’s B+ CPU have?**

-Quad Core CPU has 4 cores

**List three main differences between X86 (CISC) and ARM Raspberry PI (RISC). Justify your answer and use your own words (do not copy and paste)**

1) One difference is how X86 uses Little Ending format which means the processor reads memory from right to left  
2) Another difference is in complexity where ARM contains a reduced instruction set : RISC : and Arm contains a more complex instruction set.  
3) ARM is limited to instructions that are set to registers while x86 has more flexibility with the load store model that allows different ways to access memory and the registers.

**What is the difference between sequential and parallel computation and identify the practical**

**significance of each?**

The idea is that with sequential programming, programs are ran on a single processor while parallel runs on multiple. Since parallel allows distribution of processing power among separated inputs to source task, it is optimal in cases in which complex functions are required, while in cases with Sequential it is better for single threaded applications that only need a priority or single channel focus.

**Identify the basic form of data and task parallelism in computational problems.**

Data Parallelism allows for scaling and management of large computational issues while task has poor scaling but more efficiency in a set target.

**Explain the differences between processes and threads.**

Processes reflect on programs that are running and reflect what the cpu is running while threads are handled differently. Threads are scheduled different and more lightweight resulting in faster operating time,

**What is OpenMP and what is OpenMP pragmas?**

OpenMP is a library created for multithreading models and managing threads. Pragmas is a compiler created to simplify writing code for multiple cores and threaded code.

**What applications benefit from multi-core (list four)?**

Database servers  
Multimedia applications  
Web Servers  
Compilers

**Why Multicore? (why not single core, list four)**

* -It is very difficult with current technology to continuously upgrade frequencies.
* -Deeply Pipelined Circuits
  + Issues with heat and speed of light
  + Having many servers require expensive air-conditioning
* Tech is moving towards parallelism as a common trend.
* Most applications are developed multi-threaded.