

55 pts

Name: _____

Class Day / Time: _____

Due Date: _____

Lab #2: Computer Hardware

PRINT THIS PAGE OUT and fill in the appropriate responses based on the reading.

Microprocessor

Go to <http://computer.howstuffworks.com/microprocessor.htm>

Read all 6 pages

_____ language is the native language of a microprocessor.

A microprocessor does three basic things - list them below.

1. _____
2. _____
3. _____

Information is moved along an electronic pathway called a bus. The address bus _____ to memory. The data bus _____
_____. The information on whether the data is to be read from memory or written to memory is transmitted along _____ and _____ lines.

ROM stands for _____. On a PC, the ROM is called the _____ which stands for _____.

Describe what happens when the microprocessor starts (when you turn your computer on).

The boot process is used to load the _____.

RAM stands for _____. This is the “user portion” of memory. All programs and data must be in the RAM to be executed. One problem with RAM is that it is volatile which means that anything stored there is _____ when the computer is turned off.

BIOS

Go to: <http://computer.howstuffworks.com/bios.htm>

Read the first 3 pages.

The most important role of BIOS software is to _____.

It performs other tasks as well. The POST _____

checks to make sure _____.

BIOS provides a set of low-level routines used by the _____

to interface with the _____ and _____ ports. Basically, serial

ports provide a standard connector that allows you to attach devices such as modems,

printers, and digital cameras. Parallel ports also provide a connection for devices such as

printers. A serial port "serializes" data - it transmits data one byte at a time. A serial port

requires only one wire to transmit the byte. A parallel port is more efficient and faster. I has

one wire for each bit (8 wires). A serial port lowers the cable cost and makes cables smaller,

but a parallel port is 8 times faster.

The BIOS is special software that interfaces the major hardware components of your

computer with the operating system software. It is usually stored on a _____ chip

on the _____, but sometimes it is another type of ROM.

One of the first things the BIOS does is check the information stored on a

_____ (CMOS) chip. The CMOS setup

provides _____

_____.

Bits and Bytes

Go to <http://computer.howstuffworks.com/bytes.htm>

Read the next 5 pages.

Computers operate using the base-2 or _____.

The word bit stands for _____. It may contain the value of _____

or _____. When you examine a number in the binary system you will see that the place

values increase by powers of _____. A byte is a collection of _____ bits. Using one byte

you can represent number ranging from _____ to _____.

Bytes are used to hold characters in a text document. In the _____

decimal values 0 to 127 are used to represent specific _____.

Most systems make use of the full range of 256 characters using the upper 128 characters to

handle things like _____

Text is stored in _____ and on _____ using these numeric codes.

The decimal value for the character 'A' is 65, 'B' 66, 'C' 67 and so on. Show the binary representation for the character 'G' _____. **SHOW YOUR WORK.**

When you start talking about memory and auxiliary storage (hard disk drives etc.) you are talking about lots of bytes. For example kilo is a prefix used to represent 2^{10} or 1024. Because we are more comfortable with decimal numbers we use kilo to mean roughly 1000. So a device with 40K (40 kilobytes) of storage could store roughly _____ bytes.

Under "*Lots More Information*" scroll to the bottom and click on and read the binary system.

Study the sample problem on Binary Math and perform the binary addition problem below.

$$\begin{array}{r} 101101 \\ + 110101 \\ \hline \end{array}$$

Convert the following binary number into decimal. _____ **SHOW YOUR WORK.**

111011

Use the algorithm provided to convert 54 into binary. **SHOW YOUR WORK.**