1. What is the difference between Computer Hardware and Software?
   * Hardware is the physical component that composes the body of a programmable machine that by itself does not perform any particular function by itself. Software is the coding that drives (like drivers) the physical hardware and directs it to act in concert with the processor to execute a particular program function or service,
   * For example when I activate game.exe (software) it directs my CPU (hardware) to direct my GPU to render the visual frames onto my monitor.
2. What is the difference between RAM and Hard Disk/Drive?
   * Think of RAM as the systems ‘short term’ memory, dependent on a power source, that holds data and resources within its addresses relevant to the current applications currently being executed.
   * The hard drive whether solid state or mechanical is our ‘long term’ memory, that doesn’t depend on a power source to retain its content. Memory is stored in the form of magnetic fluctuations assigned by the arm onto the magnetic disk; so that when power is lost the magnetic address still remains.
3. Discuss some differences between Microprocessors and Microcontrollers?
   * Microprocessor is the heart of Computer system.
   * It is just a processor. Memory and I/O components have to be connected externally. Since memory and I/O has to be connected externally, the circuit becomes large.
   * Since memory and I/O has to be connected externally, the circuit becomes large.
   * Due to external components, the entire power consumption is high. Hence it is not suitable to be used with devices running on stored power like batteries.
   * Since memory and I/O components are all external, each instruction will need external operation, hence it is relatively slower.
   * Microprocessor have less number of registers, hence more operations are memory based. Microprocessors architecture where program and data are stored in same memory module

---------------------------------------------------------------------------------------------------------------------

* + Micro Controller is the heart of an embedded system.
  + Micro controller has external processor along with internal memory and I/O components.
  + Since memory and I/O are present internally, the circuit is small. Can be used in compact systems and hence it is an efficient technique.
  + Since external components are low, total power consumption is less and can be used with devices running on stored power like batteries. Most of the micro controllers have power saving modes like idle mode and power saving mode. This helps to reduce power consumption even further.
  + Since components are internal, most of the operations are internal instruction, hence speed is fast.
  + Micro controller have more number of registers, hence the programs are easier to write.
  + Used mainly in washing machine, MP3 players

1. What are some common uses of Microcontrollers?
   * Microcontrollers are used in devise that have a set number of functions for example a portable MP3 or TV remote that is limited to a certain number of possible functionality. By contrast a PC is a ‘blank slate’ that you can program to compile any number of infinite abstract programming.
2. Which microcontroller is used in Arduino Uno?
   * According to the manual the Arduino houses the “ATmega328” microcontroller
3. What pins numbers on the microcontroller are the Arduino analog inputs 0-5 mapped to?
   * Analog input 0 – ADC0 – PCINT8 -14 A0 – 23 PC0 –
   * Analog input 1 – ADC1 – PCINT9 -15 A1 – 23 PC1 -
   * Analog input 2 – ADC2 – PCINT10 -16 A2 – 23 PC2 -
   * Analog input 3 – ADC3 – PCINT11-17 A3 – 23 PC3 -
   * Analog input 4 – ADC4 – PCINT12-18 A4 – 23 PC4 -
   * Analog input 5 – ADC5 – PCINT13-19 A5 – 23 PC5 -