Task 3

-(5p) Identifying the components on the raspberry PI B+

USB Ports, Ethernet Port, Ethernet Controller, Audio Output Port, HDMI Output Port, Camera Port, Display Port, DSI Display Output, and the CPU/RAM

-(5p) How many cores does the Raspberry Pi’s B+ CPU have

The Raspberry Pi B+ has 4 cores.

-(8p) List three main differences between X86 (CISC) and ARM Raspberry PI (RISC). Justify you answer and use your own words (do not copy and paste)

-x86 is CISC which stands for Complex Instruction Set Computing meaning it has a larger more feature-rich instruction set that can be used and many complex instructions can access memory. Arm has RISC which stands for Reduced Instruction Set Computing meaning it has less of an instruction set, but has more general purpose registries than x86.

-Due to ARM’s Load/Store memory model, it can only use the Load/Store instructions to access memory which leads to having to first load the memory address into a register, do what you want, and then storing it back into the memory address from the register. x86 on the other hand simply can change memory without having to store it into a register.

-While ARM does have a smaller instruction set, it can execute instructions faster, the one pro/con is that this also means that when writing software it has more of an emphasis on efficient writing of code. While x86 does have a higher instruction set it can be slower, but it has a lot more instructions to do different jobs without the need of simpler instructions.

-(6p) What is the difference between sequential and parallel computation and identify the practical significance of each?

-Sequential computation is a method of computing in which a problem is put into a set of instructions are executed one at a time by a single processor. Parallel computation is a method of computing in which a problem is broken into multiple sets of instructions and can be executed simultaneously on several different processors. While Parallel computing is faster, not every computation can be formed parallel and must be done sequentially. When it can be implemented, parallel is better.

-(5p) Identify the basic form of data and task parallelism in computational problems.

-

-(6p) Explain the differences between processes and threads.

-(3p) What is OpenMP and what is OpenMP pragmas?

-(4p) What applications benefit from multi-core(list four)?

-(4p) Why Multicore? (why not single core, list four)