Programing Logic & Design Chapter 1

1. A \_\_\_\_\_\_ is a set of instructions that a computer follows to perform a task.

b. Program

2. The physical devices that a computer is made of are referred to as \_\_\_\_\_\_

a. Hardware

3. The part of a computer that runs programs is called \_\_\_\_\_\_\_\_\_

d. The CPU

4. Today, CPUs are small chips known as \_\_\_\_\_\_\_\_\_\_

b. microprocessors

5. The computer stores a program while the program is running, as well as the data that the program is working with, in \_\_\_\_\_\_\_\_\_\_

c. Main Memory

6. This is a volatile type of memory that is used only for temporary storage while a program is running

a. RAM

7. A type of memory that can hold data for long periods of time -- even when there is no power to the computer -- is called \_\_\_\_\_\_\_

c. Secondary Storage

8. A component that collects data from people or other devices and sends it to the computer is called \_\_\_\_\_\_\_

b. input device

9. a video display is an \_\_\_\_\_\_\_\_\_\_

a. output device

10. a \_\_\_\_\_\_\_\_\_\_ is enough memory to store a letter of the alphabet or a small number

a. byte

11. a byte is made up of 8 \_\_\_\_\_

d. bits

12. In a \_\_\_\_\_\_\_\_\_\_ numbering system, all numeric values are written as sequences of 0s and 1s

b. binary

13. a bit that is turned off represents the following value: \_\_\_\_\_\_\_\_

c. 0

14. A set of 128 numeric codes that represent the English letters, various punctuation marks, and other characters is \_\_\_\_\_\_\_\_\_

b. ASCII

15. An extensive encoding scheme that can represent the characters of many of the languages in the world is \_\_\_\_\_\_\_\_\_\_\_\_

c. Unicode

16. Negative numbers are encoded using the \_\_\_\_\_\_\_\_ technique

a. Two’s Complement

17. Real numbers are encoded using the \_\_\_\_\_\_\_ technique

b. Floating Point

18. The tiny dots of color that digital images are composed of are called \_\_\_\_\_\_\_\_\_

d. Pixels

19. If you were to look at a machine language program, you would see \_\_\_\_\_\_\_\_\_\_\_\_\_

b. a stream of binary numbers

20. In the \_\_\_\_\_\_\_\_\_ part of the fetch-decode-execute cycle, the CPU determines which operation it should perform

b. decode

21. Computers can only execute code written in \_\_\_\_\_\_\_\_\_

c. in machine language

22. The \_\_\_\_\_\_ translates an assembly language into a machine language program

a. assembler

23. The words that make up a high-level programming language are called \_\_\_\_\_\_\_\_\_\_

b. mnemonics

24. The rules that must be followed when writing a program are called \_\_\_\_\_\_\_\_\_\_

a. syntax

25. A\_\_\_\_\_\_\_\_\_\_ program translates a high-level language program into a separate machine language program

b. compiler

**Section two: True or False.**

1. Today, CPUs are huge devices made of electrical and mechanical components such as vacuum tubes and switches

False

2. Main Memory is aka RAM

True

3. Any piece of data that is stored in a computer's memory must be stored as a binary number

True

4. Images, like the ones you make with a digital camera, cannot be stored as a binary number

False

5. Machine language is the only language that the CPU understands

True

6. Assembly language is considered a high-level language

False

7. An interpreter is a program that both translates and executes the instructions in a high-level language program

True

8. A syntax error does not prevent a program from being compiled and executed

False

9. Windows Vista, Linux, and Mac OS X are all examples of application software

False

10. Word processing programs, spreadsheet programs, email programs, web browsers, and games are all examples of utility programs

True

**Section 3: Short Answer.**

1. Why is the CPU the most important component in a computer?

The CPU is the most important part of the computer because it is where everything is being processed. It is also what allows you to be able to open and run programs because it is the main memory.

2. What number dose a bit that Is turned on represent? What number dose a bit that is turned off represent?

A bit that is turned off represents 0 and a bit that is turned on represents 1.

3. What would you call a device that works with binary data?

A device that works with binary data is called a computer.

4. What are the words that make up a high-level programming language called?

A high-level programing language would be called FORTRAN (FORmula TRANslator.)

5. What are the short words used in an assembly language called?

The short words used in an assembly language are called mnemonics.

6. What is the difference between a compiler and an interpreter?

A compiler is used to translate high-level language programs to a machine language program. An interpreter is a program that both translates and executes the instructions in a high level language program. It will convert the program to its machine language and then immediately execute it.

7. What type of software controls the internal operations of the computer’s hardware?

The computer or devices operating system will control all the internal operations of the computer’s hardware.

**Section 4: Exercises.**

1. Appendix D shows how to convert a decimal number to binary. Use the techniques shown in the Appendix D to convert the following decimal numbers to binary.

11 = 0000 1011

65 = 0100 0001

100 = 0110 0100

255 = 1111 1111

2. Use what you’ve learned about binary numbering system in this chapter to convert the following binary numbers to decimal:

1101 = 11

1000 = 8

101011 = 43

3. Look as the ASCII chart in appendix A and determine the codes for each letter of your first name. My name is James.

74 65 77 69 83

4. Use the web to research the history of the BASIC, C++, Java and Python programing languages and answer the following questions.

* Who was the creator of each of these languages?
* When was each of these languages created?
* Was there a specific motivation behind the creation of these languages? If so, what was it?

Basic:

* The creator for BASIC is John G. Kemeny
* Was created on May 1, 1964
* His motivation to make BASIC was because he did not like to teach Share Assembly Language.

C++:

* The creator of C++ is Bjarne Stroustrup
* Was created in 1983
* His motivation to make C++ was to add “class” to C.

Java:

* The creator of Java is James Gosling
* Was created on May 23, 1995
* He believed that the next wave in computing was the union of digital consumer devices and computers, so he wanted to make java for at home devices.

Python:

* The creator of Python is Guido van Rossum
* Was created on February 20, 1991
* He did not like the current languages at the time which where, Perl 3, C and ABC. So he took bits and pieces of each of them to make his own language.